

otherwise using it. The bulk of the ragweed growing on vacant lots, along highways and in alleyways, however, must be controlled on a city-wide basis.

Highway and public works departments with a practical knowledge of the factors which promote the growth of ragweed plants, can do much to prevent their growth in the development and maintenance of streets and highways. There is a striking difference between the amount of ragweed growing along the depressed speedways in New York City and that growing along service roads feeding these highways, particularly in the suburban areas of the city. Plant cover is required to control erosion along the banks of the depressed highways and this cover, which is usually grass, Japanese honeysuckle or barberry bushes, provides the competition which prevents the growth of ragweed.

Due to a marked increase in city-wide budget costs during this post-war period, it was not possible to purchase new equipment. Therefore, all available community resources were utilized in the ragweed control program. The Commissioner of Health secured the whole-hearted support of the Mayor who personally requested the coöperation of a number of city departments which were most helpful in the development of a practical control program.

The Health Department was the coordinating agency having responsibility for planning the budget and providing technical and supervisory guidance. It also carried on education and public relations on a city-wide basis. Several ragweed sufferers' groups assisted in this part of the program.

The Borough Presidents' Offices, that have jurisdiction over the streets in New York City assumed responsibility for the spraying. They engaged the labor, routed the trucks and supervised the men doing the work. They also released the information regarding the

progress of the program in each borough.

The Department of Sanitation loaned the street flushers which were converted to provide power units for the spraying operations. The Department of Health and the Borough Presidents' Offices co-operated in properly equipping the trucks with hose connections, spraying nozzles and the like. The Park Department sprayed ragweed growing on the property under its jurisdiction. The Police Department, through its precinct safety inspectors, mapped the city showing the location and extent of all of the ragweed growing within its limits.

It is recognized that the control of ragweed is for the purpose of reducing pollen and, thereby, hay fever symptoms and should not be thought of in terms of a few square miles. The area of the City of New York covers over 320 square miles, but maximum benefits will require supporting programs in the adjacent communities. Considerable work has been done by the department to promote an interest in ragweed control programs throughout the metropolitan area of New York. This area includes sections of the States of New York, Connecticut, and New Jersey, and the area within a 50 mile radius of central Manhattan.

New York University, in coöperation with the Department of Health, conducted a course in the "Control of Plants Detrimental to Health." Two hour sessions were held on 6 Friday evenings during the spring of 1947. Over 100 people from the metropolitan area and even beyond took the course. A number of communities in this area initiated ragweed control programs, and it is anticipated that the number will increase from year to year as the success of these programs is demonstrated.

The Brooklyn Botanic Garden and the City Health Department sponsored a joint conference on the "Control of Plants Harmful and Annoying to Man."

American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

January, 1948

Number 1

CONTENTS

	PAGE
Child Feeding in Europe Under the International Children's Emergency Fund <i>Martha M. Eliot, M.D.</i>	1
Aspects of Improving the Food Supply of the Orient <i>Robert R. Williams, D.Sc.</i>	8
An Analysis of the Wilson-Worcester Method for Determining the Median Effective Dose of Pertussis Vaccine <i>Margaret Pittman, Ph.D., and J. E. Lieberman, M.S.</i>	15
An Abridged Table of Probits for Use in the Graphic Solution of the Dosage—Effect Curve <i>Edward S. Weiss, M.S.P.H.</i>	22
Preservice and Inservice Preparation in Health of School Personnel—A Symposium: Role of the Department of Education and the Department of Health in the Inservice Preparation of Classroom Teachers, School Administrators, School Nurses, and School Physicians <i>L. E. Burney, M.D., M.P.H., and Ben H. Watt</i>	25
Preservice Preparation of Teachers and School Administrators . . . <i>Elizabeth Kelley, Ed.D., Bernice Moss, Ed.D., and Dorothy B. Nyswander, Ph.D.</i>	30

Continued on page vii

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear. These are not to be regarded as expressing the views of the American Public Health Association unless formally adopted by vote of the Association.

Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the Reader's Guide in your Library.

Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

NOTICE:—Subscription \$7.00 per year for United States, Cuba and Mexico, South and Central America; \$7.50 for Canada; and \$8.00 for other countries. Single copies 70 cents postpaid. Copyright, 1948, by American Public Health Association.

Address correspondence regarding editorial contents and manuscripts to C.-E. A. Winslow, Dr.P.H., Editor, 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932, under the Act of March 3, 1879.

Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917.

TABLE 3

Salary Range	Supervisory and Consultant	Staff Level	Graduate Registered
Total Reported	534	1,530	647
Median	\$3,100-\$3,200	\$2,300-\$2,400	\$2,000-\$2,100
Highest	\$5,500-\$5,600	\$3,500-\$3,600	\$3,200-\$3,300
Lowest	Under \$2,400	Under \$1,800	Under \$1,600
Number Receiving			
More than \$3,000	363	64	2
Less than \$2,400	3	842	597

mode, affecting 142 persons, between \$2,400 and \$2,600. Only 6 per cent received \$5,000 or more and nearly one-fourth less than \$2,400. As to regional medians, the median for Eastern and for North and South West Central states was equal to that of the country as a whole, that for the 12 Southern states lower, and for other areas higher.

Public health nursing personnel was divided into four categories—directors of public health nursing, supervisory and consultant nurses, staff level nurses, and graduate registered nurses. The three latter groups were found in the ratio of one, three, and one and one-fifth.

All but 2 of the 48 states reported salaries for directors of public health nursing. These salaries ranged from \$3,200 to \$7,375 with \$4,200 as the median. In 7 states only was the salary \$5,000 or over; in 8 states it was \$3,600 or less.

The median salary for the supervisory and consultant group was between \$3,100 and \$3,200. For the 534 reported positions salaries range from less than \$2,400 to \$5,600. However only 5 persons received \$4,800 or over, and only 33 received \$4,000 or more, while about one-third received less than \$3,000.

The ranges of salaries for the three groups of nurses in the field of public health other than directors are shown in Table 3.

State directors of dental health serv-

ices were reported for 44 states. The highest salary paid was \$7,100 in one state, a state in which the director of maternal and child health, of venereal disease control, of tuberculosis control, and of sanitary engineering were paid respectively \$7,680, \$7,080, \$8,280, and \$8,280. The median salary for dental health directors was \$5,400. Fourteen salaries were below \$5,000 and 8 were above \$6,000.

State directors of vital statistics were reported for 47 states. The salary range for this group of workers was from \$2,400 to \$8,000 while the median was \$4,500. In only 3 states was this position paid at \$6,000 or more and in 15, less than \$4,000.

Nutritionists. Salary reports were received for approximately 100 nutritionists on the staffs of state health departments. For these the median salary was \$3,000-\$3,100, affecting 14 persons. Only 6 persons received more than \$4,000 and 18 received less than \$2,700. Nearly half of the total number received between \$2,700 and \$3,200. Because of the small numbers involved this group was not classified either by state or by region.

It is now expected that similar studies will be made annually. It is hoped that the experience of this first study can be used to refine job definitions and classifications so that comparisons will be meaningful in terms of training and responsibility.

Greater Dishwashing Sanitation Is Assured by the **Salvajor**

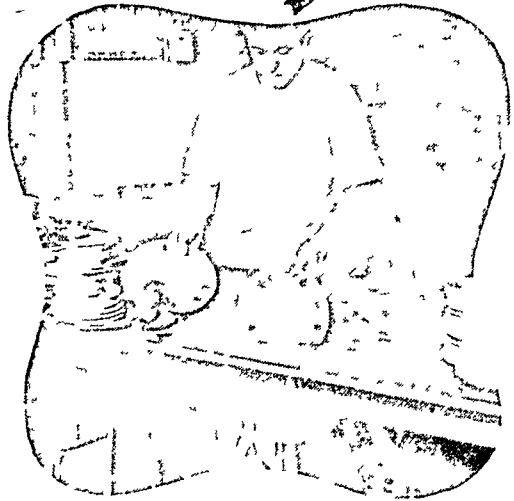
**...the Scrapping and
Pre-Washing Machine
that ...**

...Decreases Bacteria Count

Salvajor pre-washed tableware goes into the dishwashing machine nearly clean. This lowers the bacteria count within the dishwashing machine, and the washed dishes and silverware are consequently more sanitary.

...Keeps Dishwashing Machine Wash Water Cleaner

The dishwashing machine does a better job, because scrapping and pre-washing in the Salvajor's gusher of warm water reduces the refuse in the dishwashing machine wash water. Water used by the Salvajor is maintained at a temperature which removes grease yet does not bake dairy products on dish surfaces.



...Improves Dish Pantry Sanitation

Scrapping with the Salvajor eliminates messy scrapping blocks, open garbage cans. Garbage collected in the Salvajor scrap basket is cleaner; rancid, odor-forming liquids are washed away.

Many food serving establishments use the Salvajor to protect public health. The Salvajor is acknowledged by many sanitarians to be the outstanding advancement toward greater dishwashing efficiency in recent years.

APPROVED BY HEALTH DEPARTMENTS

The Salvajor is not a garbage disintegrator. It reduces garbage volume by removing liquid content. The machine has an auxiliary over-flow which prevents back-siphonage.

Health departments in New York City, Los Angeles, Chicago and other metropolitan areas have approved the Salvajor. The Salvajor has been designed to comply with health and sanitation regulations throughout the country.

**FOR FULL INFORMATION,
Mail the Coupon!**



☐ DEPT PH
☐ THE SALVAJOR COMPANY
☐ 118 Southwest Blvd
☐ Kansas City 8, Missouri
☐ Please send me complete information about the Salvajor.
☐ Name.....
☐ Address.....
☐ City.....State.....

Waterman Fund for the Combat of Dietary Diseases, Research Corp.

Maternal and Child Health Section

Thelma N. Vonarx, R.N., State Hospital, Philipsburg, Pa., Superintendent

Public Health Education Section

Gladys A. Alexander, P. O. Box 1665, Santa Fe, N. M., Exec. Secy., New Mexico Tuberculosis Assn.

Maxine Beeston, M.P.H., 203 Dillingham Bldg., Honolulu, T. Hawaii, Health Educator, Chamber of Commerce

Dorothy K. Bella, R.N., M.A., 535 Wynnewood Road, Pelham Manor, N. Y., Educational Director, New Rochelle Hospital School of Nursing

Ray E. Brown, 950 E. 59th St., Chicago 37, Ill., Assoc. Professor of Hospital Administration, University of Chicago Clinics

Robert F. Brown, M.D., St. Luke's Hospital, 1439 S. Michigan Ave., Chicago 5, Ill., Medical Director

Ana L. Correa-Fontanez, M.P.H., Cristobal Colon 15, Caguas, Puerto Rico, Health Educator, Public Health Unit

Dorothy L. Craig, 1604 Franklin St., Pierre, S. D., Health Educator, State Board of Health

Judith Danielsen-Carrion, Celis Aguilera 36, Caguas, Puerto Rico, Health Educator

M. Elizabeth Davis, M.S.P.H., 247 Church St., Sumter, S. C., Health Educator, State Board of Health

Gloria A. Fernandez, 63 S. Ashford St., Guayama, Puerto Rico, Health Technician, Humacao Schools, Dept. of Education

Eugenia Garcia-Ruiz, M.S.P.H., Apartado 3, Rio Piedras, Puerto Rico, Health Educator, Dept. of Education

Elisha M. Herndon, 107 Market St., Durham, N. C., Executive Vice-President, The Hospital Care Assn. Inc.

Leon N. Hickernell, Vancouver General Hospital, Vancouver, B. C., Canada, Director

Daniel Horn, Ph.D., 47 Beaver St., New York 4, N. Y., Chief of Field Surveys, Statistical Research Dept., American Cancer Society

James P. Kranz, Sr., 405 Chamber of Commerce Bldg., Nashville 3, Tenn., Exec. Secy., Tennessee Tuberculosis Assn.

Robert S. MacDonough, USN Training Center, Dispensary, San Diego, Calif., Sanitation Officer

John C. Mackenzie, M.D., C.M., D.P.H., 3516 Prytania St., New Orleans, La., Director, Touro Infirmary

Sherman D. Meech, 41 Chestnut St., Rochester

4, N. Y., Managing Director, Rochester Hospital Service Corp.

Fernando M. Monserrate, M.D., Univ. of Puerto Rico, Rio Piedras, Puerto Rico, Director, Students Health Service

Elmer F. Nester, 4904 Delmar Blvd., St. Louis 8, Mo., Exec. Director, Group Hospital Service, Inc.

Joseph G. Norby, 3321 N. Maryland Ave., Milwaukee, Wis., Administrator, Columbia Hospital

Abraham Oseroff, M.A., Farmers Bank Bldg., Pittsburgh 22, Pa., Vice President and Secretary, Hospital Service Assn. of Pittsburgh

Donald E. Porter, 215 E. 26th St., New York 16, N. Y., Field Asst. Tuberculosis Committee, N. Y. Tuberculosis and Health Assn.

Oliver G. Pratt, Rhode Island Hospital, Providence, R. I., Exec. Director

Verna C. Stevens, 65 Belknap Ave., Yonkers, N. Y., Student, New York Univ.

Sik Ien Tjoa, M.D., Oendaan Wetan 50, Soerobaja, Java, N.E.I., Private Practice

Maryrose J. Tomassi, Univ. of N. C., School of Public Health, Chapel Hill, N. C., Junior Asst. Nurse Officer, U.S.P.H.S.

Ruby E. Weeks, M.S.P.H., 1806 Maple Ave., Evanston, Ill., Health Educator, Evanston Health Dept.

Harvey H. Weiss, 717 Lake Drive, Baltimore 17, Md., Director, Sinai Hospital

Lucius R. Wilson, M.D., Episcopal Hospital, Front & Lehigh, Philadelphia 25, Pa., Superintendent

Public Health Nursing Section

Genevieve I. Anderson, M.P.H., 3836 1st Ave. South, Minneapolis 8, Minn., Industrial Nursing Consultant, State Dept. of Health

Louise A. Anderson, 6125 Coplin Ave., Detroit 13, Mich., Asst. to Child Welfare Consultant, Detroit Dept. of Health

Marjorie Duvillard, Le Bon Secours, 15 Av. Dumas, Geneva, Switzerland, Director, School of Nursing

Ana Falcon, Hospital de la Capital, Santurce, Puerto Rico, Principal, City Hospital School of Nursing

Helen E. Kater, R.N., 1128 S. Mulberry St., Muncie, Ind., Director, Visiting Nurse Assn.

Elwill Mattson, R.N., 1101½ Massachusetts, Lawrence, Kan., Public Health Nurse, Lawrence-Douglas County Health Dept.

Sarah R. Miller, Dyer County Health Dept., Dyersburg, Tenn., Senior Public Health Nurse

Ruth Pearce, 125 West Forrest, Brigham, Utah, Public Health Nurse, State Health Dept.

Contents—Continued

PAGE

Contribution of the Medical School and the School of Public Health . . . 36
Ira V. Hiscock, Sc.D.

Contribution of the School of Nursing and the Graduate Course in
 Public Health Nursing 39
Ruth Freeman, R.N.

Frozen Precooked Foods 44
Bernard E. Proctor, Ph.D., and Arthur W. Phillips, Jr., Sc.D.

Dog, Fox, and Cattle Rabies in New York State. Evaluation of Vaccination
 in Dogs 50
Robert F. Korns, M.D., and A. Zeissig, D.V.M.

Death, Defect, and Disability in Prenatal Life. An Epidemiologic Con-
 sideration 66
John E. Gordon, M.D., and Theodore H. Ingalls, M.D.

Community Health Services for Children in Eight Selected States 75
*Charles L. Williams, Jr., M.D., M.P.H., John P. Hubbard, M.D.
 and Katherine Bain, M.D.*

Public Health and Bedside Home Nursing Services 82
Haven Emerson, M.D., Referee

Public Health Degrees and Certificates Granted in the United States and
 Canada During the Academic Year, 1946-1947 86
 Committee on Professional Education
W. P. Shepard, M.D., Chairman

Editorials:

One World 89

Public Health in the Eightieth Congress 90

The Practical Nurse—Her Functions and Her Training 93

A Significant Study of Epidemic Gastroenteritis 95

Recommended Methods for Rabies Control—Adopted by the Committee on
 Research and Standards. October 6, 1947 97

Criteria for Accreditation 100

Criteria for Institutions To Be Accredited for the Degree of Master
 of Public Health (Diploma of Public Health in Canada) and for the
 Degree of Doctor of Public Health, for the Academic Year 1948-1949

Committee on Professional Education

Clearing House on Public Health Salary Information 103

Credit Lines 108

Books and Reports 114

Books Received 121

A Selected Public Health Bibliography 122
Raymond S. Patterson, Ph.D.

Association News 125
 Applicants for Membership. Deceased Member.

Employment Service 128

News from the Field 134

Conferences and Dates 144

Reprint prices furnished upon request

and Director of Public Health, City of Grand Junction

Ralph G. Walker, 743 South Grand View St., Los Angeles 54, Calif., Exec. Director, Hospital Service of Southern California

DECEASED MEMBERS

David B. Lepper, M.D., Bluefield, W. Va., Elected Member 1923, Elected Fellow 1927, Health Officers Section.

Marshall W. Meyer, M.D., M.P.H., Madison, Wis., Elected Member 1940, Elected Fellow 1947, Health Officers Section.

D.C.Y. Moore, M.D., Manchester, Conn., Elected Member 1920, Elected Fellow 1937, Health Officers Section.

Frances Stern, Boston, Mass., Elected Member 1921, Elected Fellow 1935, Food and Nutrition Section.

Ralph E. Tarbett, Takoma Park, Md., Elected Member 1928, Elected Fellow 1930, Engineering Section.

Howard S. Allen, M.D., Woodbury, Conn.,

Elected Member 1944, Health Officers Section.

James F. Arbuckle, White Plains, N. Y., Elected Member 1946, Public Health Education Section.

Joe Davis, Seattle, Wash., Elected Member 1943, Laboratory Section.

Elsie Hickey, Toronto, Ontario, Canada, Elected Member 1944, Public Health Nursing Section.

Stroud Jordan, Ph.D., New York, N. Y., Elected Member 1944, Food and Nutrition Section.

James W. Loughlin, M.D., Newcastle, Me., Elected Member 1933, Epidemiology Section.

Albert E. Rector, M.D., Appleton, Wis., Elected Member 1943, Unaffiliated.

Holman Taylor, M.D., Fort Worth Tex., Elected Member 1930, Public Health Education Section.

Harley A. Bunner, Atlanta, Ga., Elected Member 1946, Laboratory Section.

W. W. Hume, M.D., Beckley, W. Va., Elected Member 1931, Health Officers Section

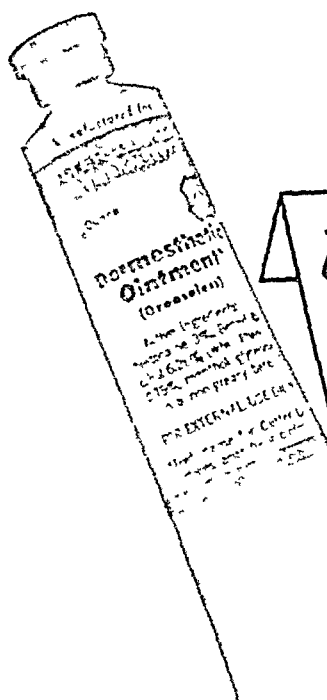
DR. CARL BUCK JOINS UNIVERSITY OF MICHIGAN FACULTY

Carl E. Buck, Dr.P.H., was appointed to the staff of the Committee on Administrative Practice, American Public Health Association, March 31, 1931. During most of the intervening years he has served as Field Director for the Association and the committee. He has now resigned from this position to become Resident Lecturer in Public Health Practice at the University of Michigan School of Public Health, Ann Arbor. His special interest will continue in the field of state and local health administration.

Dr. Buck's host of friends throughout the North American Continent will be glad to know that his unusual talents and his wealth of practical experience have been transferred to a point where his influence may be extended through his students to influence public health practice in the future. He has acquired the kind of information and experience possessed by almost no other person during the last 17 years. His mark has been made on the Committee on Ad-

ministrative Practice, on the Association, and upon local and state health services in North America.

Besides many studies and reports which Dr. Buck has made on local health agencies, both official and voluntary, there should be recorded the unprecedented series of state studies conducted by Dr. Buck during the last 11 years. Beginning with a study of Ohio in 1931, Dr. Buck's interests were extended through studies in Arizona in 1936; Massachusetts, 1936; Oklahoma, 1938; Michigan, 1939; Florida, 1939; Alaska, 1940; Louisiana, 1941; Manitoba, 1941; Illinois, 1942; Washington, 1942; Alaska (re-study), 1943; California, 1943; Oregon, 1944; Utah, 1944; Idaho, 1945; Colorado, 1946; Wyoming, 1946; Montana, 1946; North Dakota, 1947. After completing a second study of Massachusetts during the fall of 1947, Dr. Buck finished his term of service with the Association by a re-study of the California State Department of Health. Dr. Buck has announced that he will continue an interest in field work in a consulting capacity.



1. FAST

Dermesthetic Ointment contains benzyl alcohol, which works fast but doesn't last. So the second agent takes over . . .

2. OVERLAPPING

Phenol offers intermediate relief —with moderately prolonged effect. And it in turn is overlapped by the third agent . . .

3. PROLONGED

Benzocaine, which has already begun to soothe the affected areas, continues to relieve itching over a prolonged period.

NEW TRIPLE-ACTION



RELIEF!

CUTTER DERMESTHETIC OINTMENT* gives 3-phase control of pruritus! Acts fast—medium—slow! It relieves itching at once! It prolongs the soothing effect! It minimizes psychic trauma.

And here's the reason why...Cutter Dermesthetic Ointment provides three anesthetic properties with overlapping action.

Fast-acting, long-lasting Dermesthetic Ointment stops itching caused by poison ivy, poison oak, insect bites, industrial rashes and other pruritic conditions. Greaseless, it does not dissolve and spread oil-soluble irritants. It can be removed easily, will not stain skin or clothes.

While not intended as a bactericidal agent, Dermesthetic Ointment with its benzyl alcohol and phenol content is bacteriostatic. This bacteriostatic action, in combination with the quick, lasting relief from pruritus, helps to avoid possible infection from scratching.

Try it, won't you? Clinical samples will be sent on request.

*Cutter's trade name for Anesthetic Ointment

CUTTER

For Biological and
Physiological Specimens

CUTTER LABORATORIES • BERKELEY 1, CALIF.

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

(Supplemental to list in April Journal)

POSITIONS AVAILABLE

Epidemiologist for responsible state-wide program in communicable disease control requiring an experienced health officer.

Senior Bacteriologist for responsible positions in state public health Laboratories. Master's degree or experience necessary. Monthly salary \$250-\$315.

Junior Bacteriologist for positions available in state public health laboratories. Bachelor's degree with major in bacteriology or immunology required. Monthly salary \$210-265. Contact Personnel Office, Kansas State Board of Health, Topeka, Kans.

Employment Opportunities in Arizona Wanted—Medical and Other Professional Personnel in Arizona

Director of Tuberculosis Control Division, \$6,000 a year

Director of Maternal and Child Health Division, \$6,000 a year

Two Directors of Local Health Units, \$5,100 a year

Maternal and Child Health Clinician, \$5,100 a year

Clinician in the Special Field of Cancer, \$5,100 a year

Director, Hospital Survey, Planning and Construction, \$6,000 a year

Nutrition Consultant, \$3,360 a year

Dental Hygienist, \$2,400 a year

Assistant Director of Health Education, \$2,880 a year

Psychiatric Social Work Consultant, \$3,360 a year

Consulting Psychologist, \$3,360 a year

Senior Psychologist, \$2,880 a year

Junior Psychologist, 2,400 a year

Personnel Officer, \$3,000 a year

Vital Statistician, \$2,880 a year

Public health program operates under a Merit System of Personnel Administration. For further information write to: J. P. Ward, M.D., Superintendent of Public Health, Phoenix, Ariz.

Public Health Nurse wanted with Public Health Certificate. Beginning salary \$3,051 to maximum of \$3,577. Car furnished. Permanent tenure, vacation and sick leave, 5 day week. For further in-

formation apply to the Civil Service Board, City Hall, Dearborn, Mich.

Nurse for Public School System of Mount Clemens. Beginning salary \$3,200-\$3,300 depending upon training and experience. Write Box A-10. Employment Service. A.P.H.A.

Public Health Administrator. A position combining that of public health engineering and the supervision of personnel, accounting and properties in a health unit containing 57 full-time positions. The area is adjacent to the District of Columbia, has a population of 130,000, and is both rural and suburban. Salary \$4,400-\$5,060, plus a ten per cent cost of living increase. Apply to Civil Service Commissioner of Montgomery County, Rockville, Md.

Chief Health Officer for City Health Department. Department operating efficiently. Required: M.D., preferably with public health training and experience. State experience and salary expected. Apply to City Manager, Bluefield, W. Va.

City Health Officer for New England industrial city of 20,000 population; full-time position with major emphasis on child and school health program; starting salary \$6,000. Reply in detail to Board of Health, City Hall, North Adams, Mass.

Medical Director, Municipal Tuberculosis Hospital, bed capacity 115. Permanent, full time. Salary \$4,620 with full maintenance. Reply Box 583, Fall River, Mass.

Physician, as Chief of the Bureau of Tuberculosis in charge of all public health tuberculosis activities (no institutional work). Salary \$10,380 plus \$25 cost of living monthly bonus. Write to the President, Board of Health, Territory of Hawaii, Honolulu, Hawaii, by airmail.

Physician as Director City-County Health Department, Eau Claire, Wis., population 56,000; staff of 14; ideal

American Journal of Public Health

and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

February, 1948

Number 2

CONTENTS

	PAGE
Recent Developments in Cancer Control	191
<i>Austin V. Deibert, M.D.</i>	
The Cell Smear Method of Diagnosing Cancer	202
<i>George N. Papanicolaou, M.D., Ph.D.</i>	
Public Health Nursing in the Cancer Control Program of the U. S. Public Health Service	206
<i>Rosalie I. Peterson, R.N.</i>	
Epidemiology of Colorado Tick Fever	211
<i>Lloyd Florio, M.D., Dr.P.H., and Mabel Stewart Miller</i>	
Post-war Public Health Problems in a Large American City	214
<i>Bruce H. Douglas, M.D.</i>	
Essentials of Good Local Public Health Administration	219
<i>Summary of a Panel Discussion Prepared by Richard F. Boyd, M.D.</i>	
Report of the Committee on Water Supply	221
<i>C. R. Cox, Chairman</i>	

Continued on page vi

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear. These are not to be regarded as expressing the views of the American Public Health Association unless formally adopted by vote of the Association.

Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the Reader's Guide in your Library.

Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

NOTICE:—Subscription \$7.00 per year for United States, Cuba and Mexico, South and Central America; \$7.50 for Canada; and \$8.00 for other countries. Single copies 70 cents postpaid. Copyright, 1948, by American Public Health Association.

Address correspondence regarding editorial contents and manuscripts to C.-E. A. Winslow, Dr.P.H., Editor, 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932, under the Act of March 3, 1879.

Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917.

SANITARY SURVEY

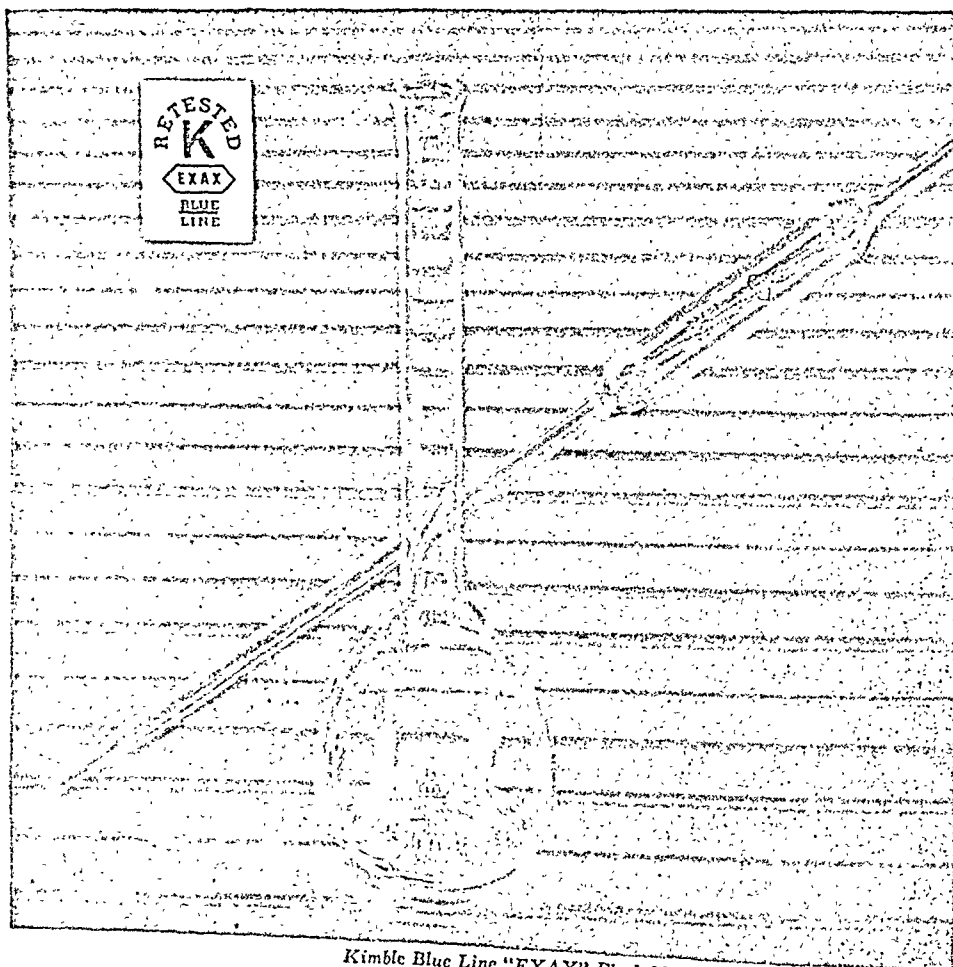
It seems theoretically possible to control epidemics of air-borne contagion by covering dynamic foci with threshold sanitary ventilation; these foci constitute the primary sources of contagious epidemics in the community. Any attempt to tabulate the relative importance of various atmospheres encountered in experimental studies discloses a lack of trustworthy information on the essential channels of commerce in contagion. Nevertheless, in experimental design and the interpretation of epidemiological data, the relative insignificance of unblockaded channels is tacitly assumed.

Before designing a municipal water supply, the static factors which govern spread of intestinal infection, amount of pollution (I), size of aggregation (S), and effective dilution (r), must be surveyed. Control of static factors which determine effective contact rate and exposure time is not enough to prevent contagious epidemics by sanitary ventilation; dynamic factors which determine intra-aggregational reexposure linkage of generations, and the hazard of inter-aggregational linkage of exposure within the community, i.e., the chance of introduction of infection to and dispersion from social groups, must also be evaluated. A sanitary survey of the various atmospheres breathed by aggregations under observation is required to evaluate methods of control of air-borne infection. Sanitary discrimination in

the dynamic control of air-borne contagion is even more essential than in the static control of water- or milk-borne infection.

REFERENCES

1. Wells, W. F. Apparatus for Study of the Bacterial Behavior of Air. *A.J.P.H.*, 23:58-59 (Jan.), 1933.
2. Wells, W. F., and Wells, M. W. The Measurement of Sanitary Ventilation. *A.J.P.H.*, 28:343-350 (Mar.), 1938.
3. Wells, W. F. Air Disinfection in Day Schools. *A.J.P.H.*, 33:1436-1443 (Dec.), 1943.
4. Anderson, G. W., Hamblen, A. D., and Smith, H. M. Typhoid Carriers. A Study of their Disease Producing Potentialities over a Series of Years as Indicated by a Study of Cases. *A.J.P.H.*, 26:396-405 (Apr.), 1936.
5. Wilson, E. B., and Worcester, Jane, The Law of Mass Action in Epidemiology. *Proc. National Academy of Sciences*, 31:24-29, 1945.
6. Wells, W. F., Wells, M. W., and Crumb, C. On Air-borne Contagion, to be published.
7. Wells, M. W. Ventilation in the Spread of Chicken Pox and Measles within School Rooms. *J.A.M.A.*, 129:197-200 (Sept. 15), 1945.
8. Chapin, C. V. Measles in Providence, R. I., 1858-1923. *Am. J. Hyg.*, 5:635-655, 1925.
9. Wells, W. F., and Wells, M. W. Air-borne Infection as a Basis for a Theory of Contagion, Aerobiology. *Publ. 17, Am. Assn. Adv. Sc.*, 99-101, 1942.
10. Perkins, J. W., Bahlke, A. M., and Silverman, H. F. Effect of Ultra-violet Irradiation of Classrooms on Spread of Measles in Large Rural Central Schools. *A.J.P.H.*, 37:529-537 (May), 1947.
11. Wells, W. F., Ratcliffe, H. L., and Crumb, C. On the Mechanics of Droplet Nuclei Infection, Quantitative Experimental Air-Borne Tuberculosis in Rabbits. *Am. J. Hyg.* (Jan.), 1948.
12. Wells, W. F. Bactericidal Irradiation of Air. *J. Franklin Inst.*, 230:347-372 (Mar.), 1940.
13. Wells, W. F. Ray Length in Sanitary Ventilation by Bactericidal Irradiation of Air. *J. Franklin Inst.*, 238:185-193 (Sept.), 1944.
14. Wells, W. F. Radiant Disinfection of Air. *Arch. Phys. Therapy*, 23:143-148 (Mar.), 1942.
15. Wells, W. F. Circulation in Sanitary Ventilation by Bactericidal Irradiation of Air. *J. Franklin Inst.*, Nov., 1945.
16. Wells, W. F., and Wells, M. W. Dynamics of Air-borne Infection. *Am. J. M. Sc.*, 206:11-17 (July), 1943.
17. Wells, W. F., Wells, M. W., and Wilder, T. S. The Environmental Control of Epidemic Contagion. I. An Epidemiologic Study of Radiant Disinfection of Air in Day Schools. *Am. J. Hyg.*, 35:97-121 (Jan) 1942.



Kimble Blue Line "EXAX" Flask No. 28010 and Pipette No. 37000.

Retempered...Retested...READY ...to meet your most exacting demands

• Clinical and Scientific laboratory personnel have shown such preference for Kimble Blue Line "EXAX" graduated glassware that it has become America's favorite brand.

We can think of no better endorsement of "EXAX's" high quality...its ability to function in a great range of exacting assignments with uncompromising accuracy.

Every piece of Blue Line "EXAX"

is thoroughly retempered after forming to give added strength and durability. Every piece is retested...making doubly sure that it conforms to the high accuracy standard to which it is calibrated.

You can order Kimble Blue Line "EXAX" glassware with every confidence in its accuracy, dependability and uniform high quality. Consult your laboratory supply dealer.

For assurance, look for the Kimble K—the visible guarantee of invisible quality.

KIMBLE GLASS TOLEDO 1, OHIO
Division of Owens-Illinois Glass Company



When writing to Advertisers, say you saw it in the JOURNAL

little or no pasture available, and nearly all the feed is brought in from other places. The sources of the feed for the cows are scattered over thousands of miles. Although the chief item, hay, is trucked in from the nearby Imperial and San Joaquin Valley, grain comes from northwestern United States, soy beans from the mid-West, copra meal from the Philippines, and molasses from Hawaii.

Because of the high cost of feed and land, almost all of the cows are imported from areas where pasture is available. They are usually bought as at least 3 year old animals, or so-called "second calf heifers." Although most of them are raised in California in the San Joaquin and Sacramento Valleys, many come from Oregon, Washington, Idaho, Montana, Utah, and Colorado.

Because of the lack of pasture the cows are concentrated in pens at most dairies and the considerable manure which accumulates in the pens is removed by scraping it with a bull dozer to the center of the pen where it is loaded into trucks and hauled away to fertilizer plants.

The dairies themselves consist of pens, an open milking barn, a closed feed barn, and piles of baled hay protected on the top against rain. Although most of the population in the area is concentrated in towns of a few thousand, there are many residences quite close to the dairies, and there are occasional dairies in the towns. Over 400 dairies are to be found here, and few people can travel far from their homes without passing one or more of them.

Methods of Investigation—

Through the cooperation of local physicians the names of persons who had undergone recent febrile attacks were obtained. Cases of virus pneumonia were especially sought. These people were then visited, interviewed, and

blood samples were taken. As might have been expected in the spring, upper respiratory infection provided the principal group of illnesses to be differentiated from Q fever. This differentiation could be done in most cases by taking a history of the disease and asking specific questions about upper respiratory symptoms. The presence of sore throat, running nose, and severe cough were valuable in making a diagnosis of upper respiratory infection. The complement-fixation test was of great help in arriving at a diagnosis of Q fever.

Complement-fixation serum tests were done with the technic described by Bengtson¹ with antigen prepared by method II² from yolk sacs infected with the Italian (Henzerling) strain of *Rickettsia burneti*. Results are given as the highest dilution at which 3+ to 4+ fixation was seen. Samples of blood collected in California were shipped by air mail to the laboratory in Bethesda, Md., where the sera and clots were separated. The clots were used when indicated for attempted isolation of rickettsiae. Certain precautions were taken for shipment, stoppers were fastened down securely with adhesive tape in order that they could not be loosened by the low pressures encountered in air transport, and the mailing containers were packed tightly with cotton in order to prevent breakage.

The Diagnosis of Clinical Disease in Human Beings—

Table 1 lists the clinical cases of Q fever found by preliminary investigations. The patients seen by physicians not familiar with Q fever were ordinarily diagnosed as "virus" or "atypical" pneumonia. Pneumonitis was demonstrated when roentgenograms were done.

The diagnosis of Q fever in each case was based on a typical clinical history with confirmatory laboratory findings. The typical clinical history was the same

Development of the Massachusetts Blood and Blood Derivatives Program	226
<i>Geoffrey Edsall, M.D., Loren D. Moore, M.D., Vlado A. Getting, M.D., Dr.P.H., and Dwight J. Mulford, Ph.D.</i>	
Studies Showing the Effect of Changes in the New (9th) Edition of Standard Methods in Relation to the Bacteriological Analysis of Milk	233
<i>Robert C. Thomas, M.S., Benjamin S. Levine, Ph.D., and Luther A. Black, Ph.D.</i>	
A City Department of Health Program on the Improvement of Mechanical Dishwashing	239
<i>Walter L. Mallmann, Ph.D., Leo Zaikowski, and David Kahler</i>	
Test for Detergents	246
<i>William G. Walter</i>	
Some Recent Trends in Vital Statistics Registration Practices	253
<i>Albert E. Bailey, Ph.D.</i>	
Editorials:	
Progress in Cancer Control	259
What Sort of National Science Foundation Do We Need?	260
"By His Tongue Shall We Know Him"	263
Letters to the Editor:	
Members of the Seminar in Maternal and Child Health, School of Public Health, University of California	265
Anne H. McCabe	266
Clearing House on Public Health Salary Information	267
Health Officer for a Day—as told by Bill Siler to Charles B. Frasher	271
Credit Lines	274
Books and Reports	283
A Selected Public Health Bibliography	291
<i>Raymond S. Patterson, Ph.D.</i>	
Books Received	293
Association News	295
76th Annual Meeting. Association Committee on Child Health. Photograph of Milk Sediment Standards Available. Notice to Biologists Interested in Public Health. Applicants for Membership. Deceased Members.	
Employment Service	300
News from the Field	305
Conferences and Dates	317

established in yolk sacs of hens' fertile eggs by passage from guinea pigs.

Epidemiological Features of the Clinical Cases in Human Beings—

Table 1 shows that the age of the clinical cases studied varied from 15 to 62 years. Twelve males were involved, as compared to 5 females. The cases occurred from November, 1946, to May, 1947, and were still occurring in October, 1947. It seems reasonable to assume that Q fever has been occurring here for some time. As yet no seasonal incidence is apparent.

The striking feature of the epidemiology is its peculiar relationship to dairies. It can be seen that in all of the cases except two a history was obtained of having visited dairies or of having lived near them. And, as has been mentioned, it is difficult to travel far in this region without passing cow pens. Yet none of the patients had been actually employed by a dairy, and most of them had probably not come within 10 to 20 feet of a cow, so that their contact with cows was more remote than that of the dairy workers which are considered next.

Serologic Studies of Persons Not Clinically Ill With Q Fever—

We have examined sera of many persons from outside the laboratory in the past and our experience has been that

until actual cases of Q fever were encountered in epidemics, the sera were uniformly negative. The sera of patients undergoing Q fever have given clear-cut results, most patients developing antibodies to high titer during the course of their illness. However, the results on sera of persons from the milk shed area were distinctly different, as will be seen from examination of Tables 2, 3, and 4.

TABLE 2

Complement-fixation for Q Fever on Sera of Dairy Workers

No	Time in Area	Time Worked in local dairies	Titer
1	29 yrs	29 yrs	16
2	24 yrs	24 yrs	0
3	22 yrs	22 yrs	8
4	18 yrs	18 yrs	0
5	15 yrs	15 yrs	0
6	14 yrs	12 yrs	0
7	12 yrs	12 yrs	0
8	10 yrs	10 yrs	0
9	7 yrs	7 yrs	0
10	1½ yrs	1½ yrs	16
11	1½ yrs	1½ yrs	32
12	1 yr	1 yr	0
13	1 yr	1 yr	32
14	8 mos	8 mos	32
15	6 mos	6 mos	0
16	8 mos	6 mos	8
17	2 yrs	1½ mos	0
18	—	—	4
19	—	—	8
20	—	—	4

Table 2 shows the results of complement-fixation tests with sera of dairy workers. Twenty samples were tested, and 10 found positive in some dilution. Since these men had probably acquired

TABLE 3

Complement-fixation for Q Fever in Persons Ill with Other Diseases

	Total Sera	Number Negative	Number Positive	End Titer			
				4	8	16	32
Residing within 100 yards of a dairy	8	4	4	1	0	1	2
Not residing within 100 yards of a dairy	6	6	0	0	0	0	0

TABLE 4

Complement-fixations for Q Fever on Specimens Submitted for Routine Serologic Test for Syphilis

Source	Total specimens submitted	Number negative	Number positive	End Titer		
				4	8	16
Milk Shed, L. A. County	166	161	5	2	2	1
District of Columbia	96	96	0	0	0	0



6 OUT OF EVERY 10 **MEASLES** CASES
WILL OCCUR IN THE NEXT 3 MONTHS!

ARE YOU READY?

All you need by way of proof that measles are upon you is the significant 10-year graph below!

And all you really need to meet the emergency is—plenty of Immune Serum Globulin, Cutter—to make measles easier on everyone concerned. Fractionated from normal human plasma pooled from fresh venous whole blood, Immune Serum Globulin offers these particular advantages for the prevention or modification of measles:

160 mgm. gamma globulin per cc.

In measles serum, it's the concentration of gamma globulin that counts. The known and constant potency of Immune Serum Globulin, Cutter, permits low volume, adjustable dosage.

Contains no placental material

Immune Serum Globulin, Cutter, causes no side reactions, is non-pyrogenic. Easily recognizable—it is water clear; hemolysis-free.

Each 2 cc. vial of this concentrated homologous protein contains antibodies equal to 40 cc. original normal serum. Dosage is determined as follows:

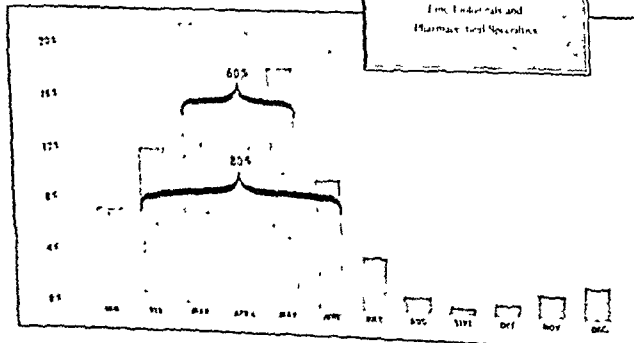
For prevention—	} intramuscularly, per pound body weight
0.1 cc. Immune Serum Globulin	
For modification—	
0.02 cc. Immune Serum Globulin	

For more complete information on Immune Serum Globulin, Cutter, write Dept. 8, Berkeley 1, California.

Percent of measles cases by months from
U.S. Public Health records, total cases
1935-1945—100%

CUTTER

Inc. Laboratories and
Manufacturing Operations



It is doubtful whether we may attribute this improvement to the use of the confidential death certificate, since proprietary hospitals in the other boroughs of the city, which continued to use the open certificate, recorded an equal if not greater improvement. Moreover, the limited data for municipal hospitals closely approximate those for proprietary hospitals, though it should be noted that for each of these sources the recorded improvement may have been due to sampling fluctuations.

The fact that the confidential method has not proved more effective than the open appears to be confirmed by the trends in the official mortality statistics. If syphilis was completely reported, the level of the recorded death rate would be almost doubled. Even if it is assumed that only one-half of these deaths are affected by the form of certification, the rate should increase by almost 50 per cent. It is apparent from Figure 1 that the introduction of the confidential certificate in Manhattan in 1939 has had no such effect. The trend for Manhattan closely paralleled the trend for the balance of the city; it was upward until 1938-1939, and downward thereafter. Moreover, what at the time appeared to be a significant rise in the death rate in Manhattan from 1938 to 1939, now appears to have been a combination of a chance downward fluctuation in 1938 followed by one in the opposite direction in 1939. Finally, a special analysis of deaths which were reported from Manhattan in January, 1947, the ninth year in which the confidential certificate was used in that borough, reveals no evidence that the "closed" certificate has resulted in better statistics. Of 42 deaths charged to syphilis, 37 were reported from municipal or state hospitals, and 5 from voluntary or proprietary hospitals; none from persons who died "at home." Although it is possible that none of the deaths which occurred "at home"

were due to syphilis, it is more likely that some did occur but were not reported.

How then may we account for the apparent improvement in the reporting of the mortality from syphilis and the upward trend in the death rate through 1938-1939? It seems fairly certain that these phenomena resulted from the intensive educational and clinical programs to bring syphilis under control which were launched by the Department of Health in 1935. Thus, in its annual report for 1937, it was stated that "the recorded death rate from syphilis is increasing due no doubt to more accurate reporting on death certificates." The effectiveness of the campaign probably resulted in a temporary increase in the recorded death rate, followed by a sharp decline after 1939. A similar trend was recorded in Philadelphia and in other communities following their inauguration of campaigns against the venereal diseases.

Puerperal Infection (140, 142a, 145a, 147)—Numerically, puerperal infection is only a minor factor in mortality. In recent years, fewer than 100 deaths have been annually attributed to this condition in New York City. However, it is probable that the disease is significantly understated in official mortality statistics since only three-fourths (74 per cent) of the deaths from puerperal infection were so charged for the cases in this study (Tables 1 and 2). Judged by the relatively small number of cases studied, the confidential method does not appear to be effective in improving the accuracy of these statistics (Table 5).

Diabetes Mellitus (61)—Diabetes is the only major cause of death found to be underreported on death certificates. Of the 394 deaths assigned to this condition, 318, or 81 per cent, were "properly" recorded. In 54 cases, death was attributed to cardiovascular-renal diseases, and 22 deaths were

American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

March, 1948

Number 3

CONTENTS

	PAGE
Public Health in Britain—The Changing Scene	319
<i>Sir Andrew Davidson, M.D.</i>	
The Health Officer in Post-war Britain	325
<i>Sir Allen Daley, M.D.</i>	
The Coördination and Integration of the Public Health Program	331
<i>Henry F. Vaughan, Dr.P.H.</i>	
Graduate Training of Engineers in Public Health	335
<i>John M. Henderson, C.E.</i>	
Bacteriological Studies of the Fort Loudoun Reservoir	342
<i>Robert N. Clark and F. W. Kittrell</i>	
Specific Complement-Fixing Diagnostic Antigens for Viral and Rickettsial Diseases	351
<i>Herald R. Cox, Sc.D.</i>	
Experience in Appraising Nutritional Status in the U. S. Public Health Service	361
<i>Harold R. Sandstead, M.D., and Elton S. Osborne, Jr., M.D.</i>	

Continued on page vi

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear. These are not to be regarded as expressing the views of the American Public Health Association unless formally adopted by vote of the Association.

Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the Reader's Guide in your Library.

Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

NOTICE:—Subscription \$7.00 per year for United States, Cuba and Mexico, South and Central America; \$7.50 for Canada; and \$8.00 for other countries. Single copies 70 cents postpaid. Copyright, 1948, by American Public Health Association.

Address correspondence regarding editorial contents and manuscripts to C.-E. A. Winslow, Dr.P.H., Editor, 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932, under the Act of March 3, 1879.

Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917.

tary hospitals were properly charged in 1939 and 1941 when the closed certificate was used. This is the same extent of agreement between hospital case histories and death certificates as was found for 1937-1938 when the open certificate was used. The mortality statistics for New York City, which are shown graphically in Figure 1, confirm this finding. Moreover, judged by the data in the second and third tiers of Table 6, diabetes was not more frequently mentioned when the statement of cause of death was made confidentially, than when it was certified on the open certificate.

Appendicitis (121)—Official statistics apparently understate the true extent of the mortality from appendicitis. Of the 406 deaths from this condition, only 344 or 85 per cent were assigned to appendicitis on the basis of the cause-of-death statements on mortality records. An additional 44 deaths were charged to diseases of the gall bladder and other parts of the digestive system, 12 to non-malignant tumors, and 6 to various other conditions. At the same time, 10 deaths apparently due to other diseases were charged to appendicitis (Table 1). Thus, only 87 per cent of the mortality from appendicitis was recorded for this group of persons who died in municipal and proprietary hospitals (Table 2).

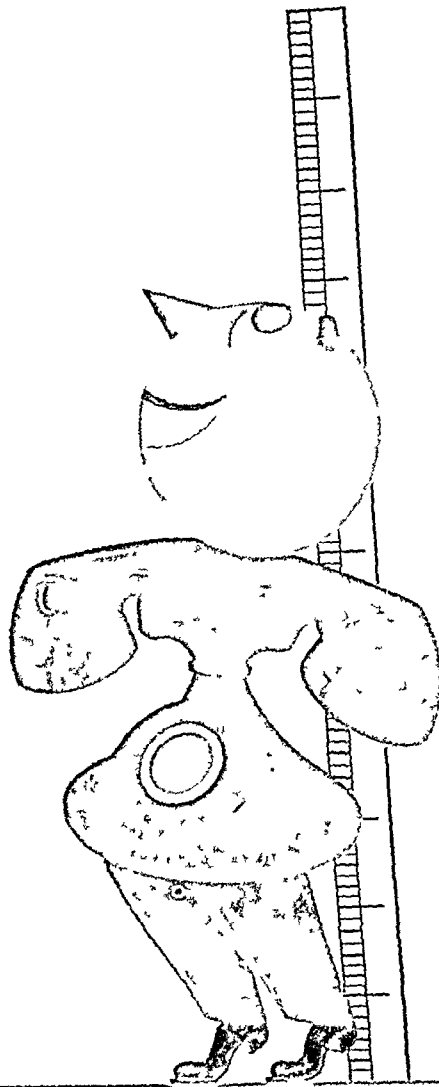
In planning the study, it was not expected that appendicitis would be found to be significantly understated on death records. As a result, the data were not tabulated in a manner which would permit one to ascertain whether this de-

ficiency results from the omission of the condition from the death certificate or whether it is effected by the addition of other conditions which take precedence according to joint cause assignments. Judged by the data which are available for proprietary hospitals, appendicitis was more accurately charged as the primary cause of death in Manhattan during 1939 and 1941 than during 1937-1938 (Table 7). In contrast, proprietary hospitals in the other boroughs recorded appendicitis less accurately in 1939 and 1941 than in the preceding years.

It should be noted, when interpreting these data, that the changes for both Manhattan and the other boroughs are not greater than those which might occur due to sampling fluctuations. Therefore, since the trend in the recorded mortality from appendicitis for Manhattan closely paralleled that for the other boroughs of the city (Figure 1), it is improbable that the confidential method has affected the accuracy with which the condition is reported on death certificates. A probable factor is that the discrepancies arose primarily because of the lack of care with which the statements of cause of death were made on the certificates. The fact that deaths certified by internes were least accurately recorded (Table 2) appears to support this hypothesis. One should not overlook the possibility, however, that some physicians do not report appendicitis when it is the true cause of death, if its mention reflects unfavorably upon their professional ability.

TABLE 7
White Decedents with Appendicitis (121) as Primary Cause of Death

Place of Death	Number from Case Histories(A)		Number from Death Certificates(B)		Per cent Ratio B to A	
	1937- 1938	1939, 1941	1937- 1938	1939, 1941	1937- 1938	1939, 1941
Proprietary Hospitals	56	50	44	45	79	90
Manhattan	162	129	148	109	91	84
Other Boroughs,						



A LOT OF GROWING TO DO

This is a big country and to furnish nation-wide telephone service, the Bell System has had to be big for a long time. But in the last few years it hasn't been nearly big enough.

Even though we've broken all records and added more than 6,000,000 new telephones in the past two years, there are still about a million orders for service that we haven't

been able to fill because of lack of equipment, switchboards, cable and buildings. Many more Long Distance circuits also are needed.

It will take time and a lot of money to make the Bell System big enough for the nation's needs but we're on our way—in a big way—to giving you more and better service than ever before.

BELL TELEPHONE SYSTEM



malignant causes on death certificates.¹⁸

While the procedures followed are not similar, our data confirm these findings. Of 1,229 deaths from cancer, 1,176, or 96 per cent, were "properly" certified on death records. The other 53 deaths were charged to various other conditions (Table 1). Offsetting these "misses," 60 deaths were attributed to cancer on death records in disagreement with the facts available in hospital charts. For the cases included in this study, therefore, the official mortality statistics accurately reflected the extent of the mortality from cancer. This was true for deaths which occurred in proprietary hospitals as well as those reported from municipal hospitals (Table 2).

In view of the above, it is highly improbable that cancer is understated in the mortality statistics for New York City. It would not be expected, therefore, that the confidential method would have any effect on the accuracy of these statistics. This fact is confirmed by the data in Table 9, and the trends in the mortality from cancer shown in Figure 1.

Mental Disease—Because of the small number of cases, mental disease (84) as a primary cause of death is included with the "All Others" group in Tables 1 and 2. Analysis of the extent to which mental diseases (84, 162a, pt. 77b, 150b, 30b) are mentioned on death certificates, whether or not the conditions contributed to death, reveals no

evidence that they were more completely recorded on the confidential than on the open certificate.

External Causes (78, 79, 163-198)—Among the 7,330 deaths studied, 17 cases were found in which an external cause appeared in the hospital case history but was not reported on the death certificate. Of these cases, 12 deaths should have been charged to the external cause, and 5 to other conditions. As may be seen from Table 1, one-half of the 12 deaths from external causes were charged to cardiovascular-renal diseases on death certificates, 2 to respiratory diseases, and 1 to each of four different conditions. Evaluation of these cases indicates that most if not all of these differences involve intentional avoidance of medical examiner action. As such, it is doubtful whether any form of reporting can be expected to eliminate these discrepancies.

Operations Performed—The completeness with which operations are reported on death certificates has a major effect on the accuracy of mortality statistics. It is pertinent, therefore, to ascertain whether operations were more completely reported on the confidential than on the open certificate.

Analysis of the data for 5,606 white decedents from proprietary hospitals reveals that operations had been performed on 2,147, or 38.3 per cent, of these patients. Of these, 2,097, or almost 98 per cent, were reported on official death records. While the fre-

TABLE 9
White Decedents with Cancer (45-55) as Primary Cause of Death

Place of Death	Number from Case Histories (A)		Number from Death Certificates (B)		Per cent Ratio B to A	
	1937-1938	1939, 1941	1937-1938	1939, 1941	1937-1938	1939, 1941
Proprietary Hospitals	184	166	190	164	103	99
Manhattan	271	343	270	348	100	101
Other Boroughs						
Municipal Hospitals	6	97	5	95	83 *	98
Manhattan †						

* This ratio is based on a small number of cases and may, therefore, be influenced by chance fluctuations.

† Excludes decedents under 15 years of age and those for which an autopsy was performed.

<i>Contents—Continued</i>	PAGE
Appraising the Nutritional Status of Mothers and Infants <i>Clement A. Smith, M.D., and Harold C. Stuart, M.D.</i>	369
A Schick Survey of 18,000 Naval Recruits <i>F. S. Cheever, M.D.</i>	374
Dental Health Education Services of the American Dental Association . . . <i>Glenna G. Walter</i>	378
International Trends in Health Care <i>John B. Grant, M.D.</i>	381
Experience of Rheumatic Patients Who Served in the Armed Forces, 1942–1946 <i>May G. Wilson, M.D., J. W. Payson, and Rose Lubschez</i>	398
Salmonella from Dogs and the Possible Relationship to Salmonellosis in Man <i>Arthur H. Wolff, D.V.M., Norman D. Henderson, B.S., and Grace L. McCallum, B.S.</i>	403
Problem of Dust Control for the Disinfection of Air Referee's Report on Suppressive Measures for the Control of Dust, to the Standard Methods Committee for the Examination of Germi- cides and Antibacterial Agents. <i>Clayton G. Loosli, M.D., Referee</i>	409
EDITORIALS:	
Fruits of the Princeton Conference	416
New Developments in Trickling Filter Operation	417
A Dream	420
The Virus of a Common Cold	421
Credit Lines	422
Section Highlights of the 75th Annual Meeting	425
Books and Reports	432
A Selected Public Health Bibliography <i>Raymond S. Patterson, Ph.D.</i>	439
Books Received	441
Association News 76th Annual Meeting. Fellowship in the American Public Health Association. Applicants for Membership. Deceased Members.	443
Employment Service	448
News from the Field	453
Conferences and Dates	466

Reprint prices furnished upon request

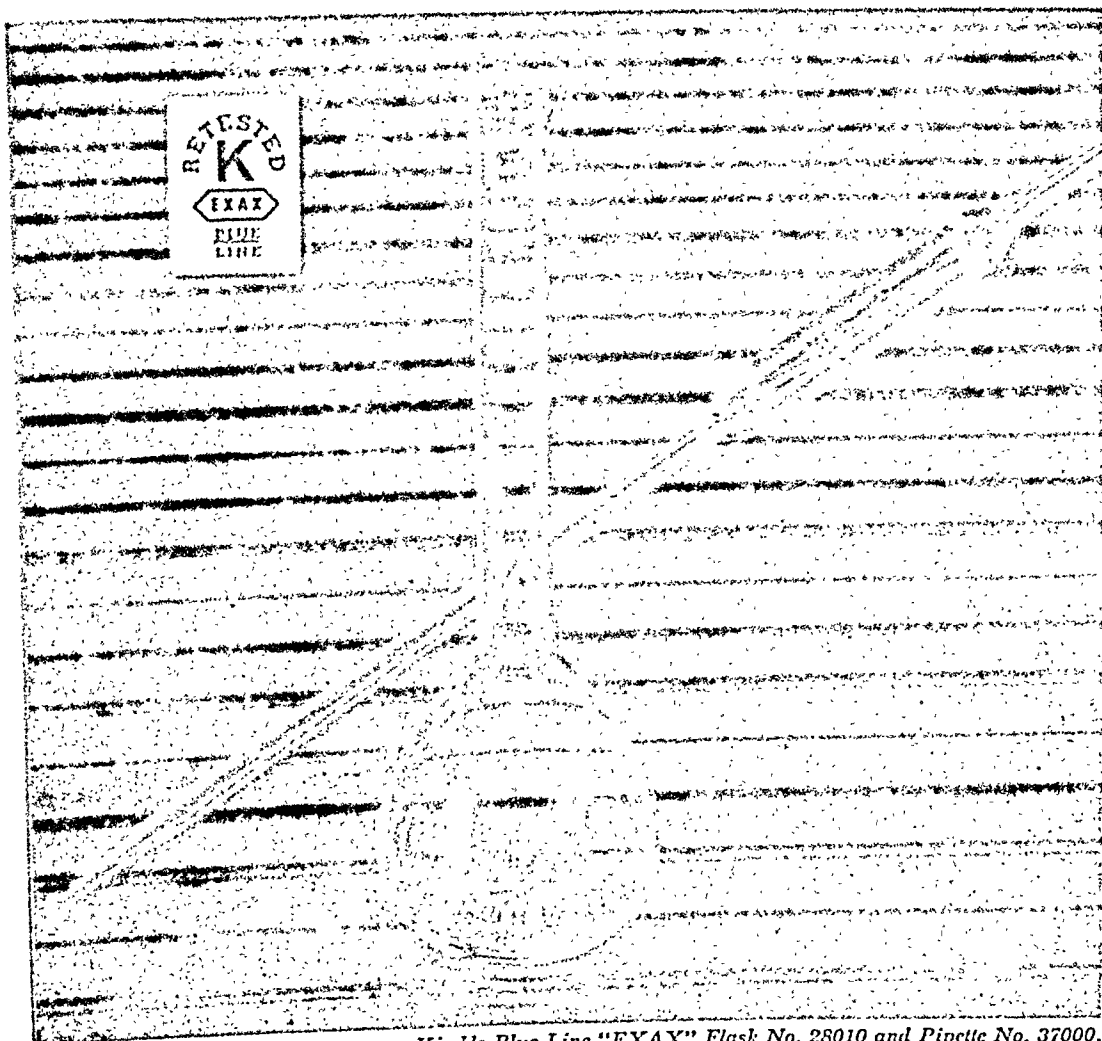
rience, and written tests. The consensus seemed to be that the written tests for entering positions should receive very heavy weighting; that the oral interview should carry least weight of the three, perhaps 20-30 per cent; and that the rating of training and experience should carry a generous weight for "upper bracket" administrative positions, much less for first level jobs.

In conclusion, Mr. Moore summed up the situation by saying

The establishment of a minimum qualification for admission to practise a profession, does not, in and of itself, eliminate from merit system selection those people who are

not fitted to carry the specialized job. If some other device is not used, the appointing authority may find himself called on to choose the best of three undesirables. Written objective-type tests, properly constructed according to adequate job specifications, are suggested as appropriate and desirable instruments for ranking candidates

He reminded the audience that the Merit System Service of the A.P.H.A. is interested in all steps in selecting personnel. It can suggest the names of persons to serve on oral interviewing boards, and as advisers for assisting with the rating of training and experience, as well as supply the written objective-type tests under discussion



Kimble Blue Line "EXAX" Flask No. 28010 and Pipette No. 37000.

Retempered...Retested...READY ...to meet your most exacting demands

● Clinical and Scientific laboratory personnel have shown such preference for Kimble Blue Line "EXAX" graduated glassware that it has become America's favorite brand.

We can think of no better endorsement of "EXAX's" high quality...its ability to function in a great range of exacting assignments with uncompromising accuracy.

Every piece of Blue Line "EXAX"

is thoroughly retempered after forming to give added strength and durability. *Every* piece is retested...making doubly sure that it conforms to the high accuracy standard to which it is calibrated.

You can order Kimble Blue Line "EXAX" glassware with every confidence in its accuracy, dependability and uniform high quality. Consult your laboratory supply dealer.

For assurance, look for the Kimble K—the visible guarantee of invisible quality.

KIMBLE GLASS TOLEDO 1, OHIO
Division of Owens-Illinois Glass Company



When writing to Advertisers, say you saw it in the JOURNAL

Our study of the state health department's attitudes and needs led to much the same conclusions just presented. In addition, each bureau and division in the state department felt it would like to develop educational and training programs in relation to its own service programs. This was especially true of the Division of Preventive Medical Services which includes Maternal and Child Health, Public Health Nursing, Tuberculosis, Venereal Disease, Chronic Disease, and Industrial Disease services. The Bureau of Health Education wanted consultation from us as to literature, film, and library facilities, and the Division of Local Health Services wanted to have some consultation service available to local health departments for development of local mental health programs. The administrative personnel of the state department felt they needed a group of seminars to acquaint them with knowledge about normal emotional growth and development as applied to public health practice, some discussion on the problems of personnel, and the emotional aspects of administrative practices.

A PLAN FOR ACTION

These studies enabled us to draw up a plan of action which, it was hoped, would answer some of the needs as expressed and provide us with a means to test whether our ways of teaching and educating, once they were under way, were or were not meeting the needs and thus better equipping our health workers for helping their patients handle the emotional problems of living.

In the State Health Department the program is starting with a series of seminars for the top administrators. We meet informally once a week for a planned ten or twelve times. The groups are kept small—about eighteen to twenty members. The subject matter covers the following items:

1. The essentials of emotional maturity

2. The normal growth of the personality toward emotional maturity and the defenses which handle threats to the integrity of the personality

3. The emotions of illness and convalescence

4. The doctor-patient relationship

5. The nature of authority or emotional aspects of administration

Upon completion of these seminars, other series will be held with the various specialist and consultant personnel in the state department.

In two local health departments projects are under way which represent approaches toward aiding the nurses and physicians in the clinics to grow more quickly into the role of handling the emotional aspects of everyday medical and nursing practice. The Health Department of the City of Berkeley has added to its staff a pediatrician, with training in child psychiatry, who spends three half-days a week in health department work. In one of these periods this physician sees babies and mothers in a well baby clinic. The nurses of the health department rotate through this clinic every 3 months. Another half-day is given to educational programs for nurses and school counselors, and the third half-day is used for consultation with the pediatricians conducting other child health conferences. This program has been under way so recently that no evaluation of this approach is yet in order.

I also attached myself to a local health department, that of the City of Richmond. In coöperation with the health officer and his staff, a mental health teaching program has been started. We hope it will begin to meet not only the educational needs of the nurses and physicians but also become a part of the program of a busy, well rounded, overworked health department without adding to the burdens of a staff already pressed for time. Such a program should be possible within the usually limited budget of such a health department.

American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

April, 1948

Number 4

CONTENTS

	PAGE
The Health Officer's Bookshelf	467
<i>Huntington Williams, M.D., Dr.P.H.</i>	
Current Status of Immunization Procedures—A Symposium	
Vaccination Against Smallpox	476
<i>R. S. Muckenfuss, M.D.</i>	
Pertussis	478
<i>Joseph A. Bell, M.D.</i>	
Typhoid Fever	481
<i>Rufus L. Holt, Colonel, M.C.</i>	
Tetanus, and Exotic Diseases of Military Importance	485
<i>Arthur P. Long, Lt. Col., M.C., U.S.A.</i>	
Practical Aspects of Immunization Programs	490
<i>Franklin H. Top, M.D.</i>	
The Quaternary Ammonium Compounds in Sanitization	493
<i>Ernest C. McCulloch, D.V.M., Ph.D., Steinar Hauge, D.V.M., and Hoyo Migaki, B.S.</i>	

Continued on page vi

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear. These are not to be regarded as expressing the views of the American Public Health Association unless formally adopted by vote of the Association.

Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the Reader's Guide in your Library.

Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

NOTICE:—Subscription \$7.00 per year for United States, Cuba and Mexico, South and Central America; \$7.50 for Canada; and \$8.00 for other countries. Single copies 70 cents postpaid. Copyright, 1948, by American Public Health Association.

Address correspondence regarding editorial contents and manuscripts to C.-E. A. Winslow, Dr.P.H., Editor, 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932, under the Act of March 3, 1879.

Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917.

corporate in accordance with the pattern of our culture.

Another thing that medical workers are usually unprepared for is that parents sometimes have emotions of anger, guilt, or feelings of hostility against their children at the same time that they may have deep affection for their children. Our parents and children frequently seek for some help in understanding and accepting such feelings, and in this aspect of practice we most frequently fail to help them. To supply some of this need, which we think will also increase the health workers' understanding of emotions in adults as well as children, we are establishing what might be called a laboratory of human behavior for nurses and physicians. Here they will become a part of a nursery school staff, work closely with children, and examine their own emotional reactions to what they find in these children and parents. They will be guided in this by a staff of well trained nursery school teachers, pediatricians, and psychiatrists.

LEARNING FROM PATIENTS

Children are the best teachers in the world, if we observe and listen to them. They have constant frustrations leading to emotions of anger, sometimes hostility. They enjoy themselves simply and they normally initiate play which has much meaning for them. They form fast loyalties and are quick to detect the sensitivities and defenses in the makeup of adults. A few physicians and nurses will spend two to three months full-time, working with the nursery group under competent direction, and will be assigned one or two children whom they are to observe carefully, and try to put into writing what they observed. Under the guidance of a pediatrician, who is oriented in the emotional growth and development of children, the nurses and doctors will also spend time in the well baby, rheumatic fever, and cerebral palsy clinics, which are a part of the

hospital and the child development center. Each nurse and physician will be assigned time, at least one hour a week, to discuss with a staff member his doubts, confusions, discoveries, and feelings about what is taking place. At the same time he listens in on the parents' class and the staff discussion about the child and his family situation.

At the end of this experience it is our hope that the nurse and physician will return to the health department not experts but a better nurse and a better physician. This should come about because they will better accept themselves as agents who help people understand their feelings and problems, rather than merely telling them how to be more adequate and healthy persons. If these physicians and nurses feel such an educational experience is what they need for their own growth in their work, then we plan to expand our efforts and invite medical and nursing staff members from local health departments throughout the state to apply for this experience. These individuals, returning to their departments after such an experience, will begin to influence other local staff members and also provide a nucleus of a local staff around which inservice training programs may be started. It is our intention, once this happens, to form a small state educational team which will work through and with these workers, thus giving continual educational stimulation in the incorporation of mental health principles as part of public health practice.

What I have described to you is a beginning of an approach toward this goal. We are feeling our way along. We hope this beginning will grow into a plan that may prove practical and effective enough so that other health departments may learn from our mistakes and our successes and thus adopt it to fit the conditions and needs found in their own staffs and in their own locale.

Running up

MAPHARSEN[®]

*is . . . "therapeutically highly effective and hence of value in syphilotherapy. It has the advantage of being a pure stable chemical substance and relatively easy to administer, and in the doses used in therapy, well tolerated."**

Disappearance of spirochetes, healing of lesions, and reversal of seropositivity in a large percentage of cases in series after series attest its spirocheticidal effectiveness. Equally adapted to the intensive, the intermediate or conventional prolonged treatment schedules, MAPHARSEN is *an arsenical of choice in antiluetic therapy.*

MAPHARSEN (oxophenarsine hydrochloride, P. D. & Co.) is supplied in single dose ampoules of 0.04 Gm. and 0.06 Gm., boxes of 10, and in multiple dose ampoules of 0.6 Gm. in boxes of 10.

*C. A. R. H. Pharmacology and Therapeutics, 13th Ed., Lea & Febiger, Philadelphia, 1947, p. 181.

PARKER, DAVIS & COMPANY • DETROIT 32, MICHIGAN



ing due consideration to all racial groups and organizations. Because these are working committees, emphasis is placed upon utilizing lay individuals as far as possible and making use of professional health personnel in a consultant capacity. Services of the latter are best used in planning because they usually do not have sufficient time to undertake the all-important follow-up activities. Besides, placing responsibility on lay volunteers gives them an incentive to demonstrate leadership and is a motivating force in overcoming public inertia.

Bi-monthly meetings, and special sessions as required, are held by the council. Programs are planned in cooperation with the various groups on the basis of interests and needs. This organization has provided a mechanism for discussing in a democratic manner health problems that have community concern. Also it has made possible the machinery with which to carry on follow-up activities of an educational and legislative nature which will enable us to deal more effectively with these problems.

A number of tangible results have already been achieved. They include establishing a full-time professorship in health education at the University of Hawaii, setting up a school of practical nursing under the auspices of the Vocational Division of the Territorial Department of Public Instruction, inaugurating outpatient clinic facilities in two local hospitals, sponsoring a Hawaii branch of the National Society for Crippled Children and Adults, and preparing an exhibit and booklet *The Health Story in Hawaii*.

Hawaii's health story merits special consideration because it is unique in our experience. Its purpose was twofold: to compile and present in a readable and interesting manner factual information on health in Hawaii; and to acquaint people throughout the Territory and on the mainland with health activities in

the islands. The project was sponsored by the Public Health Committee of the Chamber of Commerce of Honolulu in cooperation with the Oahu Health Council. The former organization initiated the idea and subsidized the costs entailed in its preparation.

The chairman of the Community Education Committee of the Oahu Health Council headed the special exhibit committee. Other members included representatives of the Public Health Committee of the Chamber of Commerce of Honolulu and its staff, Territorial Medical Society, Territorial Board of Health, Hawaii Visitors' Bureau, and Holst and Cummings advertising agency. The first problem which confronted them was how to portray the desired overall picture of health work in the Territory. It was finally decided to prepare a small booklet of approximately one hundred pages with photographs and descriptive copy.* It was also agreed that the content should feature health programs rather than the specialized work of individual agencies because it seemed more logical to tell what is being done rather than who is doing it.

The first step was the preparation of an outline allocating a certain percentage of space to each activity. Then a script was written showing why the percentages were made and outlining the points to be covered in each picture and page of copy. This material was circulated to each health council member and to other interested persons throughout the Territory. A revised outline embracing the suggestions and criticisms received was then drawn up, and work schedules were made out for photography and final copy. Fourteen agencies and individuals contributed photographs; sixteen organizations provided consultant services and other materials.

* *The Health Story in Hawaii*, Public Health Committee of the Chamber of Commerce of Honolulu, 1947.

Contents—Continued

PAGE

Some Factors Affecting the Properties of Quaternary Ammonium Compounds as Sanitizers	504
<i>G. M. Ridenour, Ph.D., and E. H. Armbruster</i>	
Summary of Tuberculosis Control Activities	512
<i>Francis J. Weber, M.D., and Rob't J. Anderson, M.D.</i>	
Eradication of Tuberculosis by Epidemiological Methods	516
<i>J. Arthur Myers, M.D., Ph.D.</i>	
Relationship of Tryptophane to the Incidence of Dental Caries	525
<i>Naomi C. Turner, Ed.M., and George E. Crowell, D.M.D.</i>	
Hospital-Health Center Programs in Latin America	530
<i>Richard J. Plunkett, M.D., M.P.H.</i>	
The Pattern of Industrial Hygiene in the United States	534
<i>William T. Ingram, M.P.H.</i>	
A State-wide Survey of Typhus Fever in Florida	541
<i>E. R. Rickard, M.D., M.P.H., and E. G. Riley, M.D., Ph.D.</i>	
Paralytic Shellfish Poisoning on the Canadian Atlantic Coast	550
<i>J. Gibbard and J. Naubert</i>	
Editorials:	
The Written Word	554
A Health Department Medical Care Program	555
Administrative Judgment in the Control of Tuberculosis	557
Principles for Consideration in Judging the Probable Effectiveness of Federal Legislation Designed to Improve the Health of Children of School Age	560
<i>Statement by the School Health Section</i>	
Clearing House on Public Health Salary Information	563
Credit Lines	567
Books and Reports	571
A Selected Public Health Bibliography	582
<i>Raymond S. Patterson, Ph.D.</i>	
Books Received	585
Association News	587
Standard Methods for the Examination of Dairy Products, Ninth Edition—Separates of Chapter 2 on Milk and Cream. Applicants for Membership. Hotel Reservation Form for Seventy-sixth Annual Meeting.	
Employment Service	592
News from the Field	598
Conferences and Dates	612

Reprint prices furnished upon request

Simple Goiter in Colombia*

HORACIO PARRA, M.D.

*Nutrition Division of the Coöperative Health Service of Colombia and
The Institute of Inter-American Affairs, United States*

SIMPLE goiter is a problem of Colombian pathology which is so prevalent and of such long existence that it has been treated by naturalists, physicians, and even writers and folklorists.

In 1808, Francisco José de Caldas, outstanding Colombian naturalist and martyr of our independence, mentioned repeatedly the problem of simple goiter in his scientific works. He apparently was the first man of learning who attributed the disease to drinking water which has an excessive quantity of lime and heavy minerals.

In 1810, Don Joaquín Camacho studied the distribution of simple goiter in Colombia. He noted the fact that in Bogotá the disease was frequent in the convents, where the source of the drinking water was a well or an artesian well—generally quite hard water. Moreover, though the efficacy of iodine had not as yet been discovered, Camacho found the lack of endemic goiter among the inhabitants of the seacoasts significant and attributed this fact to the use of sea salt.

Later in 1831, the French naturalist Boussingault observed the presence of simple goiter in human beings and animals in localities where cooking salt very low in iodine content was used. He, therefore, advised the Government of Colombia to establish the use of salt from natural iodized sources as a pre-

ventive measure against this endemic disease. So it was that, from 1831 until 1947—a lapse of 136 years—the country of Colombia has delayed in putting into practice the recommendation of this learned Frenchman.

A recent study carried out by Socarrás in 1942 on the registration of the recruits of the "Sanidad Militar" indicated that 10 per cent of the 153,000 prospective recruits were rejected from military service because of simple goiter.

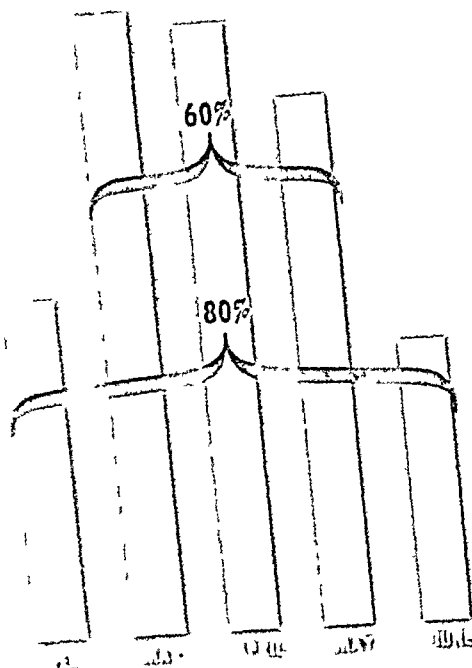
On the basis of these antecedents, the Nutrition Department of the S.C.I.S.P. has carried out the following plan of study:

1. Incidence of simple goiter in Colombia
2. Distribution of the endemia
3. Propagation and extension of simple goiter
4. Causes, contributory factors, and the sequels of the disease
5. Preventive measures
6. Manufacture of artificially iodized salt
7. Financing of a project for the artificial iodization of salt and the creation and maintenance of the Instituto Nacional de Nutrición (National Nutrition Institute).

The following is a summary of these activities:

1. In order to determine the incidence of simple goiter in Colombia, the school age group was chosen among the various population classifications. The school group possesses three very necessary characteristics: first, it is representative of the general population; second, it is the most susceptible to preventive and curative treatments; and third, as a group for investigation purposes, its examination is easy and

* Presented before the Health Officers Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 10, 1947.



The above graph of measles incidence based on U. S. Public Health figures for a ten year period is supported by current reports of present measles incidence.

The measles peak is
RIGHT NOW!



You can prevent or modify measles
without fear of side reactions* with

IMMUNE SERUM GLOBULIN—CUTTER

Right now, when 60% of all measles occur, is a good time to remember Cutter Immune Serum Globulin, a product of human blood fractionation.

In measles serum, it's the gamma globulin that counts. And Immune Serum Globulin—Cutter, contains 160 mgm. gamma globulin per cc. This known and constant potency permits low volume and adjustable dosage.

Second in importance is the blood source—fresh, virus-free whole blood in the case of Cutter Immune Serum

Globulin contains no placental material.

You can always tell Immune Serum Globulin—Cutter—it's water clear and hemolysis-free. Each 2 cc. vial contains antibodies equal to 40 cc. of original normal serum.

For more information, write Dept. 8, Berkeley 1, California, or ask your Cutter representative.

CUTTER

Inc. U.S.A. and
12 are official specialists

*Side reactions were reported in only 1 of 100 children who had been vaccinated.

See us at the 1950-51 National Meeting on Measles in the Journal

Mass Control of Dental Caries Through the Use of Domestic Water Supplies Containing Fluorine

FREDERICK S. McKAY, D.D.S.

Colorado Springs, Colo.

BASED upon the generally prevailing rate of decay and tooth loss the forecast for the future is grim to the point of seriousness. A prediction published by an authoritative source as recently as June, 1947,¹ puts it as follows:

"It is estimated that . . . the 3,400,000 children born in 1946 . . . at 16 years of age will (each) require 7 fillings and 2 extractions and that 40 per cent of those reaching 40 years of age will require dentures."

Evidence collected during the past several years has established that the

continuous use of a domestic water supply containing even as low as approximately 1 p.p.m. of fluoride, during the period of tooth calcification, will bring about a mass reduction in the dental decay rate. As will be apparent later in this paper the conditions existing in fluorinated districts are in complete disrelation with the prediction quoted just above.

The evidence up to the present time has been derived almost wholly from examinations of children. There has been almost no information as to the dental

TABLE 1

Summary of observations on 400 Colorado Springs (Colo.) natives having dental fluorosis

Age Groups	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45 and above
Number of persons examined	65	89	70	66	35	26	26	23
Number of persons showing no dental caries experience	42	44	23	14	8	4	1	4
Number of teeth showing untreated dental caries or fillings	71	135	166	259	136	97	192	136
Number of teeth lost because of dental caries *	4	5	6	12	19	12	16	22
Number of teeth lost (all causes)	4	5	10	12	19	12	16	22
Number of decayed or filled teeth per person	1.09	1.51	2.37	3.91	3.88	3.73	7.38	5.91

* In the higher age groups it is not possible to determine accurately whether teeth were lost by caries or by other causes.

Total number of persons	400	Average decayed and filled teeth per person	2.98
Number of persons showing no decay experience	140	Total number of teeth lost (all causes)	100
Per cent of persons showing no decay experience	35	Total number of incisor and cuspid teeth showing decay experience	45
Total number of teeth showing decay experience	1,192		

Comparison of Tooth Loss at Colorado Springs with "Standardized Rate"

"Standardized Rate" * tooth loss per person	..	1.2	2.3	3.8	5.8	7.9	10.2	..
Tooth loss (all causes) per person, Colorado Sps.	0.06	0.05	0.14	0.18	0.54	0.46	0.61	0.95

* From, Klein, H. *J.A.D.A.* 30:80-96 (Jan.), 1943 (table 4); data represent 45,500 white U. S. Adults, all socio-economic groups.

American Journal of Public Health

and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

May, 1948

Number 5

CONTENTS

	PAGE
Developments in the Use of the Newer Organic Insecticides of Public Health Importance	613
<i>Justin M. Andrews, Sc.D., and S. W. Simmons, Ph.D.</i>	
Is the Rh Factor a Public Health Laboratory Function?	632
<i>Anna I. van Saun</i>	
Blood Grouping and Rh Typing in a State Public Health Laboratory	637
<i>Robert A. MacCready, M.D., and Robert T. McGee</i>	
The Production and Proper Use of Rh Typing Reagents	645
<i>Louis K. Diamond, M.D.</i>	
Human Waste Disposal from Railroad Passenger Cars	652
<i>Abel Wolman, Dr.Eng., and Lloyd K. Clark</i>	
Essentials for the Control of Ragweed	664
<i>Israel Weinstein, M.D., and Alfred H. Fletcher</i>	

Continued on page vi

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear. These are not to be regarded as expressing the views of the American Public Health Association unless formally adopted by vote of the Association.

Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the Reader's Guide in your Library.

Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

NOTICE:—Subscription \$7.00 per year for United States, Cuba and Mexico, South and Central America; \$7.50 for Canada; and \$8.00 for other countries. Single copies 70 cents postpaid. Copyright, 1948, by American Public Health Association.

Address correspondence regarding editorial contents and manuscripts to C.-E. A. Winslow, Dr.P.H., Editor, 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932, under the Act of March 3, 1879.

Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917.

TABLE 2

Comparative
**LOSS OF TEETH AND
 DENTAL DECAY EXPERIENCE**
by Age Groups
MADISON **COLORADO SPRINGS**
 0.05 FLUORINE P.P.M. 2.6 FLUORINE P.P.M.

		NUMBER EXAMINED	NUMBER NO DECAY	DECAYED AND FILLED TEETH	EXTRACTED TEETH	AVERAGE NO. DENTAL FILLINGS PER PERSON	AVERAGE NO. EXTRACTED TEETH PER PERSON
AGES 10-14	MADISON	840	33	5538	376	7.04	0.448
	COLORADO SPRINGS	60	40	66	4	1.10	0.067
6 TIMES AS MUCH DECAY EXPERIENCED PER PERSON 7 TIMES AS MANY EXTRACTED TEETH PER PERSON							
AGES 15-19	MADISON	224	4	2446	323	12.36	1.442
	COLORADO SPRINGS	167	78	277	11	1.72	0.065
7 TIMES AS MUCH DECAY EXPERIENCED PER PERSON 22 TIMES AS MANY EXTRACTED TEETH PER PERSON							
AGES 20-24	MADISON	158	0	2182	509	17.03	3.222
	COLORADO SPRINGS	101	33	254	9	2.60	0.089
7 TIMES AS MUCH DECAY EXPERIENCED PER PERSON 36 TIMES AS MANY EXTRACTED TEETH PER PERSON							
AGES 25-29	MADISON	106	0	1336	569	17.97	5.367
	COLORADO SPRINGS	93	18	331	23	3.80	0.246
5 TIMES AS MUCH DECAY EXPERIENCED PER PERSON 22 TIMES AS MANY EXTRACTED TEETH PER PERSON							
AGES 30-34	MADISON	82	0	1174	477	20.13	5.817
	COLORADO SPRINGS	46	10	159	18	3.84	0.391
5 TIMES AS MUCH DECAY EXPERIENCED PER PERSON 15 TIMES AS MANY EXTRACTED TEETH PER PERSON							
AGES 35-39	MADISON	85	0	1135	577	20.14	6.788
	COLORADO SPRINGS	37	6	119	11	3.51	0.298
6 TIMES AS MUCH DECAY EXPERIENCED PER PERSON 23 TIMES AS MANY EXTRACTED TEETH PER PERSON							
AGES 40 and ABOVE	MADISON	251	0	2310	2976	21.06	11.857
	COLORADO SPRINGS	64	6	379	24	6.29	0.375
3 TIMES AS MUCH DECAY EXPERIENCED PER PERSON 32 TIMES AS MANY EXTRACTED TEETH PER PERSON							

* All causes

JOHN G. FRISCH, D.D.S.
 MADISON, WIS.

FREDRICK S. MCKAY, D.D.S.
 COLORADO SPRINGS, COLO.

July, 1947

Table 2 was computed from charts compiled prior to those used as Tables 1 and 3 in this paper which accounts for the slight variations.

40 Years Growth in 2 Years



The telephone was forty years old before there were six million Bell telephones in this country. Now there are twenty-nine million. The last six million have been added since these little tots were born—in about two years instead of forty.

But growth is not the only measure of the increased value of your telephone service. Many new developments are extending its scope and usefulness.

There is the extension of telephone service to automobiles, trucks, buses, boats, trains and airplanes.

There is the \$200,000,000 program to extend telephone service in rural areas. Today there are more rural telephones than

Then there is coaxial cable, no thicker than your wrist, which can carry 1800 Long Distance calls at one time. And along with it is a new system for transmitting telephone conversations by super-high-frequency radio waves. Both are designed so they can be used for Television as well as Long Distance calls.

And research on new electronic devices, now under way in Bell Telephone Laboratories, brings still wider horizons of electrical communication within view.

It's all a part of progress and our constant effort to make telephone service better and more useful for every telephone user.

BELL TELEPHONE SYSTEM



Department of Health, 1947. *Instructions for Participating Dentists, Dental Treatment Programs.*

12. Kansas State Board of Health, Kansas State Dental Association, *Dental Health Programs for Elementary and Secondary Schools.* Kansas State Policy-

Making Committee on Health Education, Topeka, Kans., 1946.

13. Michigan Department of Health. *Basic Health Facts for Teachers, in Maintaining a Healthy Mouth.* Lansing, Mich.

Senate Bill Provides Aid to Medical Education

Early in May, Senator Elbert D. Thomas of Utah introduced a bill providing for federal subsidies to schools of medicine, dentistry, nursing, and public health, and for scholarships for qualified students. The bill has been referred to the Senate Committee on Labor and Public Welfare and is numbered S. 2588.

According to the *Washington Report on the Medical Sciences*, federal grants up to \$20,000,000 a year are authorized for medical schools; \$8,000,000 for dental schools; \$18,000,000 for nursing schools, and \$2,000,000 for postgraduate schools of public health. In addition, federal grants up to 50 per cent of the cost of new construction of physical facilities are authorized. To qualify for grants, schools must not impose unreasonable restrictions against admission of nonresidents or bar applicants on the basis of race, creed, color, or national origin (special provision is made for in-

stitutions in those states having racial segregation laws). State and national scholarships are provided for, the former in medicine, dentistry, nursing, and public health, and the latter in medicine alone. Holders of national medical scholarships would be pledged to serve one year in federal status for each two academic years of his scholarship. Or he would be permitted, in lieu of government obligated service, to practise in an area where a state health authority considered there to be a shortage of physicians. State scholarships include tuition and books. The other type offers, in addition, a stipend of \$90 per month. Final paragraph of S. 2588 prohibits any federal agency or officer to "exercise any control over, or prescribe any requirements with respect to, the curriculum or administration of any school, or the admission of applicants thereto."

<i>Contents—Continued</i>	PAGE
Comparative Efficiency of Rectal Swabs and Fecal Specimens in Detecting Typhoid and Salmonella Cases and Carriers	670
<i>Howard J. Shaughnessy, Ph.D., Frances Fricwer, and Adele Snyder</i>	
Susceptibility to Typhus of Rats on Deficient Diets	676
<i>Florence K. Fitzpatrick</i>	
The Epidemiology of Rheumatic Fever; Its Public Health Aspects	682
<i>George C. Griffith, M.D.</i>	
General Reactions of Mothers and Nurses to Rooming-in	689
<i>Edith B. Jackson, M.D.</i>	
Can Public Health Agencies Handle Poliomyelitis Alone?	696
<i>Hart E. Van Riper, M.D.</i>	
Coördination of Hospitals and Health Departments	700
<i>Joint Statement of Recommendations by the American Hospital Association and the American Public Health Association</i>	
EDITORIALS:	
Progress in the Study of Organic Insecticides	709
Thomas Parran	710
The Battle of Britain	711
The Journal Index	713
Clearing House on Public Health Salary Information	714
Credit Lines	717
Books and Reports	724
Books Received	733
A Selected Public Health Bibliography	734
<i>Raymond S. Patterson, Ph.D.</i>	
Association News	737
Hotel Reservation Form for Seventy-sixth Annual Meeting. Applicants for Membership. Deceased Members. Carl E. Buck, Dr.P.H., Joins University of Michigan Faculty. Gift to Committee on Child Health.	
Employment Service	744
News from the Field	749
Conferences and Dates	759

Reprint prices furnished upon request

chemical industry is to decide which products must be examined, as the toxicological facilities available today do not allow universal examination. The workers, especially those engaged in research and pilot plant activity, must be subjected to stringent industrial hygiene and medical control as this class of employee is exposed to products about which usually little is known.

In discussing the toxicology of the newer metals it is, perhaps, more accurate to use Fairhall's description and refer to them as metals which have become important industrially in recent years.² The most prominent members of this group are beryllium, cadmium, tellurium, uranium, and vanadium. There is no common group action or symptom complex. Very little is known about some of these substances, because as yet they have been used in limited amounts in restricted work or have not been recognized as having distinctive physiological properties.

Beryllium has been reported as the causative agent of two types of lung condition. One is a chemical pneumonitis which occurred in men working with fluorescent powders. Some of the beryllium salts, notably the sulfate, hydrolize easily and extensively so that the local production of sulfuric acid in the lung could be expected after the inhalation of the dust.

Reports of a number of cases of what is termed pulmonary sarcoidosis have been appearing in the literature in the past few years. These workers were exposed to beryllium powder in the fluorescent lamp industry. The causative relationship has not been worked out and extensive laboratory investigations on this point are under way.

Cadmium has been responsible for a considerable number of fatalities due at first to a non-recognition of its physiological action but later due to a non-recognition of its presence on the parent metal. Cadmium coatings of vessels can

cause poisoning when they are used as food containers. If a cadmium-coated article is subjected to a cutting or welding torch, cadmium oxide fume poisoning may result. This takes the characteristic form of a delayed pulmonary edema similar to nitrous fume poisoning.

Cobalt is used chiefly in the production of magnets in conjunction with nickel and aluminum and as a bonding agent in metal carbide tips for the tool and die industry. Considerable physiological and pharmacological work has been performed showing that cobalt administration produces polycythemia. There have been no reports of clinical or industrial poisoning, however.

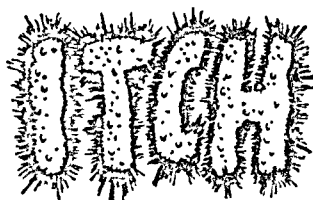
Tellurium is a metal that was found to improve the hardness and machineability of steel. Cases of tellurium poisoning have been reported due to excessive fumes. The symptoms are anorexia, lassitude, nausea, and vomiting. The main diagnostic feature is a garlicky odor of the breath and urine. These cases have not proved particularly serious.

Uranium is a poisonous element and causes kidney damage similar to other heavy metals, such as mercury. Chronic nephritis, as a result of exposure to this metal, occurred as early as 1854. There have been no reports published of any ill effects in workers engaged in purifying this material for use in the chain reacting piles.

Vanadium is a metal that has markedly increased in use as a catalyst and a component of steels. There is considerable discussion about the degree of toxicity it possesses. Pulmonary edema and pneumonitis have resulted from inhalation in animals. In workers the lung changes have been limited to an asthmatic bronchitis.

High frequency radiations, popularly called microwaves, include that range of the radio frequency spectrum from approximately 1,000 megacycles (1,000,000,000 cycles per second) to 30,000

DORLAND LISTS 47 VARIETIES OF



...GET TRIPLE-ACTION RELIEF*

WITH CUTTER DERMESTHETIC OINTMENT

Everything from "alkali" to "winter" causes the itch complaints that reach your professional ear—but regardless of etiology, the physiology of each itch is the same.

That's why the use of Dermesthetic Ointment for symptomatic relief is an excellent prescription as the first step in treating every one of these 47 itch varieties. Here's the type of relief it offers:

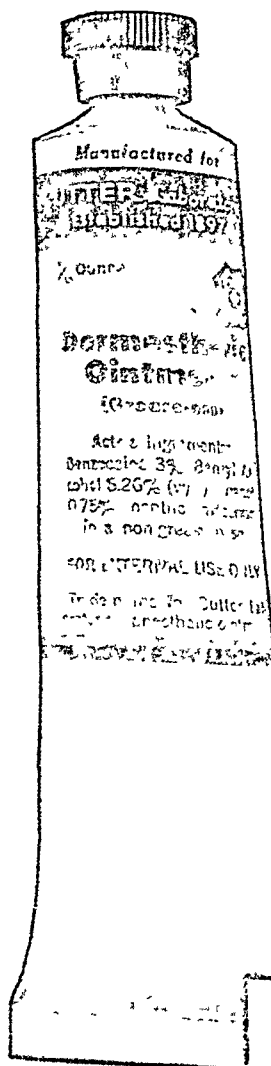
FAST: Dermesthetic Ointment contains benzyl alcohol, which works fast but doesn't last . . .

OVERLAPPING: Phenol offers intermediate relief—with moderately prolonged effect . . .

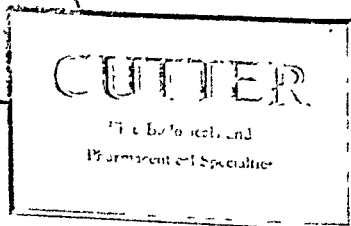
PROLONGED: Benzocaine, which has already begun to soothe affected areas, continues to relieve the itching over a prolonged period.

Nevertheless, it does not dissolve and spread oil-soluble irritants. It can be removed easily and will not stain skin or clothes. We will welcome your request for clinical samples.

*24 hours tested as a bactericidal agent, Dermesthetic Ointment with its Benzyl alcohol and Phenol is bacteriostatic. This action, in combination with the soothing effect of Benzocaine, helps keep the patient free from scratching.



Itches in Industry: Physicians have long recognized skin irritations as one of the leading "occupational hazards" of most workers, yet late studies show itching to be caused by an even greater mass of offenders than had previously been suspect. In many of these industrial rashes and itches, Cutter Dermesthetic Ointment is found to offer immediate relief. While not recommended as a cure, it does stop scratching, thus helping a condition to heal normally.



Cutter Laboratories, Berkeley 1, California

in research and development. However, private industry and governmental agencies are spending annually on scientific research over \$1,200,000,000. This work will narrow the gap between the visionary products of today and the actualities of tomorrow, and will furnish us a constant source of associated health problems.

REFERENCES

1. Brues, A. M., Lisco, H., and Finkel, M. P. Carcinogenic Activity of Some Substances which May Be

a Problem in Certain Future Industries. *Cancer Research*. 7:48, 1947.

2. Fairhall, L. Toxicology of the Newer Metals. *Brit. J. Indust. Med.* 3:207 (Oct.), 1946.

3. Daily, L. E. A Clinical Study of Exposure of Laboratory Personnel to Radar and High Frequency Radio. *U. S. Nav. M. Bull.* 41:1052-1056 (July), 1943.

4. Lidman, B. L., and Cohn, Clarence. Effect of Radar Emanations on the Hematopoietic System. *Air Surgeon's Bull.* 2:448-449 (Dec.), 1945.

5. Follis, R. H., Jr. Studies on the Biological Effect of High Frequency Radio Waves (radar). *Am J Physiol.* 147:281-283 (Oct.), 1946.

6. Lynn, John G., and Putnam, Tracy J. Histology of Cerebral Lesions Produced by Focused Ultrasound. *Am J Path.* 20:637-643 (May), 1944.

Training in Engineering Aspects of Atomic Energy

The Massachusetts Institute of Technology announces a school for graduate training in the engineering aspects of atomic engineering. Work will be done in the production plants of the Atomic Energy Commission operated by the Carbide and Carbon Chemicals Corporation at Oak Ridge, Tenn.

"The purpose of the school is the education of graduate students in several fields of engineering under a program which is designed to develop their ability to apply basic

principles to the solution of technical problems encountered in industry with emphasis on the engineering aspects of atomic energy."

Admission to the new school is restricted to graduate students in the several engineering departments of the Institute who have been in residence at M.I.T. at least one term and are U. S. citizens. Further information can be obtained from Professor William A. Reed, Massachusetts Institute of Technology, Boston, Mass.

American Journal of Public Health

and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

June, 1948

Number 6

CONTENTS

	PAGE
Air Pollution. Report of the Committee on Air Pollution	761
<i>H. A. Whittaker, Chairman</i>	
The Sanitary Engineer in Hospital Construction and Maintenance	770
<i>A. H. Wickers</i>	
Sanitary Ventilation	775
<i>W. F. Wells</i>	
Q Fever in Los Angeles County	781
<i>Charles C. Shepard, M.D., and Robert J. Huebner, M.D.</i>	
Relative Efficiency of the Open and the Confidential Method of Reporting Causes of Death	789
<i>Paul H. Jacobson</i>	
Selecting Public Health Personnel Through Examining Processes	808
<i>Dorothy Deming, R.N.</i>	
Beginnings of a Mental Health Program in a State and Local Department of Health	811
<i>Kent A. Zimmerman, M.D.</i>	

Continued on page vi

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear. These are not to be regarded as expressing the views of the American Public Health Association unless formally adopted by vote of the Association.

Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the Reader's Guide in your Library.

Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

NOTICE:—Subscription \$7.00 per year for United States, Cuba and Mexico, South and Central America; \$7.50 for Canada; and \$8.00 for other countries. Single copies 70 cents postpaid. Copyright, 1948, by American Public Health Association.

Address correspondence regarding editorial contents and manuscripts to C.-E. A. Winslow, Dr.P.H., Editor, 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932, under the Act of March 3, 1879.

Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917.

ASSOCIATION NEWS

SEVENTY-SIXTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
BOSTON, MASS., NOVEMBER 8-12, 1948

FELLOWSHIP IN THE AMERICAN PUBLIC HEALTH ASSOCIATION

The grade of Fellowship was established in the American Public Health Association in 1922. Professional workers in public health are eligible for election as Fellows under certain conditions and as an indication that they have achieved a recognized professional standing. As of January 1, 1948, the total membership of the Association was 11,124, including 1,913 Fellows, or 17 per cent of the total.

Questions are frequently asked regarding the requirements for Fellowship and the following statement outlines the provisions of the By-laws governing qualification and election.

Persons who have been members of the Association for at least two years and who have reached their 30th birthday are eligible to apply if, in their opinion, they meet the conditions of one or more of the six clauses in the By-laws defining "an established professional standing." These six possible approaches are as follows:

a. A person who has rendered acceptable service for two or more years in a responsible public health position and who has been in course a degree of Doctor of Medicine, Doctor of Science in Public Health, Doctor of Philosophy in Public Health, or Doctor of Medicine with at least two years of graduate study in public health education, Master of Public Health, Doctor of Public Health, or other equivalent

degrees, according to standards approved by the Executive Board of the American Public Health Association.

b. A person who has been awarded in course an academic or professional degree involving training in public health and who has been regularly engaged in health work for at least five years, having rendered meritorious service as a health officer or in responsible charge of work in either a public or private health agency.

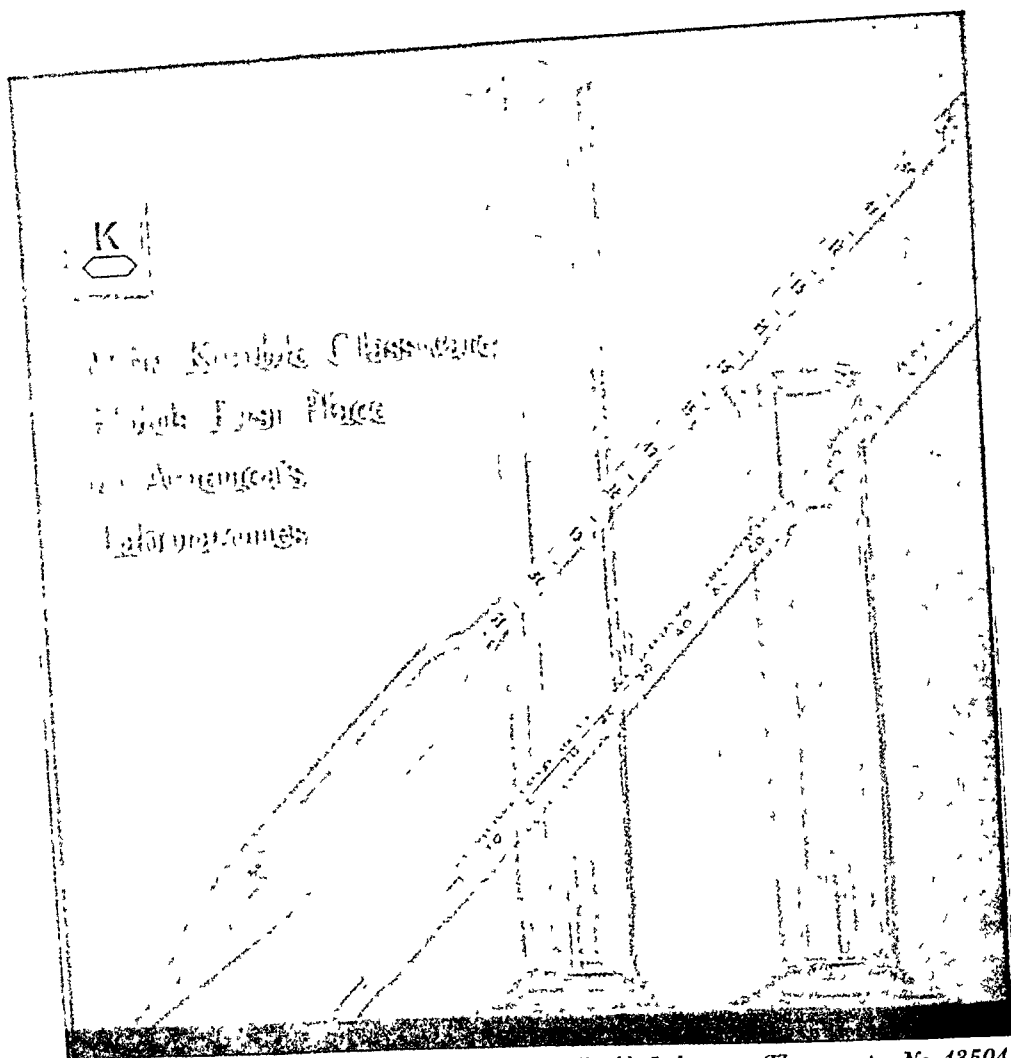
c. A person who has done notable original work in public health or preventive medicine of a character to give him a recognized standing.

d. A person regularly engaged in health work for at least five years, who has given evidence of special proficiency, who has attained a recognized standing.

e. A teacher of public health or one of its constituent sciences who has attained distinction as an expounder of the principles of public health or its constituent sciences. Such a teacher shall have had at least five years' experience as a teacher of public health subjects. Any years of experience as defined in paragraphs "b" and "d" that the applicant may have had shall be considered the equivalent of the same number of years' experience as a "teacher."

f. A person not covered by the above, who has made substantial contributions to public health work in his chosen branch, who has attained a recognized professional standing.

Persons wishing to apply should request a Fellowship application blank from the American Public Health Association Membership Department, 1790 Broadway, New York 19, N. Y. Appli-



*Kimble Laboratory Thermometer No. 43504;
Hydrometer No 31658; Hydrometer Cylinders No. 20060*

THE KIMBLE ORGANIZATION is unique in the precision of its Kimble-developed automatic production units . . . its skilled craftsmen . . . and the driving urge to translate precision and skill into glassware of the highest possible quality.

Kimble Thermometers and Hydrometers are precision-made and calibrated by the finest equipment of its kind. They are thoroughly tempered and aged to insure stability . . . they

are individually retested before shipment . . . are guaranteed within accuracy limits as specified by the National Bureau of Standards.

A complete variety of standard types is now listed in the Kimble Catalog of Laboratory Glassware. Order by number for prompt deliveries from your laboratory supply dealer. Special types can be furnished on reasonable notice.

LOOK FOR THE KIMBLE "K", THE VISIBLE GUARANTEE OF INVISIBLE QUALITY.

KIMBLE GLASS TOLEDO 1, OHIO

Division of Owens-Illinois Glass Company



Journal (p. 1049). At that time the first issue of the Dermatology and Venereology Section had been published. Now Vol. 1, No. 1, of Section IV on Medical Microbiology and Hygiene, has appeared, in January, 1948. Among its American board of editors are Drs. Charles Armstrong, Martin Frobisher, Jr., Hugh R. Leavell, Ernest L. Stebbins, and C.-E. A. Winslow. The material in this section is divided into three main classifications: Medical Microbiology, Hygiene and Public Health, and Medical Entomology and Medical Parasitology.

At the same time the first issue of Section XV on Tuberculosis appeared. Among its editors is J. Burns Amberson, M.D.

All but one of the fifteen sections have now begun publication.

ANOTHER MEDAL FOR DR. CORI

Dr. Carl F. Cori, a Nobel Prize winner and winner of a 1946 Lasker Award of the American Public Health Association, recently received the 1948 Willard Gibbs Medal of the Chicago Section of the American Chemical Society for his achievements in research on processes by which the human body converts sugar into energy. Dr. Cori is Professor of Biochemistry in the Washington University School of Medicine, St. Louis, Mo.

COMMITTED TO STUDY FEDERAL GOVERNMENT'S MEDICAL AND HOSPITAL FACILITIES

The Commission on the Organization of the Executive Branch of the Government, which is headed by Herbert Hoover, has announced the following members of a committee which will investigate the government's medical and hospital services:

Tracy S. Voorhees, president of Long Island College Hospital, Brooklyn, N. Y., chairman; Drs. R. C. Buerki and O. H. P. Pepper (University of Pennsylvania),

Hugh J. Morgan (Vanderbilt), Allen O. Whipple (Columbia), W. C. Menninger (Menninger Foundation), Ray Lyman Wilbur (Stanford), Frank R. Bradley (Barnes Hospital, St. Louis), Michael DeBakey (Tulane). Also on the committee are Charles F. Rowley, former trustee of Massachusetts Investors Trust; Henry Isham, president of Chicago's Passavant Hospital; Dr. Paul R. Hawley, Chief Executive Officer of the National Organization of Blue Cross Hospital Service Plans and Blue Shield Medical Service Plans; and Rear Admiral Joel T. Boone, secretary of the special board now investigating armed forces medical and hospital services.

MORE BABIES AND THEY LIVE LONGER

The National Office of Vital Statistics recently announced a new low infant mortality record for the United States in 1947 of 32.6. The number of live births registered also set a new high record of 3,720,000. The provisional general death rate for the country was 10 as compared with the lowest recorded, 9.9 in 1946.

CHANGES IN STAFF ASSIGNMENTS, U. S. PUBLIC HEALTH SERVICE

Several changes have taken place in the staff of the U. S. Public Health Service in Washington following the assumption by Dr. Leonard A. Scheele of his duties as Surgeon General.

The Federal Security Administrator has nominated for the rank of Major General, Drs. C. L. Williams, Sr., Chief of the Bureau of State Services, and R. C. Williams, Chief of the Bureau of Medical Services. Also nominated for the same rank was Dr. Rollo E. Dyer, Director of the National Institute of Health.

Dr. John R. Heller, who has served as Chief of the Division of Venereal Diseases since 1943, has been appointed Director of the National Cancer Institute, Bethesda, succeeding to the post

Volunteer Participation in Community Health in Hawaii	817
<i>Raymond George Nebelung, Dr.P.H.</i>	
Simple Goiter in Colombia	820
<i>Horacio Parra, M.D.</i>	
Budgets and Expenditures for Dentistry from Maternal and Child Health Funds	825
<i>John T. Fulton, D.D.S.</i>	
Mass Control of Dental Caries Through the Use of Domestic Water Supplies Containing Fluorine	828
<i>Frederick S. McKay, D.D.S.</i>	
Role of the State Health Department in the School Dental Program	833
<i>J. M. Wilson, D.D.S., M.S.P.H.</i>	
Health Problems Resulting from Newer Technological Developments . . .	837
<i>R. Emmet Kelly, M.D.</i>	
Proposed Report on the Educational Qualifications of Community Health Educators. Committee on Professional Education	843
<i>W. P. Shepard, M.D., Chairman</i>	
EDITORIALS:	
The National Health Assembly of 1948	851
What Is Epidemiology?	852
The Cobbler's Children	856
Report to National Health Assembly	858
<i>Quincy Howe</i>	
Clearing House on Public Health Salary Information	867
Sanitary Engineering and National Security	869
Schools of Public Health Accredited for the M.P.H. and Dr.P.H. Degrees for 1948-1949	870
Institutions Accredited by the American Public Health Association To Give the Degree of Master of Public Health (Diploma of Public Health in Canada) and Doctor of Public Health for the Academic Year 1948-1949.	
Credit Lines	872
Public Health in Foreign Periodicals	877
<i>George Rosen, M.D., Ph.D.</i>	
Books and Reports	880
A Selected Public Health Bibliography	886
<i>Raymond S. Patterson, Ph.D.</i>	
Books Received	888
Association News	890
Fellowship in the American Public Health Association. Hotel Reservation Form for Seventy-sixth Annual Meeting. Appreciation of Dr. Carl E. Buck by the C.A.P. Committee on Administrative Practices of the Industrial Hygiene Section. Applicants for Membership. Deceased Members.	
Employment Service	897
News from the Field	903
Conferences and Dates	XXXI

appointed anesthesiologist of the Department of Obstetrics of Johns Hopkins, Baltimore, effective July 1. He will be on special assignment from the U. S. Public Health Service to conduct a 5 year program in the relief of pain in childbirth.

CLARENCE I. STERLING† has been named Director of the Health and Sanitation Division, Institute of Inter-American Affairs, Washington, D. C., to succeed RICHARD J. PLUNKETT,† who resigned to become Assistant Editor of the *Journal of the American Medical Association*.

E. J. SUNKES, DR.P.H.,* has been appointed Director of the Division of Laboratories of the State Department of Public Health, Atlanta, Ga., succeeding THOMAS F. SELLERS, M.D.,* who was recently appointed Director of the State Department of Health. Dr. Sunkes has served 26 years with the Georgia State Laboratories.

NORMAN H. TOPPING, M.D., with the U. S. Public Health Service, Washington, D. C., has been appointed to the new position of Associate Director of the National Institute of Health, Bethesda, Md.

JESSE MEUSE was recently appointed as Negro Health Educator for the Florida State Board of Health, Jacksonville. He has had many years of experience in the field of public health and teaching in public schools of Florida. As a member of the division of health information, he will work with various groups in the promotion of better health among the Negro population of the state.

JOHN MULRENNAN, Director of Entomology, Florida State Board of Health, Jacksonville, was named President of the Florida Anti-Mosquito Association, at a joint meeting of the Florida group and the American Mosquito Association, in Ft. Pierce, Fla., March 18-31.

Western States

HAROLD D. CHOPE, M.D.,* Assistant Health Officer of the San Joaquin public health district, and a former Assistant Director of the California State Department of Health, became San Mateo County, California, Health Director, as of May 1.

CHESTER A. FEE has joined the staff of the Oregon State Board of Health, Portland, as Health Information Consultant. A veteran of World War I, Mr. Fee worked as an educator in California for some years. He has been associated with newspapers and magazines as writer or editor. Formerly with the Department of English at the University of Oregon, he is best known as the author of *Chief Joseph* and other works.

Other Areas

JOSEPH N. LANOIX† has been appointed Director General of Hydraulic Services for the Government of Haiti and for the American Sanitary Mission in Haiti.

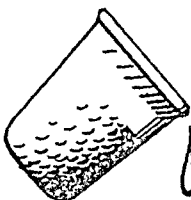
SAM H. ZIA, M.D.,† of Peiping, China, has been appointed Professor and Head of the Department of Bacteriology of the Peiping Union Medical College, effective April 1. Dr. Zia is known in the United States as a former associate of HANS ZINSSER, M.D.

Deaths

EDNA M. KECH,* Director, Division of Health Education, State Health Department in Pennsylvania with offices in Harrisburg, died recently in Florida.

CONRAD KINYOUN,* Director of the Department of Health Laboratories of Savannah, Ga., died March 31. Burial was in the National Cemetery, Arlington, Va., with full military honors.

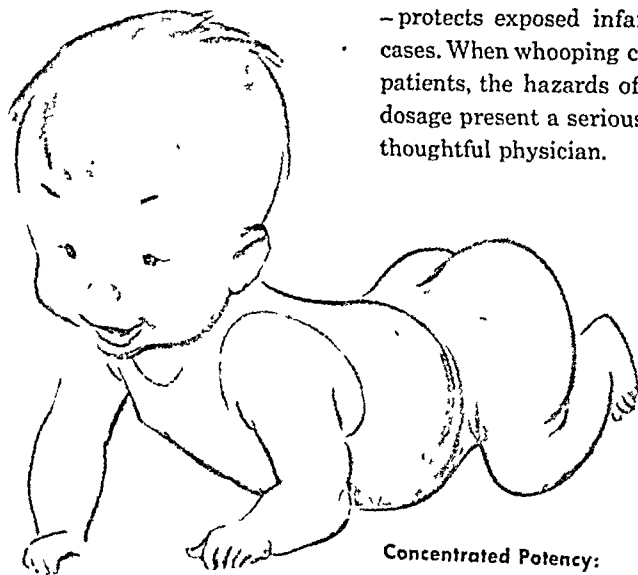
* Fellow A.P.H.A.
† Member A.P.H.A.

A thimbleful of  dosage...

for a handful of baby . . . **2.5cc HYPERTUSSIS**

concentrated human anti-pertussis globulin
— protects exposed infants—treats critical
cases. When whooping cough attacks small
patients, the hazards of massive repeated
dosage present a serious problem to every
thoughtful physician.

2.5 cc Hypertussis
provides the specific
solution for therapy or
passive prevention.
The advantages
are evident:



Concentrated Potency:

- 2.5 cc concentrated by fractionation to
contain the antibody equivalent of
25 cc hyperimmune human serum.
- 2.5 cc delivers consistent gamma globulin
potency in constant measured doses.

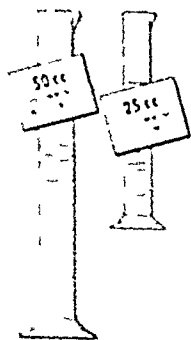
Small Volume Dosage:

- 2.5 cc concentrated gamma globulin re-
duces dosage volume 75%—minimizes
injection trauma—permits repetition
when required.

Homologous, sensitivity-free:

- 2.5 cc clear liquid homologous protein,
Hypertussis is ready for intra-
muscular injection—avoids danger of
reactions and serum sensitivity.

For 10-fold concentration in small volume dosage
—specify **CUTTER 2.5cc HYPERTUSSIS**
Anti-Pertussis Serum (Human)



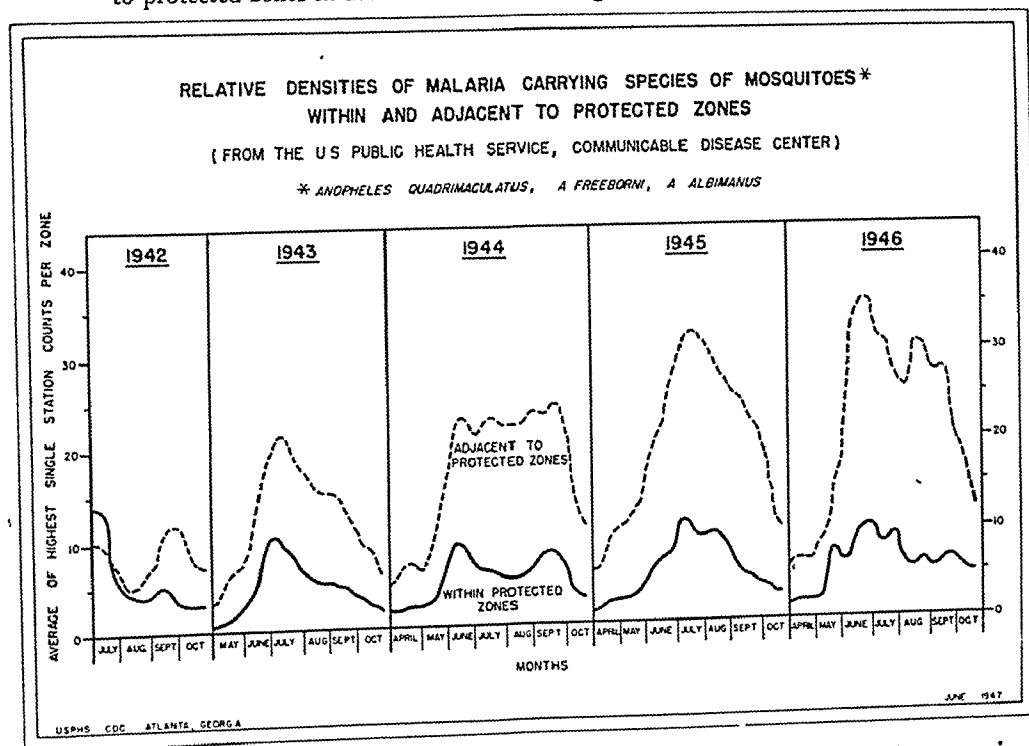
2.5cc HYPERTUSSIS

highly concentrated and puri-
fied gamma globulin of pooled
human serum from healthy
donors hyperimmunized with
Super-Concentrate Phase I
Pertussis Vaccine

The Specific Cutter Blood Fraction for Whooping Cough...

CUTTER LABORATORIES • BERKELEY, CALIFORNIA

FIGURE 5—Relative densities of malaria-carrying species of mosquitoes within and adjacent to protected zones in the United States during the five World War II years.



were developed to teach the lay public simple facts about the cause, nature, transmission, and prevention of malaria, thus securing cooperation in effecting the objectives of the program.

The main malariologic shortcoming of this War Areas Program was that it was aimed only at the protection of military trainees and war workers. Thus it did not nullify foci of primary malaria endemicity unless they were near military training camps, maneuver areas, airports, shipyards, or the sites of war industrial or recreational facilities.

A third federally sponsored program which may have exercised some effect on anopheline prevalence over a considerable portion of the South is that of the Tennessee Valley Authority. This organization was created in 1933. Since then it has constructed or acquired 26 artificial impoundments along the Tennessee River and its tributaries. At maximum normal operating level, these lakes cover nearly 600,000 acres, and their total shore line extends well over

10,000 miles.²⁶ Much of the marginal area is within the limits of traditional malariousness where conditions favor the propagation of *A. quadrimaculatus*, a notorious impoundment breeder. The threat of enhanced malaria incidence was recognized early in the planning phase and, as an important element of the Health and Safety Department, a Malaria Control Division was activated. Its functions, at first investigational and operational, now consist of the development of the TVA malaria control program and the planning and appraisal of its execution in the field. The anti-larval measures utilized include reservoir preparation and improvement, water level management, larviciding, drift removal, and herbiciding—all prosecuted on very large scales. The studies of the TVA Malaria Control Division and the operations performed by it or under its technical supervision appear to have not only kept malaria from becoming a major cause of morbidity in the Tennessee Valley but have reduced to the

American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

July, 1948

Number 7

CONTENTS

	PAGE
Some Concrete Problems of Health Administration—A Symposium	
Staff Education in Chicago <i>Herman N. Bundesen</i>	915
Housing the Health Department in Detroit <i>Bruce H. Douglas</i>	916
Coöperation with Voluntary Organizations in Montgomery County, Maryland <i>V. L. Ellicott</i>	918
Procurement of Personnel in Massachusetts <i>V. A. Getting</i>	919
Financing Local Health Departments in Florida <i>F. M. Hall</i>	920
Fiscal Relationships Between the State and Local Health Departments in California <i>W. L. Halverson</i>	922
Program Plans for Public Health Action in New York State <i>Herman E. Hilleboe</i>	923
Allocation of Funds to Local Programs <i>G. F. Moench</i>	925
Amalgamation of Health Departments in Seattle and King County <i>Emil E. Palmquist</i>	927
Health Coördination in New Orleans <i>John M. Whitney</i>	928

Continued on page vi

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear. These are not to be regarded as expressing the views of the American Public Health Association unless formally adopted by vote of the Association.

Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the Reader's Guide in your Library.

Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

NOTICE:—Subscription \$7.00 per year for United States, Cuba and Mexico, South and Central America; \$7.50 for Canada; and \$8.00 for other countries. Single copies 70 cents postpaid. Copyright, 1948, by American Public Health Association.

Address correspondence regarding editorial contents and manuscripts to C.-E. A. Winslow, Dr.P.H., Editor, 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932, under the Act of March 3, 1879.

Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917.

TABLE 3

Salary Range	Supervisory and Consultant	Staff Level	Graduate Registered
Total Reported	534	1,530	647
Median	\$3,100-\$3,200	\$2,300-\$2,400	\$2,600-\$2,100
Highest	\$5,500-\$5,600	\$3,500-\$3,600	\$3,200-\$3,300
Lowest	Under \$2,400	Under \$1,800	Under \$1,600
Number Receiving			
More than \$3,000	363	64	2
Less than \$2,400	3	842	597

mode, affecting 142 persons, between \$2,400 and \$2,600. Only 6 per cent received \$5,000 or more and nearly one-fourth less than \$2,400. As to regional medians, the median for Eastern and for North and South West Central states was equal to that of the country as a whole, that for the 12 Southern states lower, and for other areas higher.

Public health nursing personnel was divided into four categories—directors of public health nursing, supervisory and consultant nurses, staff level nurses, and graduate registered nurses. The three latter groups were found in the ratio of one, three, and one and one-fifth.

All but 2 of the 48 states reported salaries for directors of public health nursing. These salaries ranged from \$3,200 to \$7,375 with \$4,200 as the median. In 7 states only was the salary \$5,000 or over; in 8 states it was \$3,600 or less.

The median salary for the supervisory and consultant group was between \$3,100 and \$3,200. For the 534 reported positions salaries range from less than \$2,400 to \$5,600. However only 5 persons received \$4,800 or over, and only 33 received \$4,000 or more, while about one-third received less than \$3,000.

The ranges of salaries for the three groups of nurses in the field of public health other than directors are shown in Table 3.

State directors of dental health serv-

ices were reported for 44 states. The highest salary paid was \$7,100 in one state, a state in which the director of maternal and child health, of venereal disease control, of tuberculosis control, and of sanitary engineering were paid respectively \$7,680, \$7,080, \$8,280, and \$8,280. The median salary for dental health directors was \$5,400. Fourteen salaries were below \$5,000 and 8 were above \$6,000.

State directors of vital statistics were reported for 47 states. The salary range for this group of workers was from \$2,400 to \$8,000 while the median was \$4,500. In only 3 states was this position paid at \$6,000 or more and in 15, less than \$4,000.

Nutritionists. Salary reports were received for approximately 100 nutritionists on the staffs of state health departments. For these the median salary was \$3,000-\$3,100, affecting 14 persons. Only 6 persons received more than \$4,000 and 18 received less than \$2,700. Nearly half of the total number received between \$2,700 and \$3,200. Because of the small numbers involved this group was not classified either by state or by region.

It is now expected that similar studies will be made annually. It is hoped that the experience of this first study can be used to refine job definitions and classifications so that comparisons will be meaningful in terms of training and responsibility.



Who's Tops in Telephones? It's U.S.

There are more telephones in this country than in all the rest of the world put together. The United States has one telephone for about every four people, compared to one telephone for every ninety people for the rest of the world.

Sweden comes closest with one telephone for every five people. In the British Isles there's one telephone for every eleven people. In Russia the estimate is about one in a hundred.

New York leads the world's cities with the most telephones. It has 2,600,000—more than in all of France. In relation to population, San Francisco is on top with about one telephone for every two people. Washington ranks a close second.

And we're still building and expanding at the fastest rate in history. The value of telephone service is increasing constantly.

BELL TELEPHONE SYSTEM



ASSOCIATION NEWS

SEVENTY-SIXTH ANNUAL MEETING AMERICAN PUBLIC HEALTH ASSOCIATION BOSTON, MASS., NOVEMBER 8-12, 1948

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Harle V. Barrett, M.D., 408 South Second St., Independence, Kan., Montgomery County Health Officer
Leslie D. Bent, 65 Chestnut St., Montclair, N. J., Asst. Health Officer, Montclair Dept. of Health
George J. Boines, M.D., 511 N. Rodney St., Wilmington 99, Dela., President, City Board of Health
Jose Cerra-Quinones, M.D., U.S.P., Naguabo, Puerto Rico, Health Officer, Insular Dept. of Health
R. A. Clanton, M.D., 606 Marg'n St., Grenada, M.ss., Medical Director, Grenada County
Samuel Klauber, M.D., Health Dept., Mayaguez, Puerto Rico, Supervisor, Western District Health Dept.
Cesar J. Lesaca, M.D., M.P.H., 615 N. Wolfe St., Baltimore 5, Md., Medical Officer, Tuberculosis Control (Philippine Bureau of Health)
Dr. A. H. Lockhart, U.S.P., Cayey, Puerto Rico, Director, Cayey Health Unit
Michael R. Macdonald, M.D., C.M., D.P.H., 103 Charlotte St., Sydney, N.S., Canada, Divisional Medical Health Officer, Dept. of Public Health, Province of Nova Scotia
Max B. McQueen, M.D., M.P.H., District Health Unit, Lewiston, Idaho, Director
Cesar A. Negrette, M.D., Maricao, Puerto Rico, Medical Officer, Health Unit
Arthur A. Nichols, M.D., 6 Roberts St., Fargo, N. D., Acting Health Officer, Fargo
Colonel Benjamin Norris, M.D., Ashtabula County Commissioner of Health, Jefferson, Ohio
Manuel Otero-Rogue, Principal, Morovis,

Puerto Rico, Medical Officer, Sanitary Unit, U.S.P.
Edris Rice-Wray, M.D., 659 McKinley St., Apt. 6, Santurce, Puerto Rico, District Supervisor of Public Health, Arecibo, Puerto Rico
Albert H. Rohner, Hartley Dodge Memorial, Madison, N. J., Health Officer, Board of Health
David G. Schmidt, M.D., 465 Magnolia, Larkspur, Calif., Corte Madera City Health Officer
Wai Shun Sien, M.D., 2057 University Ave., Berkeley, Calif., Student, School of Public Health, Univ. of California
J. Gregg Smith, M.D., State Dept. of Public Health, Atlanta, Ga., Trainee
Clinton F. Story, M.D., D.P.H., Library Bldg., Saskatoon, Sask., Canada, Acting Medical Officer of Health, Saskatoon Health Dept.
James F. Terrell, M.D., Pima County General Hospital, Tucson, Ariz., Medical Director, Pima County Clinic
E. Burford Weeks, D.T.M., D.P.H., Box 180, Red Deer, Alberta, Canada, Medical Officer of Health, Red Deer Health Unit
Herbert B. Wise, M.D., Lewis County Health Dept., Weston, W. Va., Director, Public Health West Virginia District 4

Laboratory Section

Josefina Acosta-Matienzo, M.S., School of Tropical Medicine, San Juan, Puerto Rico, Parasitologist, U.S.P.H.S.
Alexander S. Bartha, 2526 Argyle, Chicago 25, Ill., Assoc. Bacteriologist, Health Dept., Oak Park
Sidney Bernstein, M.S., 131 Lake St., Saranac

Contents—Continued

	PAGE
What's Happening to Malaria in the U. S. A?	931
<i>Justine M. Andrews, Sc.D.</i>	
Some Labor Union Enterprises in Public Health Economics	943
<i>B. A. Kogan, M.D., Dr.P.H.</i>	
International Population and Vital Statistics	951
<i>Forrest E. Linder, Ph.D.</i>	
General Atmospheric Pollution—A Symposium	
The Air Pollution Control Program in Cleveland	957
<i>Herbert G. Dyktor</i>	
Some Work in Pittsburgh Air Pollution Problems	960
<i>Sumner B. Ely</i>	
Los Angeles "Smog"	962
<i>Charles L. Senn</i>	
New York City's Atmospheric Pollution Control Problems	966
<i>Arthur C. Stern</i>	
Medical Attendance During Terminal Illness	970
<i>Marta Fraenkel, M.D.</i>	
Theoretical Considerations Concerning Caries Control	977
<i>L. S. Fosdick, Ph.D.</i>	
Health Department Experience for School Health Coördinators in Washington	982
<i>Marjorie Eastabrooks, M.S.P.H., and Howard Lundy, Dr.P.H.</i>	
Environmental Health Problems Related to Urban Decentralization — As Observed in a Typical Metropolitan Community	986
<i>Leonard M. Board, M.P.H., and Herbert J. Dunsmore, M.P.H.</i>	
Increasing the Scope of School Sanitation Service in Local Department of Health Programs	997
<i>S. D. Sturkie, M.D., M.P.H.</i>	
Proposed Report on the Educational Qualifications of Sanitarians. Com- mittee on Professional Education	1003
<i>W. P. Shepard, M.D., Chairman</i>	
EDITORIALS:	
The Science and Art of Health Administration	1008
The United States Public Health Service	1009
A Tale of Two Territories	1011
Credit Lines	1015
Books and Reports	1020
Books Received	1029
A Selected Public Health Bibliography	1031
<i>Raymond S. Patterson, Ph.D.</i>	
Association News	1033
Seventy-sixth Annual Meeting, Boston, Mass., Hotel Reservation Form. Fellow- ship in the A.P.H.A. Applicants for Membership. Deceased Members. The Problem of Proper Illumination. Western Branch, A.P.H.A. Southern Branch, A.P.H.A.	
Employment Service	1041
News from the Field	1047
Conferences and Dates	1060

Reprint prices furnished upon request

Waterman Fund for the Combat of Dietary Diseases, Research Corp.

Maternal and Child Health Section

Thelma N. Vonarx, R.N., State Hospital, Philipsburg, Pa., Superintendent

Public Health Education Section

Gladys A. Alexander, P. O. Box 1665, Santa Fe, N. M., Exec. Secy., New Mexico Tuberculosis Assn.

Maxine Beeston, M.P.H., 203 Dillingham Bldg., Honolulu, T. Hawaii, Health Educator, Chamber of Commerce

Dorothy K. Bella, R.N., M.A., 535 Wynnewood Road, Pelham Manor, N. Y., Educational Director, New Rochelle Hospital School of Nursing

Ray E. Brown, 950 E. 59th St., Chicago 37, Ill., Assoc. Professor of Hospital Administration, University of Chicago Clinics

Robert F. Brown, M.D., St. Luke's Hospital, 1439 S. Michigan Ave., Chicago 5, Ill., Medical Director

Ana L. Correa-Fontanez, M.P.H., Cristobal Colon 15, Caguas, Puerto Rico, Health Educator, Public Health Unit

Dorothy L. Craig, 1604 Franklin St., Pierre, S. D., Health Educator, State Board of Health

Judith Danielsen-Carrion, Celis Aguilera 36, Caguas, Puerto Rico, Health Educator

M. Elizabeth Davis, M.S.P.H., 247 Church St., Sumter, S. C., Health Educator, State Board of Health

Gloria A. Fernandez, 63 S. Ashford St., Guayama, Puerto Rico, Health Technician, Humacao Schools, Dept. of Education

Eugenia Garcia-Ruiz, M.S.P.H., Apartado 3, Rio Piedras, Puerto Rico, Health Educator, Dept. of Education

Elisha M. Herndon, 107 Market St., Durham, N. C., Executive Vice-President, The Hospital Care Assn. Inc.

Leon N. Hickernell, Vancouver General Hospital, Vancouver, B. C., Canada, Director

Daniel Horn, Ph.D., 47 Beaver St., New York 4, N. Y., Chief of Field Surveys, Statistical Research Dept., American Cancer Society

James P. Kranz, Sr., 405 Chamber of Commerce Bldg., Nashville 3, Tenn., Exec. Secy., Tennessee Tuberculosis Assn.

Robert S. MacDonough, USN Training Center, Dispensary, San Diego, Calif., Sanitation Officer

John C. Mackenzie, M.D., C.M., D.P.H., 3516 Prytania St., New Orleans, La., Director, Touro Infirmary

Sherman D. Meech, 41 Chestnut St., Rochester

4, N. Y., Managing Director, Rochester Hospital Service Corp.

Fernando M. Monserrate, M.D., Univ. of Puerto Rico, Rio Piedras, Puerto Rico, Director, Students Health Service

Elmer F. Nester, 4904 Delmar Blvd., St. Louis 8, Mo., Exec. Director, Group Hospital Service, Inc.

Joseph G. Norby, 3321 N. Maryland Ave., Milwaukee, Wis., Administrator, Columbia Hospital

Abraham Oseroff, M.A., Farmers Bank Bldg., Pittsburgh 22, Pa., Vice President and Secretary, Hospital Service Assn. of Pittsburgh

Donald E. Porter, 215 E. 26th St., New York 16, N. Y., Field Asst. Tuberculosis Committee, N. Y. Tuberculosis and Health Assn.

Oliver G. Pratt, Rhode Island Hospital, Providence, R. I., Exec. Director

Verna C. Stevens, 65 Belknap Ave., Yonkers, N. Y., Student, New York Univ.

Sik Ien Tjoa, M.D., Oendaan Wetan 50, Soerobaja, Java, N.E.I., Private Practice

Maryrose J. Tomassi, Univ. of N. C., School of Public Health, Chapel Hill, N. C., Junior Asst. Nurse Officer, U.S.P.H.S.

Ruby E. Weeks, M.S.P.H., 1806 Maple Ave., Evanston, Ill., Health Educator, Evanston Health Dept.

Harvey H. Weiss, 717 Lake Drive, Baltimore 17, Md., Director, Sinai Hospital

Lucius R. Wilson, M.D., Episcopal Hospital, Front & Lehigh, Philadelphia 25, Pa., Superintendent

Public Health Nursing Section

Genevieve I. Anderson, M.P.H., 3836 1st Ave. South, Minneapolis 8, Minn., Industrial Nursing Consultant, State Dept. of Health

Louise A. Anderson, 6125 Coplin Ave., Detroit 13, Mich., Asst. to Child Welfare Consultant, Detroit Dept. of Health

Marjorie Duvillard, Le Bon Secours, 15 Av. Dumas, Geneva, Switzerland, Director, School of Nursing

Ana Falcon, Hospital de la Capital, Santurce, Puerto Rico, Principal, City Hospital School of Nursing

Helen E. Kater, R.N., 1128 S. Mulberry St., Muncie, Ind., Director, Visiting Nurse Assn.

Elwill Mattson, R.N., 1101½ Massachusetts, Lawrence, Kan., Public Health Nurse, Lawrence-Douglas County Health Dept.

Sarah R. Miller, Dyer County Health Dept., Dyersburg, Tenn., Senior Public Health Nurse

Ruth Pearse, 125 West Forrest, Brigham, Utah, Public Health Nurse, State Health Dept.



MAKE IT A THREE-ROUND KNOCKOUT

with Dip-Pert-Tet*—
Cutter combined vaccine

Everything you want in a combined vaccine, you'll find in Dip-Pert-Tet (formerly called D-P-T):

1. Diphtheria and tetanus toxoids so purified that each cc. contains well over the standard "one human dose"...
2. Phase I pertussis organisms, grown on human blood media to maintain a vaccine of concentrated high antigenicity and low reactivity...
3. A choice of two products—Dip-Pert-Tet Plain, the unprecipitated antigens—or Dip-Pert-Tet Alhydrox, adsorbed with aluminum hydroxide.

Dip-Pert-Tet Alhydrox, in contrast to alum precipitated vaccines, maintains higher anti-toxin levels longer, and the more normal pH lessens pain on injection. Side reactions are cut to the minimum—sterile abscesses and persistent nodules are almost non-existent.

Ask your pharmacist for Dip-Pert-Tet—by *name*.

Supplies of Dip-Pert-Tet are still short of the overwhelming demand—but with constantly increasing production, Cutter has every hope of meeting your needs.

CUTTER

U.S. Patent Office and
International Registration

*Cutter Trade Name

CUTTER LABORATORIES
Berkeley 1, California

and Director of Public Health, City of Grand Junction

Ralph G. Walker, 743 South Grand View St., Los Angeles 54, Calif., Exec. Director, Hospital Service of Southern California

DECEASED MEMBERS

David B. Lepper, M.D., Bluefield, W. Va., Elected Member 1923, Elected Fellow 1927, Health Officers Section.

Marshall W. Meyer, M.D., M.P.H., Madison, Wis., Elected Member 1940, Elected Fellow 1947, Health Officers Section.

D.C.Y. Moore, M.D., Manchester, Conn., Elected Member 1920, Elected Fellow 1937, Health Officers Section.

Frances Stern, Boston, Mass., Elected Member 1921, Elected Fellow 1935, Food and Nutrition Section.

Ralph E. Tarbett, Takoma Park, Md., Elected Member 1928, Elected Fellow 1930, Engineering Section.

Howard S. Allen, M.D., Woodbury, Conn.,

Elected Member 1944, Health Officers Section.

James F. Arbuckle, White Plains, N. Y., Elected Member 1946, Public Health Education Section.

Joe Davis, Seattle, Wash., Elected Member 1943, Laboratory Section.

Elsie Hickey, Toronto, Ontario, Canada, Elected Member 1944, Public Health Nursing Section.

Stroud Jordan, Ph.D., New York, N. Y., Elected Member 1944, Food and Nutrition Section.

James W. Loughlin, M.D., Newcastle, Me., Elected Member 1933, Epidemiology Section.

Albert E. Rector, M.D., Appleton, Wis., Elected Member 1943, Unaffiliated.

Holman Taylor, M.D., Fort Worth Tex., Elected Member 1930, Public Health Education Section.

Harley A. Bunner, Atlanta, Ga., Elected Member 1946, Laboratory Section.

W. W. Hume, M.D., Beckley, W. Va., Elected Member 1931, Health Officers Section

DR. CARL BUCK JOINS UNIVERSITY OF MICHIGAN FACULTY

Carl E. Buck, Dr.P.H., was appointed to the staff of the Committee on Administrative Practice, American Public Health Association, March 31, 1931. During most of the intervening years he has served as Field Director for the Association and the committee. He has now resigned from this position to become Resident Lecturer in Public Health Practice at the University of Michigan School of Public Health, Ann Arbor. His special interest will continue in the field of state and local health administration.

Dr. Buck's host of friends throughout the North American Continent will be glad to know that his unusual talents and his wealth of practical experience have been transferred to a point where his influence may be extended through his students to influence public health practice in the future. He has acquired the kind of information and experience possessed by almost no other person during the last 17 years. His mark has been made on the Committee on Ad-

ministrative Practice, on the Association, and upon local and state health services in North America.

Besides many studies and reports which Dr. Buck has made on local health agencies, both official and voluntary, there should be recorded the unprecedented series of state studies conducted by Dr. Buck during the last 11 years. Beginning with a study of Ohio in 1931, Dr. Buck's interests were extended through studies in Arizona in 1936; Massachusetts, 1936; Oklahoma, 1938; Michigan, 1939; Florida, 1939; Alaska, 1940; Louisiana, 1941; Manitoba, 1941; Illinois, 1942; Washington, 1942; Alaska (re-study), 1943; California, 1943; Oregon, 1944; Utah, 1944; Idaho, 1945; Colorado, 1946; Wyoming, 1946; Montana, 1946; North Dakota, 1947. After completing a second study of Massachusetts during the fall of 1947, Dr. Buck finished his term of service with the Association by a re-study of the California State Department of Health. Dr. Buck has announced that he will continue an interest in field work in a consulting capacity.

American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

August, 1948

Number 8

CONTENTS

	PAGE
Relation of Economic Status to Tuberculosis Mortality by Age and Sex . . . <i>Milton Terris, M.D., M.P.H.</i>	1061
Rheumatic Heart Disease and Crowding <i>Robert W. Quinn, M.D., with the Assistance of John H. Watkins, Ph.D., and Julia P. Quinn, M.S.S.</i>	1071
The Rheumatic Fever Community Program — Its Value in the Epidemio- logical Study of Rheumatic Fever <i>A Symposium — Summary prepared by David D. Rutstein, M.D., Moderator</i>	1082
Public Health Nursing in Rheumatic Fever <i>Mary E. Parker, R.N.</i>	1085
Medical Social Follow-Up <i>Florence I. Mosher</i>	1087
The Registry in the Community Rheumatic Fever Program <i>Marjorie T. Bellows</i>	1088
A Medical-Social Worker's Approach to the Problem of Poliomyelitis . . . <i>Ethel Cohen</i>	1092

Continued on page vi

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear. These are not to be regarded as expressing the views of the American Public Health Association unless formally adopted by vote of the Association.

Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the Reader's Guide in your Library.

Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

NOTICE:—Subscription \$7.00 per year for United States, Cuba and Mexico, South and Central America; \$7.50 for Canada; and \$8.00 for other countries. Single copies 70 cents postpaid. Copyright, 1948, by American Public Health Association.

Address correspondence regarding editorial contents and manuscripts to C.-E. A. Winslow, Dr.P.H., Editor, 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932, under the Act of March 3, 1879.

Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917.

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

(Supplemental to list in April Journal)

POSITIONS AVAILABLE

Epidemiologist for responsible state-wide program in communicable disease control requiring an experienced health officer.

Senior Bacteriologist for responsible positions in state public health Laboratories. Master's degree or experience necessary. Monthly salary \$250-\$315.

Junior Bacteriologist for positions available in state public health laboratories. Bachelor's degree with major in bacteriology or immunology required. Monthly salary \$210-265. Contact Personnel Office, Kansas State Board of Health, Topeka, Kans.

Employment Opportunities in Arizona Wanted—Medical and Other Professional Personnel in Arizona

Director of Tuberculosis Control Division, \$6,000 a year
Director of Maternal and Child Health Division, \$6,000 a year
Two Directors of Local Health Units, \$5,100 a year
Maternal and Child Health Clinician, \$5,100 a year
Clinician in the Special Field of Cancer, \$5,100 a year
Director, Hospital Survey, Planning and Construction, \$6,000 a year
Nutrition Consultant, \$3,360 a year
Dental Hygienist, \$2,400 a year
Assistant Director of Health Education, \$2,880 a year
Psychiatric Social Work Consultant, \$3,360 a year
Consulting Psychologist, \$3,360 a year
Senior Psychologist, \$2,880 a year
Junior Psychologist, 2,400 a year
Personnel Officer, \$3,000 a year
Vital Statistician, \$2,880 a year
Public health program operates under a Merit System of Personnel Administration. For further information write to: J. P. Ward, M.D., Superintendent of Public Health, Phoenix, Ariz.

Public Health Nurse wanted with Public Health Certificate. Beginning salary \$3,051 to maximum of \$3,577. Car furnished. Permanent tenure, vacation and sick leave, 5 day week. For further in-

formation apply to the Civil Service Board, City Hall, Dearborn, Mich.

Nurse for Public School System of Mount Clemens. Beginning salary \$3,200-\$3,300 depending upon training and experience. Write Box A-10. Employment Service. A.P.H.A.

Public Health Administrator. A position combining that of public health engineering and the supervision of personnel, accounting and properties in a health unit containing 57 full-time positions. The area is adjacent to the District of Columbia, has a population of 130,000, and is both rural and suburban. Salary \$4,400-\$5,060, plus a ten per cent cost of living increase. Apply to Civil Service Commissioner of Montgomery County, Rockville, Md.

Chief Health Officer for City Health Department. Department operating efficiently. Required: M.D., preferably with public health training and experience. State experience and salary expected. Apply to City Manager, Bluefield, W. Va.

City Health Officer for New England industrial city of 20,000 population; full-time position with major emphasis on child and school health program; starting salary \$6,000. Reply in detail to Board of Health, City Hall, North Adams, Mass.

Medical Director, Municipal Tuberculosis Hospital, bed capacity 115. Permanent, full time. Salary \$4,620 with full maintenance. Reply Box 583, Fall River, Mass.

Physician, as Chief of the Bureau of Tuberculosis in charge of all public health tuberculosis activities (no institutional work). Salary \$10,380 plus \$25 cost of living monthly bonus. Write to the President, Board of Health, Territory of Hawaii, Honolulu, Hawaii, by airmail.

Physician as Director City-County Health Department, Eau Claire, Wis, population 56,000; staff of 14; ideal

Reliance

on

MAPHARSEN[®] in syphilotherapy



Reliance on MAPHARSEN is reflected in its extensive clinical use—over 200,000,000 injections since 1940. The significant advantages of high therapeutic effectiveness and notable relative safety have established its value as an antispirochetal agent. Clinical and serological follow-ups continue to demonstrate its high percentage of cures. Equally adapted to intensive, intermediate or conventional prolonged treatment schedules, alone or with penicillin,

MAPHARSEN

is an arsenical of choice in the treatment of syphilis

MAPHARSEN (oxophenarsine hydrochloride, P. D. & Co.) is supplied in single dose ampoules of 0.04 Gm. and 0.08 Gm., boxes of 10, and in multiple dose ampoules of 0.6 Gm. in boxes of 10.

PARKE, DAVIS & COMPANY • DETROIT 32, MICHIGAN



SANITARY SURVEY

It seems theoretically possible to control epidemics of air-borne contagion by covering dynamic foci with threshold sanitary ventilation; these foci constitute the primary sources of contagious epidemics in the community. Any attempt to tabulate the relative importance of various atmospheres encountered in experimental studies discloses a lack of trustworthy information on the essential channels of commerce in contagion. Nevertheless, in experimental design and the interpretation of epidemiological data, the relative insignificance of unblockaded channels is tacitly assumed.

Before designing a municipal water supply, the static factors which govern spread of intestinal infection, amount of pollution (I), size of aggregation (S), and effective dilution (r), must be surveyed. Control of static factors which determine effective contact rate and exposure time is not enough to prevent contagious epidemics by sanitary ventilation; dynamic factors which determine intra-aggregational reexposure linkage of generations, and the hazard of inter-aggregational linkage of exposure within the community, i.e., the chance of introduction of infection to and dispersion from social groups, must also be evaluated. A sanitary survey of the various atmospheres breathed by aggregations under observation is required to evaluate methods of control of air-borne infection. Sanitary discrimination in

the dynamic control of air-borne contagion is even more essential than in the static control of water- or milk-borne infection.

REFERENCES

1. Wells, W. F. Apparatus for Study of the Bacterial Behavior of Air. *A.J.P.H.*, 23:58-59 (Jan.), 1933.
2. Wells, W. F., and Wells, M. W. The Measurement of Sanitary Ventilation. *A.J.P.H.*, 28:343-350 (Mar.), 1938.
3. Wells, W. F. Air Disinfection in Day Schools. *A.J.P.H.*, 33:1436-1443 (Dec.), 1943.
4. Anderson, G. W., Hamblen, A. D., and Smith, H. M. Typhoid Carriers. A Study of their Disease Producing Potentialities over a Series of Years as Indicated by a Study of Cases. *A.J.P.H.*, 26:396-405 (Apr.), 1936.
5. Wilson, E. B., and Worcester, Jane, The Law of Mass Action in Epidemiology. *Proc. National Academy of Sciences*, 31:24-29, 1945.
6. Wells, W. F., Wells, M. W., and Crumb, C. 'On Air-borne Contagion, to be published.
7. Wells, M. W. Ventilation in the Spread of Chicken Pox and Measles within School Rooms. *J.A.M.A.*, 129:197-200 (Sept. 15), 1945.
8. Chapin, C. V. Measles in Providence, R. I., 1858-1923. *Am. J. Hyg.*, 5:635-655, 1925.
9. Wells, W. F., and Wells, M. W. Air-borne Infection as a Basis for a Theory of Contagion, Aerobiology. *Publ. 17, Am. Assn. Adv. Sc.*, 99-101, 1942.
10. Perkins, J. W., Bahlke, A. M., and Silverman, H. F. Effect of Ultra-violet Irradiation of Classrooms on Spread of Measles in Large Rural Central Schools. *A.J.P.H.*, 37:529-537 (May), 1947.
11. Wells, W. F., Ratcliffe, H. L., and Crumb, C. On the Mechanics of Droplet Nuclei Infection, Quantitative Experimental Air-Borne Tuberculosis in Rabbits. *Am. J. Hyg.* (Jan.), 1948.
12. Wells, W. F. Bactericidal Irradiation of Air. *J. Franklin Inst.*, 230:347-372 (Mar.), 1940.
13. Wells, W. F. Ray Length in Sanitary Ventilation by Bactericidal Irradiation of Air. *J. Franklin Inst.*, 238:185-193 (Sept.), 1944.
14. Wells, W. F. Radiant Disinfection of Air. *Arch. Phys. Therapy*, 23:143-148 (Mar.), 1942.
15. Wells, W. F. Circulation in Sanitary Ventilation by Bactericidal Irradiation of Air. *J. Franklin Inst.*, Nov., 1945.
16. Wells, W. F., and Wells, M. W. Dynamics of Air-borne Infection. *Am. J. M. Sc.*, 206:11-17 (July), 1943.
17. Wells, W. F., Wells, M. W., and Wilder, T. S. The Environmental Control of Epidemic Contagion. I. An Epidemiologic Study of Radiant Disinfection of Air in Day Schools. *Am. J. Hyg.*, 35:97-121 (Jan) 1942.

<i>Contents—Continued</i>	PAGE
The Economic Status of Public Health Nurses, 1946-1947 <i>Dorothy E. Wiesner and Lily Mary David</i>	1097
Personnel Administration in Public Health <i>Albert H. Aronson</i>	1103
Factors of Sewage Pollution of Oyster Beds in Galveston Bay <i>Robert I. Wise, Ph.D., Joe B. Winston, B.S., and George Culli, Jr.</i>	1109
Modified Self-Selection Method of Feeding Preschool Children in the Home <i>Margaret F. Gutelius, M.D.</i>	1118
Nutrition Appraisals in Mexico <i>Richmond K. Anderson, M.D., José Calvo, M.D., William D. Robinson, M.D., Gloria Serrano, M.D., and George C. Payne, M.D.</i>	1126
Development of a Voluntary Agency for Venereal Disease Control <i>Herbert H. Cowper, M.D., M.P.H.</i>	1136
Study of Vision Testing Procedures <i>Thomas E. Shaffer, M.D.</i>	1141
EDITORIALS:	
Health and Economics	1147
The Public Health Nurse and the Social Worker	1148
Changing Attitude of the Army with Regard to Venereal Diseases	1150
They Also Serve Who Only Sit and Write	1152
Clearing House on Public Health Salary Information	1153
Public Health in Foreign Periodicals <i>George Rosen, M.D., Ph.D.</i>	1156
Books and Reports	1160
Books Received	1168
A Selected Public Health Bibliography <i>Raymond S. Patterson, Ph.D.</i>	1169
Association News Nominations for the Governing Council. Progress in the Merit System Service. Applicants for Membership. Seventy-Sixth Annual Meeting — Hotel Reservations at Boston. Hotel Reservation Form.	1172
Employment Service	1179
News from the Field	1185
Conferences and Dates	1199

little or no pasture available, and nearly all the feed is brought in from other places. The sources of the feed for the cows are scattered over thousands of miles. Although the chief item, hay, is trucked in from the nearby Imperial and San Joaquin Valley, grain comes from northwestern United States, soy beans from the mid-West, copra meal from the Philippines, and molasses from Hawaii.

Because of the high cost of feed and land, almost all of the cows are imported from areas where pasture is available. They are usually bought as at least 3 year old animals, or so-called "second calf heifers." Although most of them are raised in California in the San Joaquin and Sacramento Valleys, many come from Oregon, Washington, Idaho, Montana, Utah, and Colorado.

Because of the lack of pasture the cows are concentrated in pens at most dairies and the considerable manure which accumulates in the pens is removed by scraping it with a bull dozer to the center of the pen where it is loaded into trucks and hauled away to fertilizer plants.

The dairies themselves consist of pens, an open milking barn, a closed feed barn, and piles of baled hay protected on the top against rain. Although most of the population in the area is concentrated in towns of a few thousand, there are many residences quite close to the dairies, and there are occasional dairies in the towns. Over 400 dairies are to be found here, and few people can travel far from their homes without passing one or more of them.

Methods of Investigation—

Through the coöperation of local physicians the names of persons who had undergone recent febrile attacks were obtained. Cases of virus pneumonia were especially sought. These people were then visited, interviewed, and

blood samples were taken. As might have been expected in the spring, upper respiratory infection provided the principal group of illnesses to be differentiated from Q fever. This differentiation could be done in most cases by taking a history of the disease and asking specific questions about upper respiratory symptoms. The presence of sore throat, running nose, and severe cough were valuable in making a diagnosis of upper respiratory infection. The complement-fixation test was of great help in arriving at a diagnosis of Q fever.

Complement-fixation serum tests were done with the technic described by Bengtson⁴ with antigen prepared by method II⁵ from yolk sacs infected with the Italian (Henzerling) strain of *Rickettsia burneti*. Results are given as the highest dilution at which 3+ to 4+ fixation was seen. Samples of blood collected in California were shipped by air mail to the laboratory in Bethesda, Md., where the sera and clots were separated. The clots were used when indicated for attempted isolation of rickettsiae. Certain precautions were taken for shipment, stoppers were fastened down securely with adhesive tape in order that they could not be loosened by the low pressures encountered in air transport, and the mailing containers were packed tightly with cotton in order to prevent breakage.

The Diagnosis of Clinical Disease in Human Beings—

Table 1 lists the clinical cases of Q fever found by preliminary investigations. The patients seen by physicians not familiar with Q fever were ordinarily diagnosed as "virus" or "atypical" pneumonia. Pneumonitis was demonstrated when roentgenograms were done.

The diagnosis of Q fever in each case was based on a typical clinical history with confirmatory laboratory findings. The typical clinical history was the same



"Conditioned" for a **THREE-ROUND FIGHT**

Three shots of Dip-Pert-Tet*—that's all it takes to condition any young hopeful with sound immunity to diphtheria, pertussis and tetanus. Formerly called D-P-T, Cutter's combined vaccine offers these definite advantages:

1. Diphtheria and tetanus toxoids so purified that each cc. contains well over the standard "one human dose"...
2. Phase I pertussis organisms, grown on human blood media to maintain a vaccine of concentrated high antigenicity and low reactivity...
3. A choice of products — Dip-Pert-Tet Plain, the unprecipitated antigens—or Dip-Pert-Tet Alhydrox, adsorbed with aluminum hydroxide.

Dip-Pert-Tet Alhydrox, in contrast to alum precipitated vaccines, maintains higher antitoxin levels longer, and

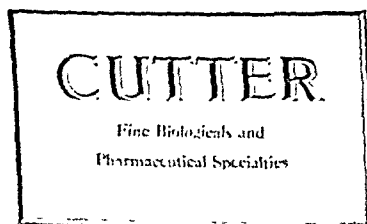
the more normal pH lessens pain on injection. Side reactions are cut to the minimum—sterile abscesses and persistent nodules are almost nonexistent.

Ask your pharmacist for Dip-Pert-Tet—by name.

Supplies of Dip-Pert-Tet are still short of the overwhelming demand—but with constantly increasing production, Cutter has every hope of meeting your needs.

Dip-Pert-Tet Cutter

*(Combined tetanus and diphtheria toxoids with H. pertussis vaccine)



CUTTER LABORATORIES • Berkeley 1, Calif

established in yolk sacs of hens' fertile eggs by passage from guinea pigs.

Epidemiological Features of the Clinical Cases in Human Beings—

Table 1 shows that the age of the clinical cases studied varied from 15 to 62 years. Twelve males were involved, as compared to 5 females. The cases occurred from November, 1946, to May, 1947, and were still occurring in October, 1947. It seems reasonable to assume that Q fever has been occurring here for some time. As yet no seasonal incidence is apparent.

The striking feature of the epidemiology is its peculiar relationship to dairies. It can be seen that in all of the cases except two a history was obtained of having visited dairies or of having lived near them. And, as has been mentioned, it is difficult to travel far in this region without passing cow pens. Yet none of the patients had been actually employed by a dairy, and most of them had probably not come within 10 to 20 feet of a cow, so that their contact with cows was more remote than that of the dairy workers which are considered next.

Serologic Studies of Persons Not Clinically Ill With Q Fever—

We have examined sera of many persons from outside the laboratory in the past and our experience has been that

until actual cases of Q fever were encountered in epidemics, the sera were uniformly negative. The sera of patients undergoing Q fever have given clear-cut results, most patients developing antibodies to high titer during the course of their illness. However, the results on sera of persons from the milk shed area were distinctly different, as will be seen from examination of Tables 2, 3, and 4.

TABLE 2

Complement-fixation for Q Fever on Sera of Dairy Workers

No	Time in Area	Time Worked in local dairies	Titer
1	29 yrs	29 yrs	16
2	24 yrs	24 yrs	0
3	22 yrs	22 yrs	8
4	18 yrs	18 yrs	0
5	15 yrs	15 yrs	0
6	14 yrs	12 yrs	0
7	12 yrs	12 yrs	0
8	10 yrs	10 yrs	0
9	7 yrs	7 yrs	0
10	1½ yrs	1½ yrs	16
11	1½ yrs	1½ yrs	32
12	1 yr	1 yr	0
13	1 yr	1 yr	32
14	8 mos	8 mos	32
15	6 mos	6 mos	0
16	8 mos	6 mos	8
17	2 yrs	1½ mos	0
18	—	—	4
19	—	—	8
20	—	—	4

Table 2 shows the results of complement-fixation tests with sera of dairy workers. Twenty samples were tested, and 10 found positive in some dilution. Since these men had probably acquired

TABLE 3

Complement-fixation for Q Fever in Persons Ill with Other Diseases

Total Sera	Number Negative	Number Positive	End Titer			
			4	8	16	32
Residing within 100 yards of a dairy	3	4	1	0	1	2
Not residing within 100 yards of a dairy	6	0	0	0	0	0

TABLE 4

Complement-fixations for Q Fever on Specimens Submitted for Routine Serologic Test for Syphilis

Source	Total specimens submitted	Number negative	Number positive	End Titer		
				4	8	16
Milk Shed, L. A. County	166	161	5	2	2	1
District of Columbia	96	96	0	0	0	0

American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38 September, 1948 Number 9

CONTENTS

	PAGE
Developments in Child Psychiatry in the United States <i>Frederick H. Allen, M.D.</i>	1201
Newly Proposed Staining Formulas for the Direct Microscopic Examination of Milk <i>B. S. Levine, Ph.D., and L. A. Black, Ph.D.</i>	1210
Bacteriological and Epidemiological Data on Typhoid Fever in Amsterdam <i>A. Charlotte Ruys, M.D.</i>	1219
A New and Rapid Method for the Preparation and Standardization of Brucella Ring Test Antigen <i>Ronald M. Wood</i>	1225
Effectiveness of Compound G-11 in Reducing Pyogenic Skin Infections <i>John R. Fuller, M.D., Chester A. Newhall, M.D., Frederick C. Thorne, M.D., and Eugene F. Traub, M.D.</i>	1228
How Long Does Immunity to Diphtheria Last? <i>Eli Eichelberger, M.D.</i>	1234

continued on page vi

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear. These are not to be regarded as expressing the views of the American Public Health Association unless formally adopted by vote of the Association.

Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the Reader's Guide in your Library.

Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

NOTICE:—Subscription \$7.00 per year for United States, Cuba and Mexico, South and Central America; \$7.50 for Canada; and \$8.00 for other countries. Single copies 70 cents postpaid. Copyright, 1948, by American Public Health Association.

Address correspondence regarding editorial contents and manuscripts to C.-E. A. Winslow, Dr.P.H., Editor, 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932, under the Act of March 3, 1879.

Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917.

It is doubtful whether we may attribute this improvement to the use of the confidential death certificate, since proprietary hospitals in the other boroughs of the city, which continued to use the open certificate, recorded an equal if not greater improvement. Moreover, the limited data for municipal hospitals closely approximate those for proprietary hospitals, though it should be noted that for each of these sources the recorded improvement may have been due to sampling fluctuations.

The fact that the confidential method has not proved more effective than the open appears to be confirmed by the trends in the official mortality statistics. If syphilis was completely reported, the level of the recorded death rate would be almost doubled. Even if it is assumed that only one-half of these deaths are affected by the form of certification, the rate should increase by almost 50 per cent. It is apparent from Figure 1 that the introduction of the confidential certificate in Manhattan in 1939 has had no such effect. The trend for Manhattan closely paralleled the trend for the balance of the city; it was upward until 1938-1939, and downward thereafter. Moreover, what at the time appeared to be a significant rise in the death rate in Manhattan from 1938 to 1939, now appears to have been a combination of a chance downward fluctuation in 1938 followed by one in the opposite direction in 1939. Finally, a special analysis of deaths which were reported from Manhattan in January, 1947, the ninth year in which the confidential certificate was used in that borough, reveals no evidence that the "closed" certificate has resulted in better statistics. Of 42 deaths charged to syphilis, 37 were reported from municipal or state hospitals, and 5 from voluntary or proprietary hospitals; none from persons who died "at home." Although it is possible that none of the deaths which occurred "at home"

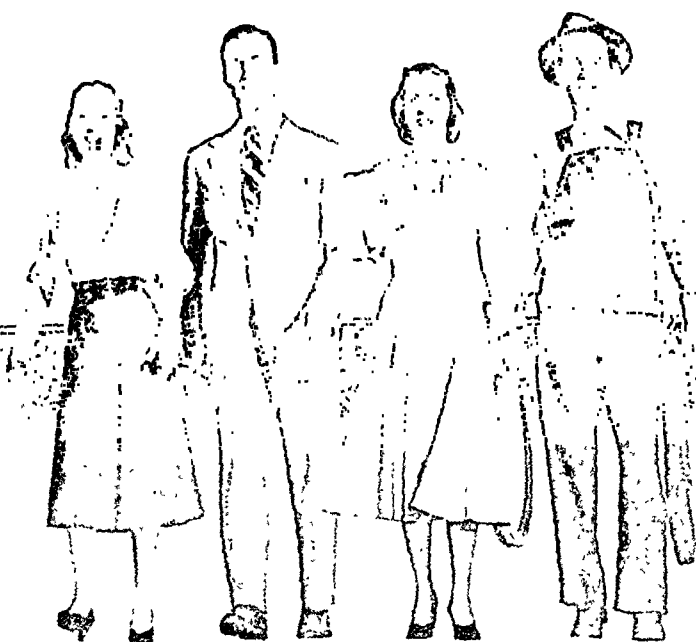
were due to syphilis, it is more likely that some did occur but were not reported.

How then may we account for the apparent improvement in the reporting of the mortality from syphilis and the upward trend in the death rate through 1938-1939? It seems fairly certain that these phenomena resulted from the intensive educational and clinical programs to bring syphilis under control which were launched by the Department of Health in 1935. Thus, in its annual report for 1937, it was stated that "the recorded death rate from syphilis is increasing due no doubt to more accurate reporting on death certificates." The effectiveness of the campaign probably resulted in a temporary increase in the recorded death rate, followed by a sharp decline after 1939. A similar trend was recorded in Philadelphia and in other communities following their inauguration of campaigns against the venereal diseases.

Puerperal Infection (140, 142a, 145a, 147)—Numerically, puerperal infection is only a minor factor in mortality. In recent years, fewer than 100 deaths have been annually attributed to this condition in New York City. However, it is probable that the disease is significantly understated in official mortality statistics since only three-fourths (74 per cent) of the deaths from puerperal infection were so charged for the cases in this study (Tables 1 and 2). Judged by the relatively small number of cases studied, the confidential method does not appear to be effective in improving the accuracy of these statistics (Table 5).

Diabetes Mellitus (61)—Diabetes is the only major cause of death found to be underreported on death certificates. Of the 394 deaths assigned to this condition, 318, or 81 per cent, were "properly" recorded. In 54 cases, death was attributed to cardiovascular-renal diseases, and 22 deaths were

*MORE THAN 200,000
TELEPHONE EMPLOYEES
ARE BUYING TELEPHONE STOCK*



They work for the Telephone Company and they are buying American Telephone and Telegraph Company stock through regular payments out of wages—in accordance with a special company offer.

They are your friends and neighbors in the telephone business—home town folks who may live right next door or across the street. You'll

find them in countless cities, towns and rural areas throughout the United States. They are acquiring a stake in the business.

These men and women employees are part of the capitalists—hundreds of thousands of them from all walks of life—whose savings make it possible for America to have the finest telephone service in the world.

BELL TELEPHONE SYSTEM



tary hospitals were properly charged in 1939 and 1941 when the closed certificate was used. This is the same extent of agreement between hospital case histories and death certificates as was found for 1937-1938 when the open certificate was used. The mortality statistics for New York City, which are shown graphically in Figure 1, confirm this finding. Moreover, judged by the data in the second and third tiers of Table 6, diabetes was not more frequently mentioned when the statement of cause of death was made confidentially, than when it was certified on the open certificate.

Appendicitis (121)—Official statistics apparently understate the true extent of the mortality from appendicitis. Of the 406 deaths from this condition, only 344 or 85 per cent were assigned to appendicitis on the basis of the cause-of-death statements on mortality records. An additional 44 deaths were charged to diseases of the gall bladder and other parts of the digestive system, 12 to non-malignant tumors, and 6 to various other conditions. At the same time, 10 deaths apparently due to other diseases were charged to appendicitis (Table 1). Thus, only 87 per cent of the mortality from appendicitis was recorded for this group of persons who died in municipal and proprietary hospitals (Table 2).

In planning the study, it was not expected that appendicitis would be found to be significantly understated on death records. As a result, the data were not tabulated in a manner which would permit one to ascertain whether this de-

ficiency results from the omission of the condition from the death certificate or whether it is effected by the addition of other conditions which take precedence according to joint cause assignments. Judged by the data which are available for proprietary hospitals, appendicitis was more accurately charged as the primary cause of death in Manhattan during 1939 and 1941 than during 1937-1938 (Table 7). In contrast, proprietary hospitals in the other boroughs recorded appendicitis less accurately in 1939 and 1941 than in the preceding years.

It should be noted, when interpreting these data, that the changes for both Manhattan and the other boroughs are not greater than those which might occur due to sampling fluctuations. Therefore, since the trend in the recorded mortality from appendicitis for Manhattan closely paralleled that for the other boroughs of the city (Figure 1), it is improbable that the confidential method has affected the accuracy with which the condition is reported on death certificates. A probable factor is that the discrepancies arose primarily because of the lack of care with which the statements of cause of death were made on the certificates. The fact that deaths certified by internes were least accurately recorded (Table 2) appears to support this hypothesis. One should not overlook the possibility, however, that some physicians do not report appendicitis when it is the true cause of death, if its mention reflects unfavorably upon their professional ability.

TABLE 7
White Decedents with Appendicitis (121) as Primary Cause of Death

Place of Death	Number from Case Histories(A)		Number from Death Certificates(B)		Per cent Ratio B to A	
	1937-1938	1939, 1941	1937-1938	1939, 1941	1937-1938	1939, 1941
Proprietary Hospitals	56	50	44	45	79	90
Manhattan	162	129	143	109	91	84
Other Boroughs						

<i>Contents—Continued</i>	PAGE
The Relationship of Training, Sanitation Personnel, and Environmental Control—A Philosophical Approach	1239
<i>William T. Ingram, M.P.H.</i>	
Medical Care Plans for Industrial Workers and Their Relationship to Public Health Programs	1245
<i>Lcc Janis, M.D., and Milton I. Roemer, M.D., M.P.H.</i>	
Community Resources for Health Education—How Well Are They Being Utilized in the School Program?	
Discussed by a Voluntary Agency Health Educator	1254
<i>Beryl J. Roberts</i>	
Discussed by a Health Officer	1258
<i>George James, M.D., M.P.H.</i>	
Presence of Neutralizing Antibodies of Newcastle Disease Virus in Human Sera	1263
<i>Beatrice F. Howitt, Lindsay K. Bishop, M.D., and Robert E. Kissling, D.V.M.</i>	
EDITORIALS:	
The Child Guidance Clinic	1273
The Problem of Whooping Cough	1274
Galileo Was Right	1275
Letters to the Editor	1277
<i>W. A. Hardenbergh</i>	
<i>Robert G. Paterson</i>	
Credit Lines	1278
Books and Reports	1284
Public Health in Foreign Periodicals	1290
<i>George Rosen, M.D., Ph.D.</i>	
Books Received	1293
Preliminary Program, Seventy-sixth Annual Meeting	1296
Association News	1326
Materials for Health Education and Publicity Headquarters at the Boston Annual Meeting. Proposed Section on Medical Care, A.P.H.A. Educational Qualifications of Community Health Educators. Resolutions Committee for Boston Meeting. Seventy-Sixth Annual Meeting—Hotel Reservations. Applications for Membership. Applicants for Fellowship. Sustaining Members.	
Employment Service	1341
News from the Field	1347
Conferences and Dates	1359

Reprint prices furnished upon request

Our study of the state health department's attitudes and needs led to much the same conclusions just presented. In addition, each bureau and division in the state department felt it would like to develop educational and training programs in relation to its own service programs. This was especially true of the Division of Preventive Medical Services which includes Maternal and Child Health, Public Health Nursing, Tuberculosis, Venereal Disease, Chronic Disease, and Industrial Disease services. The Bureau of Health Education wanted consultation from us as to literature, film, and library facilities, and the Division of Local Health Services wanted to have some consultation service available to local health departments for development of local mental health programs. The administrative personnel of the state department felt they needed a group of seminars to acquaint them with knowledge about normal emotional growth and development as applied to public health practice, some discussion on the problems of personnel, and the emotional aspects of administrative practices.

A PLAN FOR ACTION

These studies enabled us to draw up a plan of action which, it was hoped, would answer some of the needs as expressed and provide us with a means to test whether our ways of teaching and educating, once they were under way, were or were not meeting the needs and thus better equipping our health workers for helping their patients handle the emotional problems of living.

In the State Health Department the program is starting with a series of seminars for the top administrators. We meet informally once a week for a planned ten or twelve times. The groups are kept small—about eighteen to twenty members. The subject matter covers the following items:

1. The essentials of emotional maturity
2. The normal growth of the personality toward emotional maturity and the defenses which handle threats to the integrity of the personality
3. The emotions of illness and convalescence
4. The doctor-patient relationship
5. The nature of authority or emotional aspects of administration

Upon completion of these seminars, other series will be held with the various specialist and consultant personnel in the state department.

In two local health departments projects are under way which represent approaches toward aiding the nurses and physicians in the clinics to grow more quickly into the role of handling the emotional aspects of everyday medical and nursing practice. The Health Department of the City of Berkeley has added to its staff a pediatrician, with training in child psychiatry, who spends three half-days a week in health department work. In one of these periods this physician sees babies and mothers in a well baby clinic. The nurses of the health department rotate through this clinic every 3 months. Another half-day is given to educational programs for nurses and school counselors, and the third half-day is used for consultation with the pediatricians conducting other child health conferences. This program has been under way so recently that no evaluation of this approach is yet in order.

I also attached myself to a local health department, that of the City of Richmond. In coöperation with the health officer and his staff, a mental health teaching program has been started. We hope it will begin to meet not only the educational needs of the nurses and physicians but also become a part of the program of a busy, well rounded, overworked health department without adding to the burdens of a staff already pressed for time. Such a program should be possible within the usually limited budget of such a health department.



"Conditioned" for a **THREE-ROUND FIGHT**

Three shots of Dip-Pert-Tet*—that's all it takes to condition any young hopeful with sound immunity to diphtheria, pertussis and tetanus. Formerly called D-P-T, Cutter's combined vaccine offers these definite advantages:

1. Diphtheria and tetanus toxoids so purified that each cc. contains well over the standard "one human dose"...
2. Phase I pertussis organisms, grown on human blood media to maintain a vaccine of concentrated high antigenicity and low reactivity...
3. A choice of products — Dip-Pert-Tet Plain, the unprecipitated antigens—or Dip-Pert-Tet Alhydrox, adsorbed with aluminum hydroxide.

Dip-Pert-Tet Alhydrox, in contrast to alum precipitated vaccines, maintains higher antitoxin levels longer, and

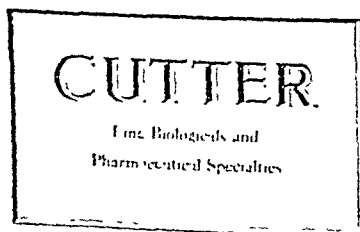
the more normal pH lessens pain on injection. Side reactions are cut to the minimum—sterile abscesses and persistent nodules are almost non-existent.

Ask your pharmacist for Dip-Pert-Tet—by name.

Supplies of Dip-Pert-Tet are still short of the overwhelming demand—but with constantly increasing production, Cutter has every hope of meeting your needs.

Dip-Pert-Tet Cutter

*(Combined tetanus and diphtheria toxoids with H. pertussis vaccine)



CUTTER LABORATORIES • Berkeley 1, Calif.

corporate in accordance with the pattern of our culture.

Another thing that medical workers are usually unprepared for is that parents sometimes have emotions of anger, guilt, or feelings of hostility against their children at the same time that they may have deep affection for their children. Our parents and children frequently seek for some help in understanding and accepting such feelings, and in this aspect of practice we most frequently fail to help them. To supply some of this need, which we think will also increase the health workers' understanding of emotions in adults as well as children, we are establishing what might be called a laboratory of human behavior for nurses and physicians. Here they will become a part of a nursery school staff, work closely with children, and examine their own emotional reactions to what they find in these children and parents. They will be guided in this by a staff of well trained nursery school teachers, pediatricians, and psychiatrists.

LEARNING FROM PATIENTS

Children are the best teachers in the world, if we observe and listen to them. They have constant frustrations leading to emotions of anger, sometimes hostility. They enjoy themselves simply and they normally initiate play which has much meaning for them. They form fast loyalties and are quick to detect the sensitivities and defenses in the makeup of adults. A few physicians and nurses will spend two to three months full-time, working with the nursery group under competent direction, and will be assigned one or two children whom they are to observe carefully, and try to put into writing what they observed. Under the guidance of a pediatrician, who is oriented in the emotional growth and development of children, the nurses and doctors will also spend time in the well baby, rheumatic fever, and cerebral palsy clinics, which are a part of the

hospital and the child development center. Each nurse and physician will be assigned time, at least one hour a week, to discuss with a staff member his doubts, confusions, discoveries, and feelings about what is taking place. At the same time he listens in on the parents' class and the staff discussion about the child and his family situation.

At the end of this experience it is our hope that the nurse and physician will return to the health department not experts but a better nurse and a better physician. This should come about because they will better accept themselves as agents who help people understand their feelings and problems, rather than merely telling them how to be more adequate and healthy persons. If these physicians and nurses feel such an educational experience is what they need for their own growth in their work, then we plan to expand our efforts and invite medical and nursing staff members from local health departments throughout the state to apply for this experience. These individuals, returning to their departments after such an experience, will begin to influence other local staff members and also provide a nucleus of a local staff around which inservice training programs may be started. It is our intention, once this happens, to form a small state educational team which will work through and with these workers, thus giving continual educational stimulation in the incorporation of mental health principles as part of public health practice.

What I have described to you is a beginning of an approach toward this goal. We are feeling our way along. We hope this beginning will grow into a plan that may prove practical and effective enough so that other health departments may learn from our mistakes and our successes and thus adopt it to fit the conditions and needs found in their own staffs and in their own locale.

American Journal of Public Health

and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

October, 1948

Number 10

CONTENTS

PAGE

Recent Developments in the Treatment of Syphilis	1361
<i>Evan W. Thomas, M.D.</i>	
Some Unmet Needs in Tuberculosis Control—A Challenge for the Future . .	1370
<i>William P. Shepard, M.D.</i>	
Physical Disability: A National Problem	1381
<i>Howard A. Rusk, M.D., and Eugene J. Taylor</i>	
The Participation of Puerto Rico in the Federal Health and Hospital Program	1387
<i>E. Garrido Morales, M.D., Dr.P.H.</i>	
Coördination of Preventive and Curative Services in Maryland	1393
<i>William H. F. Warthen, M.D., M.P.H.</i>	
Comparison of the Immunogenic and Anaphylactogenic Properties of Rocky Mountain Spotted Fever Vaccines Prepared from Infected Yolk Sacs and from Infected Tick Tissue	1402
<i>David Lackman, Ph.D., and R. R. Parker, Ph.D.</i>	

continued on page vi

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear. These are not to be regarded as expressing the views of the American Public Health Association unless formally adopted by vote of the Association.

Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the Reader's Guide in your Library.

Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

NOTICE:—Subscription \$7.00 per year for United States, Cuba and Mexico, South and Central America; \$7.50 for Canada; and \$8.00 for other countries. Single copies 70 cents postpaid. Copyright, 1948, by American Public Health Association.

Address correspondence regarding editorial contents and manuscripts to C.-E. A. Winslow, Dr.P.H., Editor, 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932, under the Act of March 3, 1879.

Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917

Simple Goiter in Colombia*

HORACIO PARRA, M.D.

*Nutrition Division of the Coöperative Health Service of Colombia and
The Institute of Inter-American Affairs, United States*

SIMPLE goiter is a problem of Colombian pathology which is so prevalent and of such long existence that it has been treated by naturalists, physicians, and even writers and folklorists.

In 1808, Francisco José de Caldas, outstanding Colombian naturalist and martyr of our independence, mentioned repeatedly the problem of simple goiter in his scientific works. He apparently was the first man of learning who attributed the disease to drinking water which has an excessive quantity of lime and heavy minerals.

In 1810, Don Joaquín Camacho studied the distribution of simple goiter in Colombia. He noted the fact that in Bogotá the disease was frequent in the convents, where the source of the drinking water was a well or an artesian well—generally quite hard water. Moreover, though the efficacy of iodine had not as yet been discovered, Camacho found the lack of endemic goiter among the inhabitants of the seacoasts significant and attributed this fact to the use of sea salt.

Later in 1831, the French naturalist Boussingault observed the presence of simple goiter in human beings and animals in localities where cooking salt very low in iodine content was used. He, therefore, advised the Government of Colombia to establish the use of salt from natural iodized sources as a pre-

ventive measure against this endemic disease. So it was that, from 1831 until 1947—a lapse of 136 years—the country of Colombia has delayed in putting into practice the recommendation of this learned Frenchman.

A recent study carried out by Socarrás in 1942 on the registration of the recruits of the "Sanidad Militar" indicated that 10 per cent of the 153,000 prospective recruits were rejected from military service because of simple goiter.

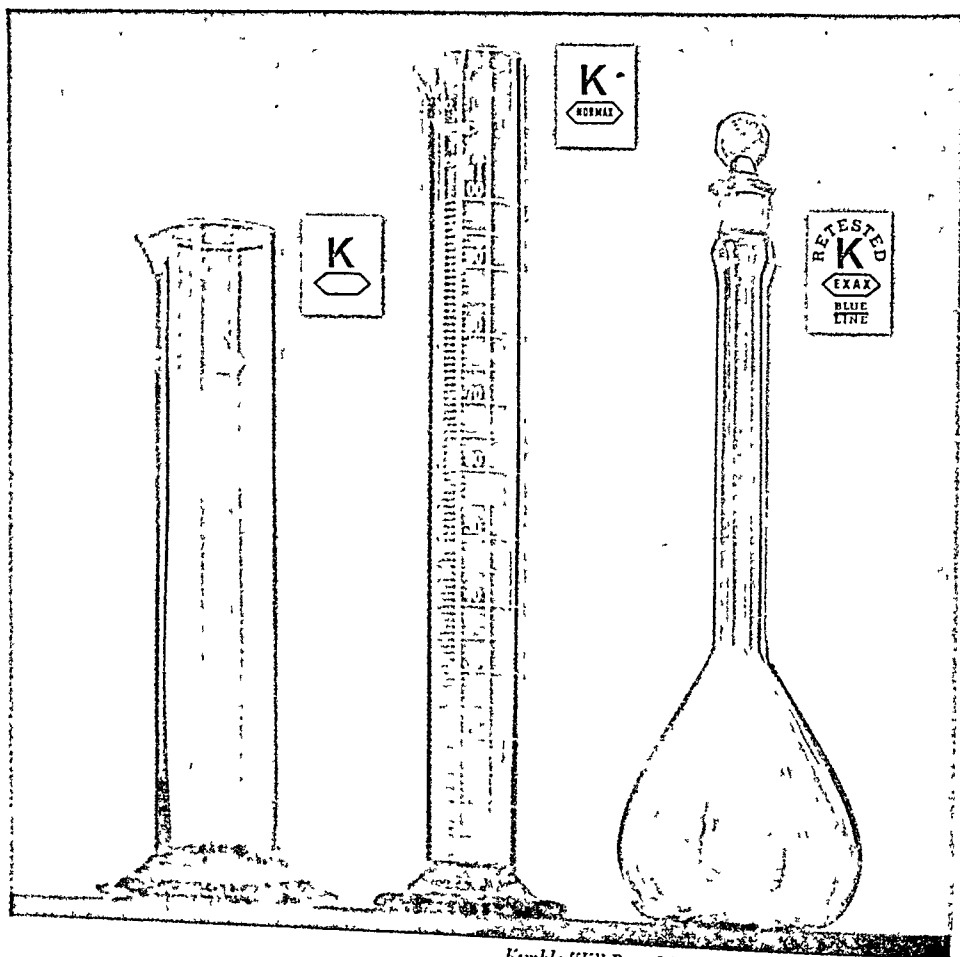
On the basis of these antecedents, the Nutrition Department of the S.C.I.S.P. has carried out the following plan of study:

1. Incidence of simple goiter in Colombia
2. Distribution of the endemia
3. Propagation and extension of simple goiter
4. Causes, contributory factors, and the sequels of the disease
5. Preventive measures
6. Manufacture of artificially iodized salt
7. Financing of a project for the artificial iodization of salt and the creation and maintenance of the Instituto Nacional de Nutrición (National Nutrition Institute).

The following is a summary of these activities:

1. In order to determine the incidence of simple goiter in Colombia, the school age group was chosen among the various population classifications. The school group possesses three very necessary characteristics: first, it is representative of the general population; second, it is the most susceptible to preventive and curative treatments; and third, as a group for investigation purposes, its examination is easy and

* Presented before the Health Officers Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 10, 1947.



Kimble "K" Brand Hydrometer Cylinder No. 20060;
 Kimble "NORMAX" Precision Graduated Cylinder No. 20026, 100 ml;
 Blue Line "EXAX" Retested Flask No. 28015, 200 ml.

LOOK FOR THE KIMBLE "K" the visible guarantee of invisible quality

• Kimble "K" brand ungraduated glassware has been first choice among laboratory technicians for many years. It is accurately made from mold-blown blanks and machine-drawn tubing... retempered for maximum durability.

Kimble "NORMAX" is Science's No. 1 PRECISION graduated glassware... calibrated, retested and certified to

meet requirements of the National Bureau of Standards. "NORMAX" is the symbol of utmost accuracy.

Kimble Blue Line "EXAX" Retested is the most widely used graduated ware. Its accuracy is assured by expert craftsmanship and *individual retesting*. Tolerances are sufficiently small for most laboratory procedures.

SPECIFY KIMBLE FOR ASSURANCE OF QUALITY

KIMBLE GLASS Toledo 1, Ohio
 Division of Owens-Illinois Glass Company



Department of Health, 1947. *Instructions for Participating Dentists, Dental Treatment Programs.*

12. Kansas State Board of Health, Kansas State Dental Association, *Dental Health Programs for Elementary and Secondary Schools.* Kansas State Policy-

Making Committee on Health Education, Topeka, Kans., 1946.

13. Michigan Department of Health *Basic Health Facts for Teachers, in Maintaining a Healthy Mouth* Lansing, Mich.

Senate Bill Provides Aid to Medical Education

Early in May, Senator Elbert D. Thomas of Utah introduced a bill providing for federal subsidies to schools of medicine, dentistry, nursing, and public health, and for scholarships for qualified students. The bill has been referred to the Senate Committee on Labor and Public Welfare and is numbered S. 2588.

According to the *Washington Report on the Medical Sciences*, federal grants up to \$20,000,000 a year are authorized for medical schools; \$8,000,000 for dental schools; \$18,000,000 for nursing schools, and \$2,000,000 for postgraduate schools of public health. In addition, federal grants up to 50 per cent of the cost of new construction of physical facilities are authorized. To qualify for grants, schools must not impose unreasonable restrictions against admission of nonresidents or bar applicants on the basis of race, creed, color, or national origin (special provision is made for in-

stitutions in those states having racial segregation laws). State and national scholarships are provided for, the former in medicine, dentistry, nursing, and public health, and the latter in medicine alone. Holders of national medical scholarships would be pledged to serve one year in federal status for each two academic years of his scholarship. Or he would be permitted, in lieu of government obligated service, to practise in an area where a state health authority considered there to be a shortage of physicians. State scholarships include tuition and books. The other type offers, in addition, a stipend of \$90 per month. Final paragraph of S. 2588 prohibits any federal agency or officer to "exercise any control over, or prescribe any requirements with respect to, the curriculum or administration of any school, or the admission of applicants thereto."

<i>Contents—Continued</i>	PAGE
Laboratory Procedure for Evaluating Practical Performance of Quaternary Ammonium and Other Germicides Proposed for Sanitizing Food Utensils	1405
<i>George R. Weber, Ph.D., and Luther A. Black, Ph.D.</i>	
Suggested Techniques for Inducing Navaho Women to Accept Hospitalization During Childbirth and for Implementing Health Education	1418
<i>Flora L. Bailey, Ph.D.</i>	
Results and Problems After Four Years of a Conservation of Hearing Program	1424
<i>William R. Willard, M.D., and Donald F. Proctor, M.D.</i>	
Abortion as a Cause of Death	1434
<i>Christopher Tietze, M.D.</i>	
Epidemiological Approach to Accident Prevention	1442
<i>Edward Press, M.D., M.P.H.</i>	
EDITORIALS:	
The Problem of Rehabilitation	1446
The First World Health Assembly	1448
The Health Record of the Eightieth Congress	1450
Ninth International Congress on Industrial Medicine	1451
Clearing House on Public Health Salary Information	1452
Credit Lines	1455
Books and Reports	1459
Books Received	1467
A Selected Public Health Bibliography	1468
<i>Raymond S. Patterson, Ph.D.</i>	
Association News	1471
Seventy-sixth Annual Meeting, Boston, Mass. Hotel Reservations at Boston. Proposed Amendments to the Constitution of the American Public Health Association. Applicants for Membership. First Annual Conference of Fiscal, Business, Personnel and Planning Officers of State and Territorial Departments of Health.	
Letter to the Editor:	
Justin M. Andrews	1479
Employment Service	1480
News from the Field	1486
Conferences and Dates	1497

chemical industry is to decide which products must be examined, as the toxicological facilities available today do not allow universal examination. The workers, especially those engaged in research and pilot plant activity, must be subjected to stringent industrial hygiene and medical control as this class of employee is exposed to products about which usually little is known.

In discussing the toxicology of the newer metals it is, perhaps, more accurate to use Fairhall's description and refer to them as metals which have become important industrially in recent years.² The most prominent members of this group are beryllium, cadmium, tellurium, uranium, and vanadium. There is no common group action or symptom complex. Very little is known about some of these substances, because as yet they have been used in limited amounts in restricted work or have not been recognized as having distinctive physiological properties.

Beryllium has been reported as the causative agent of two types of lung condition. One is a chemical pneumonitis which occurred in men working with fluorescent powders. Some of the beryllium salts, notably the sulfate, hydrolyze easily and extensively so that the local production of sulfuric acid in the lung could be expected after the inhalation of the dust.

Reports of a number of cases of what is termed pulmonary sarcoidosis have been appearing in the literature in the past few years. These workers were exposed to beryllium powder in the fluorescent lamp industry. The causative relationship has not been worked out and extensive laboratory investigations on this point are under way.

Cadmium has been responsible for a considerable number of fatalities due at first to a non-recognition of its physiological action but later due to a non-recognition of its presence on the parent metal. Cadmium coatings of vessels can

cause poisoning when they are used as food containers. If a cadmium-coated article is subjected to a cutting or welding torch, cadmium oxide fume poisoning may result. This takes the characteristic form of a delayed pulmonary edema similar to nitrous fume poisoning.

Cobalt is used chiefly in the production of magnets in conjunction with nickel and aluminum and as a bonding agent in metal carbide tips for the tool and die industry. Considerable physiological and pharmacological work has been performed showing that cobalt administration produces polycythemia. There have been no reports of clinical or industrial poisoning, however.

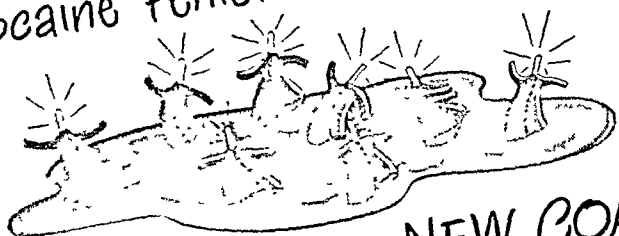
Tellurium is a metal that was found to improve the hardness and machineability of steel. Cases of tellurium poisoning have been reported due to excessive fumes. The symptoms are anorexia, lassitude, nausea, and vomiting. The main diagnostic feature is a garlicky odor of the breath and urine. These cases have not proved particularly serious.

Uranium is a poisonous element and causes kidney damage similar to other heavy metals, such as mercury. Chronic nephritis, as a result of exposure to this metal, occurred as early as 1854. There have been no reports published of any ill effects in workers engaged in purifying this material for use in the chain reacting piles.

Vanadium is a metal that has markedly increased in use as a catalyst and a component of steels. There is considerable discussion about the degree of toxicity it possesses. Pulmonary edema and pneumonitis have resulted from inhalation in animals. In workers the lung changes have been limited to an asthmatic bronchitis.

High frequency radiations, popularly called microwaves, include that range of the radio frequency spectrum from approximately 1,000 megacycles (1,000,000,000 cycles per second) to 30,000

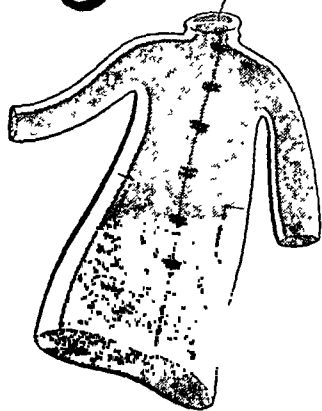
Procaine Penicillin



has a NEW COAT...

and it's a SLICKER Coated Crystals

HYPERCILLIN* Cutter (Procaine Penicillin G in Sesame Oil) offers a suspension of 300,000 units per cc. of 120 mgm. crystalline procaine penicillin G—dispersed in fluid sesame oil with 2% aluminum monostearate.



HYPERCILLIN OFFERS

- high therapeutic blood levels for 24 hours.
- crystals coated with a free-flowing combination of sesame oil and aluminum monostearate, to minimize settling out, practically eliminate needle plugging, and delay absorption.
- optimum crystal size—large enough for prolonged adequate levels—small enough to clear 19 gauge needle.
- less injection pain, fewer reactions—preliminary reports indicate considerably less injection pain from procaine penicillin. Clinical experience has established these advantages of sesame oil:

- | | |
|------------------------------|--|
| 1. less antigenic | 3. more suitable physically and chemically as a suspending medium. |
| 2. less irritating to tissue | |

Always specify Hypercillin by name. Cutter Laboratories, Berkeley 1, California.

HYPERCILLIN*

*Cutter Trade Name for Procaine Penicillin in Sesame Oil suspended in 2% aluminum monostearate.

in research and development. However, private industry and governmental agencies are spending annually on scientific research over \$1,200,000,000. This work will narrow the gap between the visionary products of today and the actualities of tomorrow, and will furnish us a constant source of associated health problems.

REFERENCES

1. Brues, A. M., Lisco, H., and Finkel, M. P. Carcinogenic Activity of Some Substances which May Be

- a Problem in Certain Future Industries. *Cancer Research*. 7:48, 1947.
2. Fairhall, L. Toxicology of the Newer Metals. *Brit. J. Indust. Med.* 3:207 (Oct.), 1946.
3. Daily, L. E. A Clinical Study of Exposure of Laboratory Personnel to Radar and High Frequency Radio. *U. S. Nav. M. Bull.* 41:1052-1056 (July), 1943.
4. Lidman, B. L., and Cohn, Clarence. Effect of Radar Emanations on the Hematopoietic System. *Air Surgeon's Bull.* 2:448-449 (Dec.), 1945.
5. Follis, R. H., Jr. Studies on the Biological Effect of High Frequency Radio Waves (radar). *Am. J. Physiol.* 147:281-283 (Oct.), 1946.
6. Lynn, John G., and Putnam, Tracy J. Histology of Cerebral Lesions Produced by Focused Ultrasound. *Am. J. Path.*, 20 637-643 (May), 1944.

Training in Engineering Aspects of Atomic Energy

The Massachusetts Institute of Technology announces a school for graduate training in the engineering aspects of atomic engineering. Work will be done in the production plants of the Atomic Energy Commission operated by the Carbide and Carbon Chemicals Corporation at Oak Ridge, Tenn.

"The purpose of the school is the education of graduate students in several fields of engineering under a program which is designed to develop their ability to apply basic

principles to the solution of technical problems encountered in industry with emphasis on the engineering aspects of atomic energy."

Admission to the new school is restricted to graduate students in the several engineering departments of the Institute who have been in residence at M.I.T. at least one term and are U. S. citizens. Further information can be obtained from Professor William A. Reed, Massachusetts Institute of Technology, Boston, Mass.

American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

November, 1948

Number 11

CONTENTS

	PAGE
Cultivating Our Human Resources for Health in Tomorrow's World . . . <i>Martha M. Eliot, M.D.</i>	1499
The Ailments of Health Departments <i>Florence R. Sabin, M.D.</i>	1508
Twenty-five Years in Maternal and Child Health <i>Felix J. Underwood, M.D.</i>	1512
Cave Sickness—A New Disease Entity? <i>A. M. Washburn, M.D., M.P.H., John H. Tuohy, M.D., and Elmer L. Davis, M.D.</i>	1521
Schick Testing and Diphtheria Immunization of United States Troops in Europe <i>Lt. Colonel Hartwin A. Schulze, Medical Corps</i>	1527
Sanitary Significance of Cocci in Swimming Pools <i>Cassandra Ritter and E. Lee Trecece, Ph. D.</i>	1532

continued on page vi

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear. These are not to be regarded as expressing the views of the American Public Health Association unless formally adopted by vote of the Association.

Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the Reader's Guide in your Library.

Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

NOTICE:—Subscription \$7.00 per year for United States, Cuba and Mexico, South and Central America; \$7.50 for Canada; and \$8.00 for other countries. Single copies 70 cents postpaid. Copyright, 1948, by American Public Health Association.

Address correspondence regarding editorial contents and manuscripts to C.-E. A. Winslow, Dr.P.H., Editor, 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932, under the Act of March 3, 1879.

Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917.

ASSOCIATION NEWS

SEVENTY-SIXTH ANNUAL MEETING
 AMERICAN PUBLIC HEALTH ASSOCIATION
 BOSTON, MASS., NOVEMBER 8-12, 1948

FELLOWSHIP IN THE AMERICAN PUBLIC HEALTH ASSOCIATION

The grade of Fellowship was established in the American Public Health Association in 1922. Professional workers in public health are eligible for election as Fellows under certain conditions and as an indication that they have achieved a recognized professional standing. As of January 1, 1948, the total membership of the Association was 11,124, including 1,913 Fellows, or 17 per cent of the total.

Questions are frequently asked regarding the requirements for Fellowship and the following statement outlines the provisions of the By-laws governing qualification and election.

Persons who have been members of the Association for at least two years and who have reached their 30th birthday are eligible to apply if, in their opinion, they meet the conditions of one or more of the six clauses in the By-laws defining "an established professional standing." These six possible approaches are as follows:

a. A person who has rendered acceptable service for two or more years in a responsible public health position and who has been awarded a degree of Doctor of Public Health, Doctor of Science in Public Health, Doctor of Philosophy in Public Health, or Doctor of Medicine with at least two years of graduate study in public health education, Master of Public Health, Doctor of Public Health, or other equivalent

degrees, according to standards approved by the Executive Board of the American Public Health Association.

b. A person who has been awarded in course an academic or professional degree involving training in public health and who has been regularly engaged in health work for at least five years, having rendered meritorious service as a health officer or in responsible charge of work in either a public or private health agency.

c. A person who has done notable original work in public health or preventive medicine of a character to give him a recognized standing.

d. A person regularly engaged in health work for at least five years, who has given evidence of special proficiency, who has attained a recognized standing.

e. A teacher of public health or one of its constituent sciences who has attained distinction as an expounder of the principles of public health or its constituent sciences. Such a teacher shall have had at least five years' experience as a teacher of public health subjects. Any years of experience as defined in paragraphs "b" and "d" that the applicant may have had shall be considered the equivalent of the same number of years' experience as a "teacher."

f. A person not covered by the above, who has made substantial contributions to public health work in his chosen branch, who has attained a recognized professional standing.

Persons wishing to apply should request a Fellowship application blank from the American Public Health Association Membership Department, 1790 Broadway, New York 19, N. Y. Appli-



NO MESS...

NO GREASE...

NO SCABIES

You remember how just hearing that a certain patient had scabies or pediculosis would make you itch even if you never went near him. And you remember only too well the ointment-smeared bedding that seemed the only way to get rid of the pesky skin parasites.

Now all this is obsolete. With 'Wellcome' Benzyl Benzoate Emulsion, the patient is merely painted with a clean, *non-greasy* emulsion, and when he bathes twenty-four hours later, the parasites are dead. Recurrence and dermatitis are infrequent.

— 'WELLCOME' BRAND —
BENZYL BENZOATE
 — EMULSION 50% —

Diluted with an equal volume of water before application. 2 or 3 fluid ounces of the 25% emulsion is usually sufficient for one treatment.

BOTTLES OF 4 FL. OZ.
 BOTTLES OF ½ GALLON

Literature upon request

WELLCOME & CO. (U.S.A.) INC., 9 & 11 EAST 41st ST., NEW YORK 17
 Please write to Advertisers say you saw it in the JOURNAL

Journal (p. 1049). At that time the first issue of the Dermatology and Venereology Section had been published. Now Vol. 1, No. 1, of Section IV on Medical Microbiology and Hygiene, has appeared, in January, 1948. Among its American board of editors are Drs. Charles Armstrong, Martin Frobisher, Jr., Hugh R. Leavell, Ernest L. Stebbins, and C.-E. A. Winslow. The material in this section is divided into three main classifications: Medical Microbiology, Hygiene and Public Health, and Medical Entomology and Medical Parasitology.

At the same time the first issue of Section XV on Tuberculosis appeared. Among its editors is J. Burns Amberston, M.D.

All but one of the fifteen sections have now begun publication.

ANOTHER MEDAL FOR DR. CORI

Dr. Carl F. Cori, a Nobel Prize winner and winner of a 1946 Lasker Award of the American Public Health Association, recently received the 1948 Willard Gibbs Medal of the Chicago Section of the American Chemical Society for his achievements in research on processes by which the human body converts sugar into energy. Dr. Cori is Professor of Biochemistry in the Washington University School of Medicine, St. Louis, Mo.

COMMITTEE TO STUDY FEDERAL GOVERNMENT'S MEDICAL AND HOSPITAL FACILITIES

The Commission on the Organization of the Executive Branch of the Government, which is headed by Herbert Hoover, has announced the following members of a committee which will investigate the government's medical and hospital services:

Tracy S. Voorhees, president of Long Island College Hospital, Brooklyn, N.Y., chairman; Drs. R. C. Buerki and O. H. P. Pepper (University of Pennsylvania),

Hugh J. Morgan (Vanderbilt), Allen O. Whipple (Columbia), W. C. Menninger (Menninger Foundation), Ray Lyman Wilbur (Stanford), Frank R. Bradley (Barnes Hospital, St. Louis), Michael DeBaKey (Tulane). Also on the committee are Charles F. Rowley, former trustee of Massachusetts Investors Trust; Henry Isham, president of Chicago's Passavant Hospital; Dr. Paul R. Hawley, Chief Executive Officer of the National Organization of Blue Cross Hospital Service Plans and Blue Shield Medical Service Plans; and Rear Admiral Joel T. Boone, secretary of the special board now investigating armed forces medical and hospital services.

MORE BABIES AND THEY LIVE LONGER

The National Office of Vital Statistics recently announced a new low infant mortality record for the United States in 1947 of 32.6. The number of live births registered also set a new high record of 3,720,000. The provisional general death rate for the country was 10 as compared with the lowest recorded, 9.9 in 1946.

CHANGES IN STAFF ASSIGNMENTS, U. S. PUBLIC HEALTH SERVICE

Several changes have taken place in the staff of the U. S. Public Health Service in Washington following the assumption by Dr. Leonard A. Scheele of his duties as Surgeon General.

The Federal Security Administrator has nominated for the rank of Major General, Drs. C. L. Williams, Sr., Chief of the Bureau of State Services, and R. C. Williams, Chief of the Bureau of Medical Services. Also nominated for the same rank was Dr. Rollo E. Dyer, Director of the National Institute of Health.

Dr. John R. Heller, who has served as Chief of the Division of Venereal Diseases since 1943, has been appointed Director of the National Cancer Institute, Bethesda, succeeding to the post

<i>Contents—Continued</i>	PAGE
The Origins of Public Health in the United States	1539
<i>John B. Blake</i>	
Appraising a Medical Care Program	1551
<i>Scymour Etkin</i>	
The Use of Medical-Social Service by a County Health Department—An Account of a Demonstration in Anne Arundel County, Maryland . . .	1555
<i>William J. French, M.D., and Geneva Wiser, M. A.</i>	
New Approach to Food Handler Training	1561
<i>J. L. Rowland, M.S.P.H., and John H. Fritz</i>	
Value of Routine Fluorograms as a Measure for Detecting Cardiac Abnormalities — Report of Findings on 14,235 Routine (35mm) Photofluorograms	1564
<i>Gerald Bercson, Lt. (j.g.) (MCR) USNR</i>	
Even with the Law on Our Side	1569
<i>R. P. Fowler</i>	
EDITORIALS:	
Nursing and Nursing Education	1574
We Pay the Pied Piper	1576
The Communicable Disease Center at Atlanta	1578
Letters to the Editor	1579
<i>Leonard A. Scheele</i>	
<i>Michael M. Davis</i>	
Clearing House on Public Health Salary Information	1582
Credit Lines	1584
Books and Reports	1589
A Selected Public Health Bibliography	1600
<i>Raymond S. Patterson, Ph.D.</i>	
Books Received	1602
Public Health in Foreign Periodicals	1604
<i>George Rosen, M.D., Ph.D.</i>	
Association News	1608
Applicants for Membership Sustaining Members of the A.P.H.A.	
Employment Service	1611
News from the Field	1615
Conferences and Dates	XXVII

Reprint prices furnished upon request

appointed anesthesiologist of the Department of Obstetrics of Johns Hopkins, Baltimore, effective July 1. He will be on special assignment from the U. S. Public Health Service to conduct a 5 year program in the relief of pain in childbirth.

CLARENCE I. STERLING† has been named Director of the Health and Sanitation Division, Institute of Inter-American Affairs, Washington, D. C., to succeed RICHARD J. PLUNKETT,† who resigned to become Assistant Editor of the *Journal of the American Medical Association*.

E. J. SUNKES, DR.P.H.,* has been appointed Director of the Division of Laboratories of the State Department of Public Health, Atlanta, Ga., succeeding THOMAS F. SELLERS, M.D.,* who was recently appointed Director of the State Department of Health. Dr. Sunkes has served 26 years with the Georgia State Laboratories.

NORMAN H. TOPPING, M.D., with the U. S. Public Health Service, Washington, D. C., has been appointed to the new position of Associate Director of the National Institute of Health, Bethesda, Md.

JESSE MEUSE was recently appointed as Negro Health Educator for the Florida State Board of Health, Jacksonville. He has had many years of experience in the field of public health and teaching in public schools of Florida. As a member of the division of health information, he will work with various groups in the promotion of better health among the Negro population of the state.

JOHN MULRENNAN, Director of Entomology, Florida State Board of Health, Jacksonville, was named President of the Florida Anti-Mosquito Association, at a joint meeting of the Florida group and the American Mosquito Association, in Ft. Pierce, Fla., March 18-31.

Western States

HAROLD D. CHOPE, M.D.,* Assistant Health Officer of the San Joaquin public health district, and a former Assistant Director of the California State Department of Health, became San Mateo County, California, Health Director, as of May 1.

CHESTER A. FEE has joined the staff of the Oregon State Board of Health, Portland, as Health Information Consultant. A veteran of World War I, Mr. Fee worked as an educator in California for some years. He has been associated with newspapers and magazines as writer or editor. Formerly with the Department of English at the University of Oregon, he is best known as the author of *Chief Joseph* and other works.

Other Areas

JOSEPH N. LANOIX† has been appointed Director General of Hydraulic Services for the Government of Haiti and for the American Sanitary Mission in Haiti.

SAM H. ZIA, M.D.,† of Peiping, China, has been appointed Professor and Head of the Department of Bacteriology of the Peiping Union Medical College, effective April 1. Dr. Zia is known in the United States as a former associate of HANS ZINSSER, M.D.

Deaths

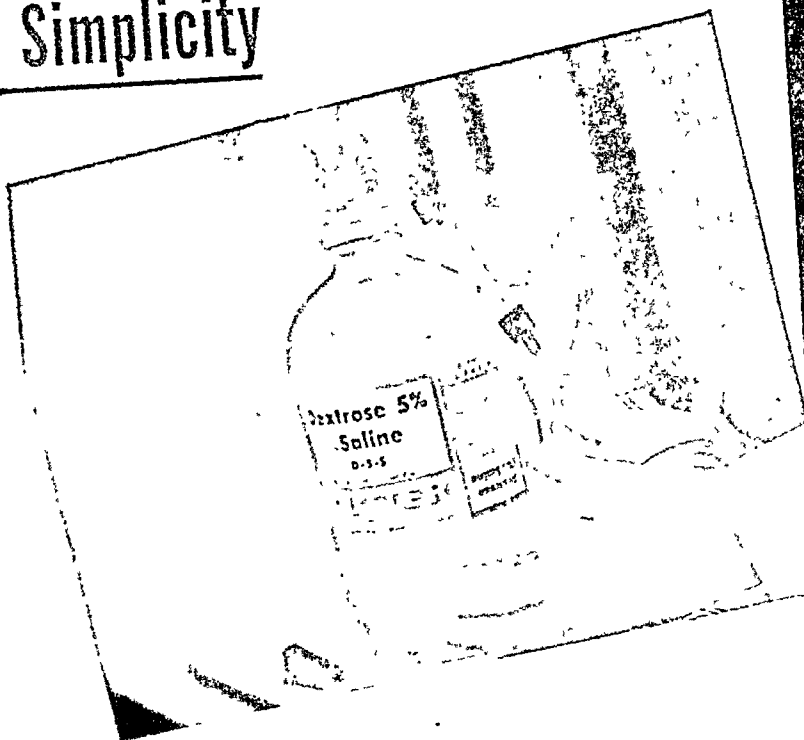
EDNA M. KECH,* Director, Division of Health Education, State Health Department in Pennsylvania with offices in Harrisburg, died recently in Florida.

CONRAD KINYOUN,* Director of the Department of Health Laboratories of Savannah, Ga., died March 31. Burial was in the National Cemetery, Arlington, Va., with full military honors.

* Fellow A.P.H.A.

† Member A.P.H.A.

Simplicity

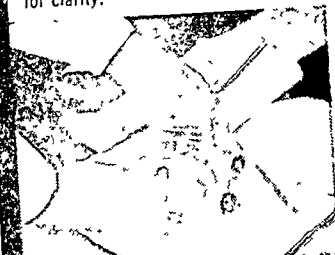


in Dextrose Administration

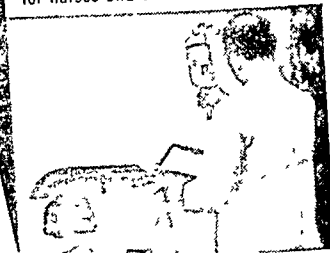
No involved procedures with Cutter Solutions in Saftiflasks! From meticulously tested solutions—to ready-to-use, disposable injection equipment—the Saftiflask set-up is designed for simple, trouble-free administration in your hospital.



Sterile, pyrogen free solution is removed from stock and inspected for clarity.



Disposable intravenous set, already assembled and sterilized, saves time for nurses and other technicians.



Attending physician makes a final examination, to be certain solution checks with his written orders.

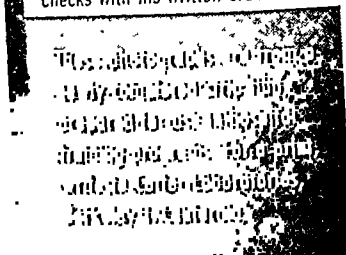
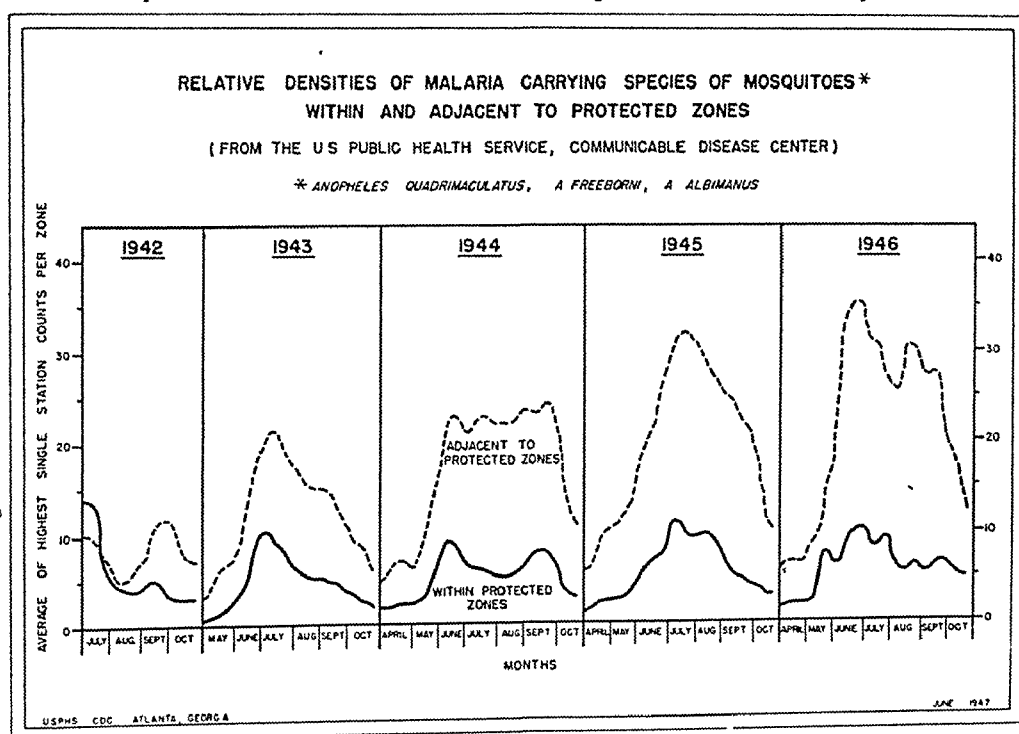


FIGURE 5—Relative densities of malaria-carrying species of mosquitoes within and adjacent to protected zones in the United States during the five World War II years.



were developed to teach the lay public simple facts about the cause, nature, transmission, and prevention of malaria, thus securing cooperation in effecting the objectives of the program.

The main malariologic shortcoming of this War Areas Program was that it was aimed only at the protection of military trainees and war workers. Thus it did not nullify foci of primary malaria endemicity unless they were near military training camps, maneuver areas, airports, shipyards, or the sites of war industrial or recreational facilities.

A third federally sponsored program which may have exercised some effect on anopheline prevalence over a considerable portion of the South is that of the Tennessee Valley Authority. This organization was created in 1933. Since then it has constructed or acquired 26 artificial impoundments along the Tennessee River and its tributaries. At maximum normal operating level, these lakes cover nearly 600,000 acres, and their total shore line extends well over

10,000 miles.²⁶ Much of the marginal area is within the limits of traditional malariousness where conditions favor the propagation of *A. quadrimaculatus*, a notorious impoundment breeder. The threat of enhanced malaria incidence was recognized early in the planning phase and, as an important element of the Health and Safety Department, a Malaria Control Division was activated. Its functions, at first investigational and operational, now consist of the development of the TVA malaria control program and the planning and appraisal of its execution in the field. The anti-larval measures utilized include reservoir preparation and improvement, water level management, larviciding, drift removal, and herbiciding—all prosecuted on very large scales. The studies of the TVA Malaria Control Division and the operations performed by it or under its technical supervision appear to have not only kept malaria from becoming a major cause of morbidity in the Tennessee Valley but have reduced to the

American Journal of Public Health

and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

December, 1948

Number 12

CONTENTS

	PAGE
A Centennial of Public Health	1635
<i>Louis I. Dublin, Ph.D.</i>	
A New National Health Program for Canada	1643
<i>G. D. W. Cameron, M.D., D.P.H.</i>	
Health Centers and the Hospital Survey and Construction Act	1653
<i>V. M. Hoge, M.D.</i>	
The Birth of a Section	1657
<i>H. E. Kleinschmidt, M.D.</i>	
It Works in Seattle—Merged Official and Voluntary Public Health Nursing Agencies	1663
<i>Emil E. Palmquist, M.D., M.P.H., and Marguerite Prindiville, R.N.</i>	

ANNUAL INDEX INSIDE BACK COVER

continued on page vi

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear. These are not to be regarded as expressing the views of the American Public Health Association unless formally adopted by vote of the Association.

Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the Reader's Guide in your Library.

Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

NOTICE:—Subscription \$7.00 per year for United States, Cuba and Mexico, South and Central America; \$7.50 for Canada; and \$8.00 for other countries. Single copies 70 cents postpaid. Copyright, 1948, by American Public Health Association.

Address correspondence regarding editorial contents and manuscripts to C.-E. A. Winslow, Dr.P.H., Editor, 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932, under the Act of March 3, 1879.

Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917.

SUMMARY

1. Data from death certificates were studied for indications of medical attendance during terminal illness.

2. The certificates which were used constituted approximately 10 per cent of the recorded deaths which occurred in seven states selected as illustrative of all states. The deaths due to external causes, if death occurred within 24 hours, were excluded from the analysis.

3. The data on place of death (i.e., hospital or home) and on attendance as recorded by the certifying physician (last attendance before death; length of attendance) were considered to be indicative of medical attendance during terminal illness. They were tabulated in relation to such factors as size of community in which death occurred, age, and race.

4. Nearly 10 per cent of all deaths (exclusive of those due to accident and violence with death following "imme-

diately") were classified as "without any attendance."

5. Some correlations were found between size of community in which death occurred and adequacy of medical attendance. As in the case of hospital deaths, home deaths with routine attendance were more frequent in the larger population size communities, but home deaths without any attendance seem also to have been relatively more frequent in large cities. Deaths without recent attendance were relatively most frequent in rural areas.

6. Lack of any medical attendance among persons dying at home was found to be particularly frequent among the very young and the very old in states where "unattended deaths" were relatively numerous, and among Negroes.

7. Nearly 62 per cent of the cancer deaths occurred at home; the proportion of home deaths increased with increasing age. Four-fifths of all cancer deaths were classified as having routine attendance.

Course in Application of Nuclear Physics to Biology and Medicine

The University of California at Los Angeles announces a summer course in the Application of Nuclear Physics to the Biological and Medical Sciences, August 2-20 under the direction of Fred Bryan, M.D., Associate Clinical Professor of Medicine, School of Medicine, University of California at Los Angeles, to whom application should be made.

The program for the 3 week course includes one or two lectures and a daily afternoon laboratory session of 4 hours. The lectures are scheduled once a week. The teaching staff includes 20 members of

whom 16 are University of California Professors. Others include Enrico Fermi, Ph.D., of the University of Chicago, Gerhard Dessauer, Ph.D., Research Chemist of General Electric Company, and George M. Lyon, M.D., Chief of the Radioisotope Section of the Research and Education Service, U. S. Veterans' Administration.

Enrollment in the course is limited. Applicants must present biographical data for approval by an official committee. Tuition fee for the complete course is \$350, for the lecture series alone, \$100.

TO THE EDITOR:

The official administrator is becoming aware of the effect upon family life of having a number of social workers entering the home, and there is a growing danger of resentment of this too frequent intrusion on privacy. As it is, one should expect that only one of the several workers will really gain the confidence of the family. Who is that worker to be to whom the family can look for counsel and advice?

The public health nurse was followed by medical and psychiatric social workers, case workers, and now mental hygiene is recommending another field worker. It is probable that, had the educators of public health nurses placed less emphasis on nursing, it would have been possible to have extended the scope of the responsibility of the public health nurse to these other social fields. Analysis has shown that the actual nursing care undertaken by the health nurse averages only about 35 per cent of her time. In spite of this, in addition to the requirement of a nursing certificate, there is much reiteration of techniques and procedures already taught in the nursing school during her training for public health. Hours are wasted on demonstrations of "how to bathe a baby, how to clean a thermometer, how to give a bed bath," etc. These unimportant details rob the health nurse of the joy of using her initiative and of accomplishment from her own decisions of what to do and what not to do in a given situation.

The writer feels that the time is overdue for review of the problem implied above. A job analysis should be made

of the health care needs of the family, not only physically but also mentally and socially, to determine the type of training to prepare a single professional worker to meet these needs. In fact, the term "public health nurse" no longer describes her functions, and confuses the public as to the scope even of her present activities. This combined individual might be designated the "health care worker" to be the "spearhead" of health care activities, as expressed by Dr. Parran. Schools of public health should be responsible at a professional level for establishing a department to train this worker. In the field she should be assisted by trained practical workers in much the same manner that the movement is growing for professional hospital nurses to devolve many of their nontechnical duties on the practical nurse. In turn, the Health Worker would be supervised by individuals who had taken postgraduate training in the various phases of the field such as mental, social, etc. The undergraduate training of this Worker could very well be set up in terms of the job analysis report to include certain of the fields now required in the undergraduate training of social workers and nurses.

It is greatly to be hoped that the current School Study of the National Nursing Council will give priority to the rapidly growing problem outlined above.

ANNE H. McCABE, *Director*
Division of Public Health Nursing,
Department of Health,
County of Westchester
White Plains, N. Y.

Dec. 3, 1947

staff or with the staff of the entire health department

B. In the community

1. Individual, such as with executive secretaries of voluntary health agencies
2. Group, such as with teachers and school administrators

II. Observation

- A. Activities of the health department, such as child health conferences, immunization clinics, laboratory procedures, record keeping, and field visits of nurses and sanitarians
- B. Activities in the community, such as meetings of community health councils
- C. Resource materials in the health department, such as literature, audio-visual aids, and demonstration materials
- D. Resource materials in the community, such as literature, audio-visual aids, and demonstration materials

III. Participation

A. In health department activities

1. Routine activities, such as talking on the school health program at a staff meeting of the entire department, inspecting restaurants under the supervision of the sanitarian, and assisting the nurses at a child health conference
2. Special activities, such as planning in detail with all professions in the health department specific procedures for the coming year's school health program

B. In community activities

1. Special activities, such as speaking on plans for the school health program before a council of social agencies and calling a meeting during the summer of school administrators and teachers on the school health program

following values were among those resulting:

A. Joint values

1. The whole school-community cooperative program will benefit due to the closer relationships established between the coordinator, the health department, and the voluntary health agencies in the community.
2. One of the biggest values obtained is the great amount of joint planning now taking place for the school-community cooperative health program in those areas where the project operated.
3. Opportunity was provided to work out harmoniously the answers to certain unsolved problems which had been the cause of irritation and friction in the past.
4. Through joint conferences, the coordinator and health department staff decided upon specific problems with which they needed help. These difficulties were straightened out at the intensive short course in health education at the university.

B. Values to the school

1. Through this project the entire school health program was related more adequately to that of the community.
2. The coordinators became better acquainted with the health department's philosophy, program, and personnel.
3. Teachers were made more aware of the home and community aspects of the school health program.
4. The specific functions of the coordinators were established more clearly, especially as they concern relations with the health department and other community agencies.
5. The coordinator became acquainted with both resource personnel and material which she and other teachers will use in the health instruction program.
6. Health teaching was made more functional through field trips and student participation in community activities growing out of the contacts established by the coordinator during the project.
7. The values of school health councils were brought home to the extent that several new ones are being planned.
8. In one area the coordinator and nurse have become a team which has demonstrated a successful teacher-nurse con-

Values of the Project

There is no doubt that this project has measurably benefited the school-community health program in those areas of the state in which it operated. In addition to those intangible gains such as broader viewpoints, improved attitudes, and greater cooperation, the

Clearing House on Public Health Salary Information

Salary Study of the Vital Statistics Section

AT the 75th Annual Meeting of the Association, Dr. Paul M. Densen, Chairman of the Vital Statistics Section's Committee on Professional Standards and Remuneration presented an interim report to the Section. He has prepared a summary of his interim report for the Clearing House, even though the final report has not yet been prepared.

The Committee on Standards and Remuneration was originally charged with the responsibility of obtaining up-to-date information on the salaries of professional personnel engaged in the field of public health and vital statistics. Since then the Section has also appointed a Committee on Opportunities in Statistical Work under the Chairmanship of Ellen W. Jones and the Association's Committee on Professional Education has appointed Dr. W. Thurber Fales as Chairman of its Subcommittee on Education Qualifications of Personnel in Vital Statistics and Vital Records. At a meeting of the chairmen of these three committees in April, 1947, the Committee on Standards and Remuneration was asked to enlarge the scope of its inquiry to include consideration of the educational background of persons in the field, of the manner in which they first learned about statistics in general and public health or vital statistics in particular, and of the number of existing vacancies.

In order to present as complete a picture as possible, the committee decided not to limit its efforts to state departments of health but to get information on salaries in the federal government, in various foundations and societies concerned with public health

matters, and in schools of medicine and of public health.

It was then found that the Division of Public Health Methods of the U. S. Public Health Service was planning a study of salary scales to be done chiefly by staff visits to a good many states and cities to study the statistical organization. An agreement was therefore reached with the Service to have its staff member Mr. Swinney take our committee's questionnaire to the departments in his itinerary. This would yield information more quickly than a mailed questionnaire and would also tend to insure the reliability of the data through interpretation of the questions by one individual. Since the states visited by Mr. Swinney have the most extensive statistical organizations, it is felt that the information on the majority of statistical personnel in state health departments is fairly representative.

The first question the committee faced was what sort of personnel should be included in its survey. It wished to include personnel in "statistical positions" only but recognized that "statistical position" is exceedingly difficult to define.

In the states visited by Mr. Swinney the working definition used included:

1. All personnel classified as statisticians
2. All personnel doing work of an analytical nature demanding some knowledge of statistical principles and methodology
3. All personnel doing professional registration work (i.e., persons who worked on policy levels and who might be considered as potential registrars)
4. Other personnel reported as doing statistical work.

The instructions for filling out the questionnaires sent to the states not vis-

Environmental Health Problems Related to Urban Decentralization*

As Observed in a Typical Metropolitan Community

LEONARD M. BOARD, M.P.H., F.A.P.H.A., AND
HERBERT J. DUNSMORE, M.P.H., F.A.P.H.A.

*Senior Assistant Sanitary Engineer, U. S. Public Health Service, Ann Arbor, Mich.;
and Director, Division of Sanitation, Calhoun County Health Department,
Battle Creek, Mich.*

THE decentralization trend of population from central cities to fringe areas presents a growth pattern encountered in the majority of American cities, small and large, and is a reversal of the trend responsible for the growth of our cities. Planners and municipal authorities have emphasized the gravity of the shrinking tax base of the core city, the economic obstacles to adequate servicing of satellite developments with schools, fire and police protection, water, sewers, refuse collection, the need for effective controls of suburban areas, and other readily apparent difficulties accompanying the changing growth tendency. Students of local government, including leaders in public health administration, have been advocating consolidation of many functions and services, a measure which suggests the urgency for state and local public health engineers to contemplate the environmental health problems and needs in suburban areas.

A reconnaissance study of a fairly typical metropolitan community was conducted by the authors, as a portion of a comprehensive planning project. The

authors' participation was limited to environmental health factors of public health significance, including some which were the responsibility of agencies other than the health department, in an effort to indicate the public health engineering functions and responsibilities as they relate to metropolitan community planning and administration.†

The community in question includes a central city with a 1940 population of 150,000 and a density of 1,900 per sq. mi. The four surrounding townships contained in the U. S. Census Metropolitan District had a 1940 population of approximately 40,000. However, the density in census tracts adjacent to the city varied from 40 to 1,800 per sq. mi. Figure 1 depicts the relative growth of the city, the contiguous townships, and the county. Neither townships nor census tracts were utilized to delimit the metropolitan area for the purpose of this study, since it was directed primarily at the existing community rather than the anticipated ultimate growth. The criteria applied included population density, as measured by lot size and frontage, topography, platted subdivi-

* Presented before a Joint Session of the Municipal Public Health Engineers and the Engineering Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 6, 1947.

† Several environmental health factors were not included in this study because of time limitations and their poorly defined relationship to the decentralization movement, i.e., rodent control, atmospheric pollution.

ited by Mr. Swinney were to include all positions to which any statistical work was attached, either of an analytical or clerical nature. It was thought that this would insure that no positions which should be included would be omitted and that, from the job descriptions, persons fitting in the groupings used by Mr. Swinney could be selected.

It was decided to have the questionnaire filled out by the worker rather than by the organization since much of the information desired would be best known to the individual. The worker was asked to describe his duties in his own words since it was thought that this might afford a better description of his job for the committee's purposes than the merit system classification description.

Data on vacancies and plans for expansion were secured by means of an organization schedule for states not visited by Mr. Swinney. For those that were visited, the information was made available from data collected by Mr. Swinney. In addition, material already present in the files of the Division of Public Health Methods and of the National Office of Vital Statistics was utilized.

RESULTS

The findings here presented are limited to the 23 states visited by Mr. Swinney and to broad categories rather than detailed breakdowns. These preliminary data are heavily weighted by the returns from a few states with large statistical organizations. The data are presented here more to illustrate the nature of the analysis than for their own sake. Interpretation of the data must await more detailed analysis of the complete returns.

The first problem faced by the committee in the analysis of returns was to develop a classification of the various statistical positions. The multiplicity of job titles made it impossible to use

these as a basis for classification. It was deemed unwise to force the returns into a theoretical classification. Instead, an attempt was made to develop a classification based upon the job descriptions given in the questionnaires. Accordingly the job descriptions were carefully studied *without regard to salary or title of job* and those questionnaires whose job descriptions were judged to be similar were placed together in one group. (Although this yielded several seemingly distinct groups, it should be recognized that the scale of classification is actually a continuous one ranging from individuals just above the clerical level with very little independence of action to chiefs of division responsible for policy.) The classification resulted in two main groupings, chiefs of bureaus or divisions (represented by Groups I, II, and III) and various levels of subordinate personnel (Classes A, B, C, D). Each of these is described below: *

Group I (Chief Statistician)—Workers in this category are chiefs of a statistical unit engaged primarily in analytical work exclusive of registration activity. In coördination with other activities of the health department they are responsible for the development of a statistical program from the planning stages through the final analysis and presentation of results. They exercise considerable independence of action within the broad policies laid down by the health commissioner.

Group II (Registrar)—Chiefs of a statistical unit engaged primarily in the registration of births and deaths. Responsible for formulation of policy in relation to registration matters and at times for analysis of the registration function but not engaged in analysis with regard to health department activities as a whole.

* For ease of reference a descriptive term is placed in parentheses after each classification. The use of letters to designate the classes is not intended to represent a decreasing order but to emphasize that there is a similarity of functions irrespective of title.

parity between city and district water costs to the consumers.

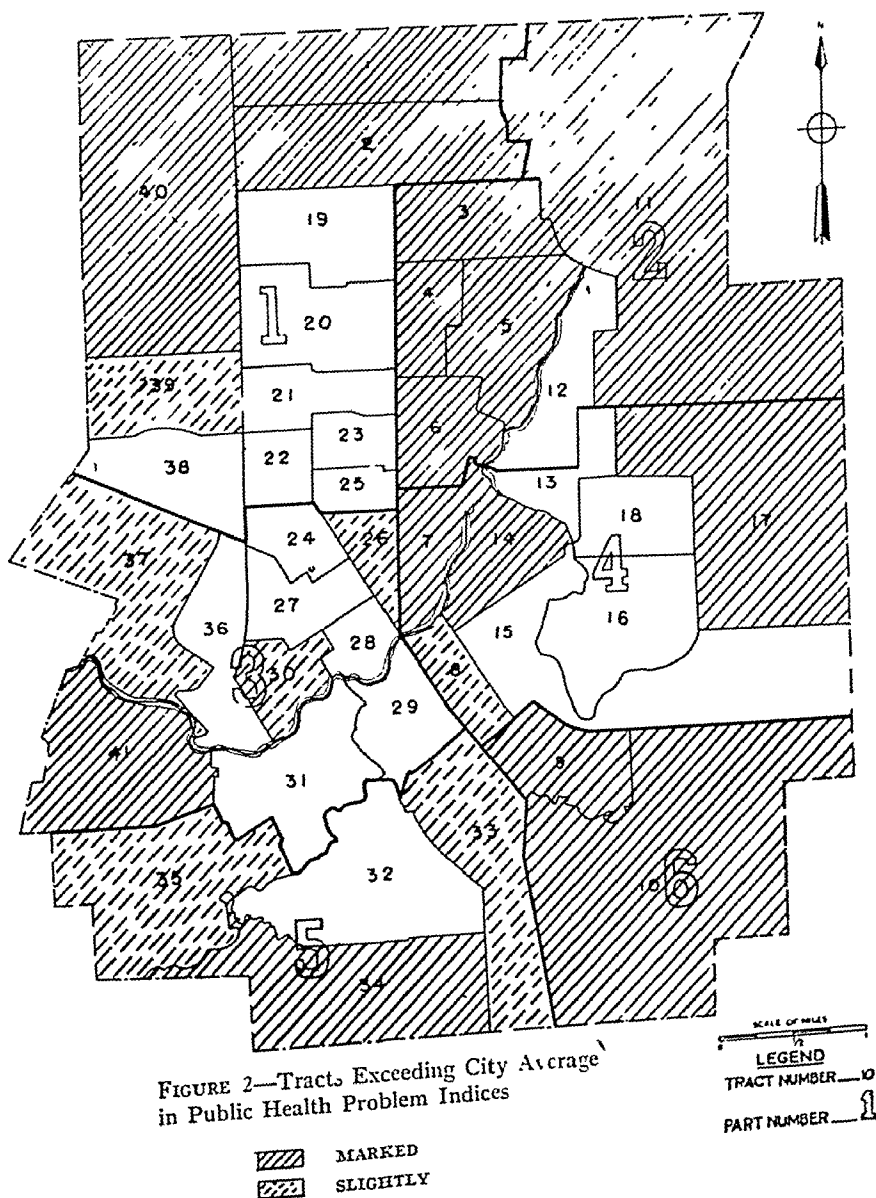
e. County health department supervision of the district supplies is limited to periodic sampling, despite the fact that they are operated by untrained men. A considerable number of private wells dried up when the district wells were drilled, creating a pollution threat to the district wells and other private supplies, but no program for sealing of dry wells has been undertaken.

f. More than 12,000 persons in the

area studied depend on private wells, many located on small lots which also function as sewage disposal sites.

Sewerage—

a. Over 90 per cent of the city's population live on sewered streets, but 2,600 privies and a like number of septic tanks and cesspools are in use. The large proportion of "temporary" and substandard dwellings constructed during former periods of rapid expansion poses a difficult obstacle to enforcement



Group III (Chief Statistician and Registrar)—Chiefs of a combined registration and analysis unit. These combine the duties and exercise the responsibilities of the Chiefs in Groups I and II.

Class A (Assistant Registrar)—Individuals in this group usually function under the immediate supervision of someone in Group II. They ordinarily engage in no analysis but are given considerable responsibility for the routine production of vital statistics and may be directly in charge of a large clerical office. When necessary they may act in the place of the person in charge of the registration unit.

Class B (Senior Statistician)—Under the general supervision of individuals in Group I or Group III they are responsible for analysis of a high order of technical competence demanding a good general knowledge of public health. May consult with chiefs and other personnel of the health department with regard to planning of a study, collection of data, tabulation and analysis of results. Under general supervision only, may initiate studies and exercise considerable independence of action within broad policy lines laid down by the chief. Analytical work not confined to one particular aspect of public health.

Class C (Junior Statistician)—Individuals in this class are usually under the immediate and fairly close supervision of individuals in Class B. They do not confer, except on rare occasions, with chiefs of other divisions. They may supervise a small clerical or tabulating force or be responsible for some tabulating work.

Class D (Statistical Aide)—Workers in this class are responsible for the routine computation of rates and ratios and the construction of graphs and tables under the immediate supervision of someone in Class B or C. They may supervise the production of routine statistical reports and the abstracting of

TABLE 1
Distribution of Workers by Classification in Statistical Units of 23 State Health Departments

Classification	Number
Total	87
Group I (Chief Statistician)	3
Group II (Registrar)	12
Group III (Chief Statistician & Registrar)	7
Class A (Assistant Registrar)	6
Class B (Senior Statistician)	23
Class C (Junior Statistician)	19
Class D (Statistical Aide)	17

records for research studies after the general plan of operation has been laid down. They have little independence of action but carry on much of the day-to-day operation of the statistical unit.

The number of individuals in each of these classifications and their corresponding job classification are shown in Table 1. The need for some such classification is clearly demonstrated by the

TABLE 2
Distribution of Workers According to Title of Position Statistical Units in 23 State Health Departments

Title of Position	Number
Total	87
Director, Division Records and Statistics	1
Director, Division Vital Statistics; Birth and Death Records	1
Director, Bureau Vital Statistics (Division Chief)	10
Assistant Director, Division Vital Statistics	2
Statistician and State Registrar	1
State Registrar and Director, Vital Statistics Section	3
Assistant State Registrar, Vital Statistics	1
Chief, Division Vital Statistics and Records	1
Head Public Health Statistics Section	1
Chief, Bureau Records and Statistics	1
Assistant Director, Bureau Records and Statistics	1
Supervisor, Public Health Statistics	1
Director, Statistical Service	1
Chief, Tabulating and Analysis Section	1
Senior Statistician	3
Senior Public Health Analyst	10
Assistant Statistician	2
Junior Statistician	7
Statistician	8
Statistician II	4
Statistician IIb	1
Statistician I	9
Junior Public Health Analyst	9
Public Health Statistician	1
Morbidity Statistician	1
Statistical Clerk	1
Statistical Aide	4
Clerk II	1

indicated by an estimated 20,000 vacant subdivided lots in a mile-wide belt surrounding the city in 1938. The rate of home construction in the four townships surrounding the city has been greater than inside the city since 1930. Of the total number of dwelling units existing in the respective areas in 1940, 47 per cent were built in the townships since 1930, as compared with 10.5 per cent of the city total.

e. Some indication of suburban housing quality may be observed in these 1940 census figures for tracts bordering the city: From 0.1 to 25.7 per cent needing major repairs; 10.0 to 17.1 per cent with no running water; 13.5 to 30.7 per cent with no inside flush toilet.

County health department records reveal the construction of 446 septic tanks in the 4 suburban townships in 1946.

Overcrowding in 1940 existed in the unincorporated fringe in a ratio three times that of the city, a substandard condition not attributable to the lack of public water supply and sewers.

The ratio of home ownership in the unincorporated section is significantly higher than in the city, but the rate of turnover is much higher outside the city—a factor which may explain the want of concerted effort to secure community improvements.

Miscellaneous—

The scope of this study did not permit the examination of such environmental facilities as parks, swimming places, play areas, schools, drainage works, dumps, and various others. However, it was pointed out that the suburban sectors were deficient in the provision of public recreational facilities and depended largely on city and state services.

SERVICES RELATED TO ENVIRONMENTAL HEALTH

Garbage and Rubbish—

a. Collection practices in the city were evidently adequate, but costs were

obviously affected by the extensive outlying developments with houses widely scattered.

b. No public collection service was available for the suburban metropolitan area. Independent collectors were subject to no control. Vacant lots and roadside ditches have become unsupervised refuse dumps, as might be expected.

Food and Milk Control—

The city program has been an outstanding success, noted particularly for its pioneering efforts in educational techniques. But adjacent unincorporated areas, although similarly urban in character were governed by state statutes and regulations enforced by the State Department of Agriculture. Fortunately, amicable relations established with the agriculture department permitted supplementary inspection by the county health department, but legal requirements for the contiguous communities contained many disparities, such as the lack of any meat inspection requirement for unincorporated communities.

Miscellaneous Health Department Services—

a. Among the other services rendered more difficult by the decentralization movements have been the control of nuisances, house trailers, unkempt vacant lots, various types of business establishments, and the like. Former city residents, accustomed to expect high standards of service, fail to comprehend the limitations they encounter when they move outside the city into a newer and apparently more desirable subdivision.

SERVICES AFFECTING ENVIRONMENTAL HEALTH BUT ADMINISTERED BY AGENCIES OTHER THAN THE HEALTH DEPARTMENT

a. Planning, zoning, subdivision controls, and related services bear forcibly upon the community environment.

TABLE 3

Distribution of Workers by Classification and Salary Status, Statistical Units of 23 State Health Departments

Classification of Workers

<i>Annual Salary Range</i>	<i>Total</i>	<i>Group I</i>	<i>Group II</i>	<i>Group III</i>	<i>Class A</i>	<i>Class B</i>	<i>Class C</i>	<i>Class D</i>
<i>Total</i>	87	3	12	7	6	23	19	17
\$1,000-\$1,999	3	—	—	—	—	—	—	3
2,000- 2,999	37	—	2	—	4	4	15	12
3,000- 3,999	26	1	2	—	1	17	3	2
4,000- 5,999	19	2	8	5	1	2	1	—
6,000- 7,999	2	—	—	—	—	—	—	—

multiplicity of existing job titles, which are shown in Table 2 for the same group of workers.

It is the purpose of this report to explain how the data for the committee's study are being collected and to indicate the general method of analysis. This report will then serve as a background for further reports of the committee in which it is planned to present detailed tables of the findings. No interpretation of the material is attempted at the present time since it is heavily weighted by the returns of a few states with large statistical units, the effect of which cannot be determined until all

reports are in. The committee also desires to make certain cross-tabulations of the data before attempting an interpretation. When all of the data have been collected it is hoped to compare the salary picture of persons doing statistical work with that of workers with equal responsibility in other fields of public health. Comparisons of federal, state, and local salary scales and of salaries paid by schools of public health and foundations may also be made.

In addition, information at present available to the committee on existing vacancies in state health departments is shown in Table 4. It should not be

TABLE 4

Analysis of 30 Vacancies in Statistical Positions, State and Local Health Departments, December 15, 1947

<i>State or City</i>	<i>Title of Position</i>	<i>Number of Vacancies</i>	<i>Annual Salary Range</i>
Alabama	Statistician	1	\$2,100-\$2,700
Arizona	Vital Statistician	1	2,880- 3,360
California	Associate Statistician	3	4,512- 5,496
Colorado	Public Health Statistician I	1	1,800- 2,400
Illinois	Statistician III	1	3,600- 4,800
	Statistician II	1	3,300- 3,840
Kansas	Senior Statistician	1	2,820- 3,900
Maryland	Statistician II	2	2,300- 2,875
Michigan	Director of Statistics and Records	1	5,280- 6,380
New York	Cancer Statistician	1	5,280- 6,380
	Statistician	3	3,360- 4,020
North Carolina	Statistician	1	3,300-
Ohio	Statisticians I, II, III	4	1,800- 4,200
Oklahoma	Assistant Registrar of Vital Statistics	1	3,900- 4,500
Pennsylvania	Biostatistician	1	5,000-
Tennessee	Statistical Aide	1	1,920-
Baltimore, Md.	Senior Statistician	1	2,800- 3,300 *
Detroit, Mich.	Medical Statistician	1	8,000-
New York City	Statistician I	1	2,401- 3,650
	Junior Statistician II	1	1,500- 3,060
Washington, D. C.	Statistician	1	4,149- 4,902

* Plus cost of living adjustment

and isolation, it is extremely difficult to obtain or to hold, essential trained health personnel.

There is no doubt at all of the accuracy of this diagnosis by the Medical Mission. Those of us who have been familiar with the situation realize, however, that a sound basis for progress has been laid in the past three years. Under the able and courageous leadership of Governor Ernest Gruening, a Territorial Department of Health, with a full-time Commissioner (Dr. C. Earl Albrecht) was established in 1945. This department secured from the Territorial Legislature an increase, from \$30,000 to \$250,000, of the funds locally appropriated for control of tuberculosis. It obtained the two tuberculosis sanatoria, to which reference has been made, and initiated a comprehensive case finding program. It operates two mobile units, one on a truck for inland areas and one on a Health Boat for the coastal villages, and a third unit in an aeroplane is projected for the more remote villages. The Medical Mission rightly points out that the extensive use of BCG immunization would be highly desirable in such an area as this. Twenty-one generalized field nurses work in the territory under two supervisors. Sanitation and laboratory services have been notably strengthened; and a nutrition consultant has been appointed on the department staff. Particularly notable is the establishment of a Health Education Unit, which has done excellent work. Health councils in various parts of the territory were influential in supporting the work of the department.

The Territory of Alaska has sound and potentially effective machinery for dealing with its problems. The financial resources to carry out its program must come largely from the federal government. Action taken by the present Congress seems likely to be of material assistance; but what has so far been done is only a beginning. The Medical Mission is on sound ground when it says: "For those who decry federal aid, the committee wishes to point out that the problem in Alaska has existed for many, many years without even an effort toward a solution until 1945. The territorial funds are insufficient to meet the present needs of Alaska in tuberculosis control. Alaska has been a neglected possession of the United States up to recent years. The war years and its present eminence on the 'left flank of the North American Continent' have brought Alaska into the national conscience. The citizens of Alaska, its officials and the health authorities are cognizant of the acute problems. Defense of Alaska would best be accomplished with a healthy populace."

Turning to Puerto Rico, we find, again, serious health problems although by no means so grave as those of Alaska. The underlying causes of these problems are, in many respects, precisely opposite in the two areas. Alaska is Arctic, Puerto Rico, in the Tropics. Alaska is underpopulated, with nearly six square miles per person. Puerto Rico is overpopulated, 620 persons per square mile (over two million people in 3,435 square miles). This is the approximate density of Rhode Island; and for a primarily agricultural community represents desperate overcrowding. The situation becomes worse every year, since the birth rate of over 40 per 1,000 produces a net increase of population of about 65,000 per year.

The Medical Mission limited itself here, more narrowly than in Alaska, to the problem of medical care.² Hospitals in Puerto Rico are of three types, District, Municipal, and Private. The District Hospitals (now five in number) are operated by the Insular Department of Health (J. A. Pons, Commissioner). They have been greatly improved in recent years and the Mission reports that "they are a credit to those charged with medical care in the island." The municipi-

thought that these vacancies represent the potential demand for statistical personnel. Rather they represent positions which, as far as is known, can be filled immediately. A better idea of the po-

tential demand is the fact that 25 of 41 states replying reported plans for expansion in statistical work. This phase of the problem will be further developed in subsequent reports.

Health Officer for a Day

as told by BILL SILER to CHARLES B. FRASHER *

THAT was an exciting day in my life when I took over the duties of the Commissioner of Health for Oklahoma. You want me to tell you about it? Well, hang on and here goes. I hope you will excuse me for having been so ignorant about what the Health Department does but I just never had any realization that the programs of public health were going on in my state. I guess I have been too interested in the things immediately around me to observe how the government was being run. Of course I'm interested in the United Nations and aspects of international or national government. But local government has passed me by.

How did I get the opportunity of acting as Commissioner of Health? Well, yearly, in connection with Father and Son week, each of the six high schools is given the opportunity of electing a number of seniors to take over state, local, and school jobs for a day. Our school was assigned ten positions and I was elected to be the Commissioner of Health.

What did I know about public health before I went out to the Health Department? You'll laugh at this, but it's true. I didn't even know where the Department of Health was. Oh, I knew the old building which used to be an old soldier's home or something, was the place where you got a birth certificate. And I knew the Health Department was responsible for checking restaurants and swimming pools and making them clean. My Dad had discussed this with me when our gang wanted to arrange a supper party at a little local restaurant. Oh, and yes, I knew they had a V.D. program because you can see the signs in the busses and on the public trash cans. But I guess that's all I knew beforehand. It really was an eye-opener, that day as Commissioner. I wish I could tell all the high school kids about it.

What did I learn the day I was Commissioner? Well, that's a big order. It was so educational I couldn't take it half in. I spent the morning with Dr. Mathews, the real Commissioner, you know. And say, do you know he is the first state health commissioner to stay in office more than four years in our state. That isn't right, you know: you won't find many people as smart as Dr. Mathews is and he ought to be kept at his job regardless of who the governor is. It is more economical I guess and

* Mr. Frasher, Field Consultant in the Merit System Unit of the American Public Health Association was visiting Oklahoma when Oklahoma City was celebrating Father and Son week. He met William Howard Siler, a 17 year old senior at Classen High School who was acting as the Commissioner of Health for a day. The remarks in this article are taken as closely as possible from an interview with Bill Siler and are presented for the interest of public health workers.

ranges have been eliminated in this edition. This material will be missed by the younger college or high school student who knows little about the work. However, a choice has to be made as to length of a pamphlet. A long pamphlet may not be read, a short one has to cut corners.

Many of the universities which offer appropriate training are named and references for further information are shown.

With an authoritative and attractive document available, the job ahead is a discriminating distribution where it will do the most good. Vocational counselors, in particular, at all school levels should have this booklet at hand.

GEORGE T. PALMER

Experimental Air-Borne Infection
—By Theodor Rosebury, Baltimore:
Williams & Wilkins, 1947. 222 pp.
Price, \$4.00.

This monograph presents the results of a study of experimental air-borne infection, a cooperative wartime project at Camp Detrick, Maryland, from December, 1943, to October, 1945. Demonstration of the infectiousness of air when contaminated with bacteria and viruses has been shown by others, but the author rightly points out that all cloud chamber methods employed prior to this study would be hazardous to the personnel should highly virulent agents be used. This investigation, therefore, is of special importance because its main purpose was to "devise and set up an installation equipped for the study of air-borne clouds of highly infective agents under conditions of safety to the operating personnel and others in a manner such as to elicit responsible quantitative data on infection of small laboratory animals by the inhalation route."

A description with good photographs and diagrams of the overall installation in a building housing two cloud

chamber units, the central items of which are Reyniers "SP-4-B germ-free units," and accessory workrooms is given. This includes apparatus and methods which were so "designed that infective clouds could be generated and sampled, and animals introduced into the clouds, removed, maintained, autopsied, examined, and disposed of all in a completely closed system from all parts of which the exhaust was evacuated to an air incinerator." The efficiency of the apparatus and methods is shown by the fact that the author and his many colleagues, with numerous assistants, were free from infection during six months of intensive study employing several of the most notorious incitants of laboratory infections (*Brucella suis*, *Pasteurella tularensis*, psittacosis virus, etc.).

Basic data on the selection of atomizers for the production of clouds of labile agents and the stability and infectivity of certain highly pathogenic bacteria and viruses are given. Preliminary data are given for the dosage by inhalation resulting in infection or death in 50 per cent of the exposed animals (guinea pigs, hamsters, and mice).

The results of this study provide an excellent basis for further investigation both of the qualitative and quantitative aspects of air-borne infection and will be of interest to all concerned with the problem of spread and control of respiratory diseases of bacterial and virus etiology. This volume is the first publication under the title of *Microbiological Monographs* sponsored by the Society of American Bacteriologists.

CLAYTON G. LOOSLI

Further Effects of Added Thiamin on Learning and Other Processes
—By Ruth Flinn Harrell, New York:
Teachers College, Columbia University,
1947. 102 pp. Price, \$2.75.

This is a report of the second in a

he really seems to know what's going on. He keeps his people happy but he also has control and authority. I guess I'd call him a real administrator.

We spent some time going over the plant. I didn't know there were so many buildings there. Each building was full of people, each one working quietly and efficiently at his job, methodically and swiftly. It didn't seem like a government office in which there is loud talk and not much work and coke machines around. This seemed more like a business office.

We had lunch in the cafeteria. That was a wonderful cafeteria, good food served at low cost. It's a good idea I think.

The Sanitary Engineering program certainly made me think. The director showed me his organization chart and explained what each program was. I didn't know, for instance, that public health had any responsibility for checking food lockers and refrigerators. I knew food and drugs were controlled but I couldn't have told you who did it. I heard milk had to be pure but I just thought farms controlled this. (Bill called to his mother who was in the kitchen) Hey Mom, what kind of milk do we have? Raw milk? Do you mean Dad and I want raw milk? I guess we had better have homogenized after this. Oh, you say that it's pasteurized milk that is pure? Well I guess we'll have to have pure milk from now on. Say, there ought to be a law about pure milk if there is so much danger in raw milk. There ought to be a law preventing its being sold.

Vital statistics were kind of over my head but I guess the director knows the business. It seemed like a great deal of information was available through the work of the statisticians.

The V.D. program was a "slickie." I guess the department is doing more in V.D. than in any other program, at least it's more publicized. I knew

something about it before I went to the Health Department. We all were given blood tests at our school. I guess the department should be most proud of the venereal disease program and how they have gotten the incidence way down.

And those little trucks that go around getting x-ray pictures; that's another good program. They ought to come to our schools and give us x-ray pictures.

The man doing the epidemic work sounded like a "brain" but he's really efficient. Do you know that he gets a report on diseases each day, and each night sends out a report on the diseases to all doctors. They also do vaccinations. I thought the schools did that.

The hospital program is a good one; they are building to give some more space for laboratories. The department approves plans for hospitals. They don't? Only those where federal funds are used? Heavenly days, someone messed me up! I thought all hospitals had to be approved. I still think it would be a good plan.

And say, that EMIC man had a "dilly" of a problem too. He told me of some of his problems and he is handling them well. That's a very good program.

I had a coke with the dental man. He has lots of problems too, believe me. It was an eye-opener to know that there was a state dental program.

There were other programs too, but I couldn't talk to all the people. Some of them were out working on their jobs and sent me notes. That was nice of them, wasn't it. I'd like to go back and see more of them some day.

The people are well chosen for their jobs. I thought the way they hired people was a good deal—you get people who know something about the job. I was interested to know that people had to take examinations and that the three top people were sent to the health department for them to make their choice. That certainly saves Dr.

end of each a short summary which will save many a reader the scanning of the complete text. These chapter summaries and the final or summary chapter give the argument, the evidence against compulsory medical care or sickness insurance, the so called "health insurance" of the politicians, the alternate proposals for correcting existing inadequacies of medical service, and the declaration of ideals and methods offered by the carefully considered and expressed opinion of the American Medical Association.

The approach to the subject and the narrative of events in and out of Washington are rather too categorical and absolute to satisfy an academic mind, more because of matters not dealt with and for lack of qualification of statements than from any error or dodging of the record.

There is evidence of hurried preparation, careless proof reading, and rather poor printing performance.

The reviewer finds himself in close agreement with the main argument of the volume although disliking some of the expressions or explanations used in its support. The author has put all of the physicians of the United States in his debt for presenting so many original documents in quotation and telling his story with so little waste of words.

Any educated layman will get a better idea of the situation dealt with than he can so conveniently from any other single source. HAVEN EMERSON

Public Health Law—By James A. Tobey. (3rd. ed.). New York: The Commonwealth Fund, 1947. 419 pp. Price, \$4.50.

This third edition of Dr. Tobey's well known work is designed to bring the last, which was published in 1939, up to date. As he says in the preface, approximately 250 judicial decisions handed down in the intervening years by courts of last resort, together with

major items of new legislation and a series of important alterations in the governmental organization of public health administration, have been incorporated.

The basic organization and chapter headings of the earlier edition are retained, but a number of new sub-titles are suggestive of the extent to which traditional legal and administrative patterns for the advancement of public health are today bursting at the seams. In Chapter IV, dealing with State Health Organization, for example, the significant influx of federal pressure for higher standards into the vacuum which is so often local government is reflected in the new sub-title "Selection of Public Health Personnel"—a discussion of civil service and other prerequisites to obtaining federal grants in aid. In Chapter V, dealing with Local Health Departments, the development of serious regional planning for public health is reflected in the new sub-title "Multi-County Health Districts." As the author points out (p. 96): "In 1945 there were in the United States 1,160 full-time local health departments serving approximately 2,100 cities and counties. The Committee on Local Health Units of the American Public Health Association has recommended that there should be 1,197 units of local health jurisdiction in this country." Other new sub-titles deal with diseases of animals and leprosy (Chapter VIII), prophylactic devices (Chapter X), Bang's Disease and filled milk (Chapter XI), enriched foods (Chapter XII), and the National School Lunch Act (Chapter XV).

Public health covers an enormous territory, as Dr. C.-E. A. Winslow's definition of the field—which the author quotes with approval (p. 4)—brings out. The task confronting one who would assemble the law relating thereto is correspondingly large, since administrative law, constitutional law, criminal

Mathews lots of work, doesn't it? having an officer with the sole job of recruiting workers. Whoever thought up the idea had a brain. I didn't know it before but I know now that only a few departments get their workers on the basis of the worker's ability and not on his political strength. I certainly wouldn't choose a doctor for his political beliefs if I were sick. And I don't think political activity is important in electing health workers.

I learned another thing—that we have a city health department which does the health work of our community. I had supposed it was done by the state. The city Health Department knows the

immediate health problems and can do something about them.

Do you know, this experience made me have a lot of faith in the Health Department and I can't describe how much I respect Dr. Mathews. He works Saturdays and week-ends and has, at times, worked all night. I don't know how one man can do all that he does but boy, he sure impressed me as being good! The work of the Health Department ought to be known by all of us citizens. When I finish college I doubt if I will work *in* the Health Department but you can be sure I'll work as a citizen and taxpayer *for* the Health Department.

Throughout the book many case examples are used of people with fictitious names. These individuals reappear from time to time in different chapters to bring out illustrative points, but it is done in such a way as to show some continuity between their stories and their acquaintance with or relation to other individuals in the same community and still remain illustrative of the scientific material being presented. The simplification which is desirable of course, from the standpoint of the lay reader, nevertheless lends itself to broad generalizations to which there may be specific exceptions as the author is well aware.

In general this is a well written and well presented psychoanalytic interpretation of mental phenomena. The only criticism which can be made is the question of the desirability of including the appendix on mental telepathy, intuition, etc., in a book for lay persons. While there is no doubt that the phenomena included under this are legitimate problems for scientific investigations, the extent to which this has gone does not seem to warrant an exposition of these phenomena in this simplified manner. Because of the many notions around these subjects in the mind of the lay public, it would have been better to omit this appendix. The author also makes some very broad generalizations with regard to the qualifications of psychiatrists. His intention was that of providing the layman with a basis of judging professional qualifications when seeking help.

JAMES M. CUNNINGHAM

Nursing in Tuberculosis — By Louise Lincoln Cady, R.N. Philadelphia, Pa.: Saunders, 1948. 481 pp. Price, \$3.75.

This is the sort of book nurses like because it is written for nurses by an experienced nurse who is a specialist in the field. Those sections which describe

tuberculosis in its clinical aspects and outline treatment procedures offer fairly familiar material, brought up to date however, but the real value of Mrs. Cady's presentation lies in her approach to tuberculosis as a public health problem and to the tuberculous patient as a member of his family and community. In a sense, Mrs. Cady has succeeded in generalizing a specialty, linking tuberculosis, its prevention and cure, to all nursing activities in homes and hospitals.

Another outstanding feature of this book is the emphasis upon the nurse's responsibility as a teacher. There is hardly a page which does not contain reference to information which must be given to the patient for his own welfare and the protection of others. The words "explain," "interpret," "show," "reassure," and "teach" occur again and again. The suggestions are concrete and simple and take into account the state of mind of the sufferer. The instructions regarding the meaning of bed rest seem unusually sensible and appropriate and revise many of our older ideas regarding it. Nurses will find chapter XXIII, Mental Hygiene, especially pertinent in understanding the mental attitudes of the tuberculous patient and his family, and chapter XXVI, The Tuberculosis Clinic, full of practical suggestions growing out of first-hand experience.

The only real criticism which is worth noting, aside from a few statements which might be considered the author's personal opinions—and who has a better right to make them?—is the *structure* of the book which can only be described as confusing. Nursing aspects of care appear here, there, and everywhere. Medical and surgical procedures in treatment are at times separated by ten chapters, at others crowded into one paragraph, and an orderly presentation of the course of the disease and its accompanying de-

Credit Lines

WHO AND CHOLERA IN EGYPT

"In a remarkable demonstration of how nations can coöperate against a common danger, cholera was confined to Egypt and brought under control in six weeks," says the December *News Letter* of the Interim Commission of WHO. The procurement of medical supplies was coördinated in the New York office which shipped by air more than 32 tons of vaccine, blood plasma, and other supplies urgently needed for the treatment and prevention of cholera. Cholera vaccine was made available by the United States, China, Indo-China, Japan, and Southern Korea. This meant arranging with United States manufacturers for new supplies of about 3,000,000 cc. of vaccine. In addition, 11 governments sent the Egyptian Government directly vaccine from supplies on hand as soon as they were advised of the outbreak. Thus Egyptian public health authorities were able to complete their anti-vaccination program by the end of November, nine weeks after the first outbreak was reported.

In procuring and shipping supplies to Egypt and neighboring states, WHO advanced nearly \$150,000 for later repayment by the governments involved.

The epidemic did not gain a foothold in the cities and was confined largely to the Nile Delta. Furthermore, the case fatality rate was less than 50 per cent compared to an apparent rate of 85 per cent in the 1902 epidemic. "This is due primarily," says the WHO report, "to the tremendous efforts of the Egyptian public health authorities backed up by the resources of many nations coöperating through WHO." Another illustration of the fact that coöperation is automatic to meet a crisis but less active to prevent one in the indefinite future.

SAVING EVERY PERMANENT TOOTH

The Dental Division of the Kansas State Health Department, Leon R. Kramer, D.D.S., Director, makes an interim report on its program. In a number of schools of the state, it has in operation a program for saving the teeth of school children. In 1945, the Baldwin Elementary School, after carrying on the program for five years, for the first time, reported no loss of permanent teeth among its 184 children enrolled.

In 1947, the Prairie School, with 485 children enrolled, reported that not a single child had lost a permanent tooth except in two instances for orthodontic reasons. For five consecutive years this school had attained 100 per cent correction of dental defects.

The program consists of an annual dental examination in the schools made by local dentists. Included also are classroom instruction, follow up activity, free dental care for children unable to pay, and excused absence from school on request of dentist to fill dental appointments.

ESOTERICA

The November issue of *Ciba Symposia* which is published for the interest of the medical profession by Ciba Pharmaceutical Products (Summit, New Jersey) is devoted to "The Prescription—from Antiquity to the Renaissance" with many interesting facts and illustrations for the antiquarian. The text is by G. Kasten Tallmadge, M.D., Ph.D., and the illustrations are taken from a variety of ancient documents.

JUNIOR LEAGUE SPONSORS BLOOD CENTER

Milwaukee (Wisconsin) reports an interesting example of lay agency contribution to community needs. The Milwaukee Junior League has opened a

Vice-President—

Louis P. Gebhardt, M.D., Professor of Bacteriology, University of Utah, Salt Lake City, Utah

Ann W. Haynes, State Department of Public Health, San Francisco, Calif.

Dorothy Teal, Honolulu, Hawaii

*Secretary-Treasurer—*Walter S. Mangold, Associate Professor of Sanitary Practice, University of California, Berkeley, Calif.

New Regional Board members of the Western Branch for two year terms include:

Robert A. Downs, D.D.S., Denver, Colo.

Stewart S. Murray, M.D., Vancouver, B. C.

James M. Doughty, Santa Fe, N. M.

John Wright, Boise, Idaho

Adolph Weinzirl, M.D., Portland, Ore.

Among other activities, the Regional Board voted to combine the office of Secretary and Treasurer, and a special resolution of appreciation was presented for the long service as Treasurer of Guy S. Millberry, D.D.S., of Los Gatos, Calif. The 1949 meeting of the Western Branch will be held in the Southwestern District, including Arizona and Southern California, at a date to be determined, presumably in May.

SOUTHERN BRANCH A.P.H.A. MEETS IN NEW ORLEANS

The Southern Branch, A.P.H.A., held its Annual Meeting in New Orleans, La., April 12, 13, and 14. During the three day meeting sessions were held by the Health Officers, Public Health Nursing, Dental, Biology, Health Education, Laboratory, Statistical and Clerical, and Sanitary Engineers-Sanitary Officers Sections, and three General Sessions took place.

The First General Session, which was the opening session of the meeting, featured addresses of welcome, a paper on World Health Organization by Martha M. Eliot, M.D., one on Hemisphere Health by W. W. Peter, M.D., and a Panel on School Health with Dean F. Smiley, M.D., as Moderator. The Second General Session was a general assembly conference on the subject "Evaluation of Local Health Work." At the Third General Session the topics covered were Fluorides in Preventive Dentistry, Health Educa-

tion for Legislatures, and Newer Aspects of Public Health Nursing.

Six hundred delegates from the states comprising the Southern Branch area attended the meeting, and the American Public Health Association was represented by Reginald M. Atwater, M.D., Executive Secretary, Roscoe P. Kandle, M.D., Field Director, and William T. Ingram, Engineering Field Associate.

Each of the eight Sections elected a Chairman, Vice-Chairman, and Secretary. Officers for the Branch were elected as follows:

*President—*John M. Whitney, M.D., New Orleans, La.

*1st Vice-President—*Robert H. Riley, M.D., Baltimore, Md.

*2nd Vice-President—*A. Pearl Barclay, R.N., Montgomery, Ala.

*3rd Vice-President—*Lucy S. Morgan, Ph.D., Chapel Hill, N. C.

*Secretary-Treasurer—*George A. Denison, M.D., Birmingham, Ala.

blood center which it has underwritten for five years on a non-profit basis. The Center has been approved by the Milwaukee County Medical Society, and private hospital blood bank facilities have been turned over to it. The medical director is Tibor J. Greenwalt, M.D., who will have the assistance of technical personnel and Junior League volunteers.

50 COMPULSORY SICKNESS INSURANCE BILLS IN 16 STATES—DEFEATED

The Research Council for Economic Security (105 West Monroe Street, Chicago 3) has recently published a pamphlet, illustrated with graphs, analyzing the 50 compulsory cash sickness and related bills that were introduced in the 1947 legislatures of 16 states. This is five times the number of such bills introduced a decade ago. All of the bills were defeated, one having passed a state legislature only to be vetoed by the governor.

The Council takes this to mean, not a decreasing demand for this type of legislation, but rather uncertainty in the minds of legislators as to what type of plan is best. Says the report, "The recent trend toward greater activity is likely to continue. This pamphlet is issued in the realization of the need for paying close attention to those developments."

NEWS ON THE CANCER FRONT

Several items of interest in the cancer world have recently come across the Credit Lines Editor's desk.

The *Cleveland News* of October 23 reports that in Mansfield, Ohio, a co-operative cancer clinic has been opened that "is pacing the nation . . . to track down early cancer invasion." Among its reported unique features is that it brings together assorted community agencies that have hitherto been virtually strangers, that it is the first Ohio clinic to win financial support from the State Department of Health, that it has been set up

by the Richland County Medical Society, and receives support from the American Cancer Society, from the Mansfield General Hospital, and from city and county health departments. More details can be secured from Fred O. Tonney, M.D., Richland County Health Commissioner, Mansfield, Ohio.

In New York City, the first cancer detection clinic to be operated by the municipal department of health is reported (Kips Bay-Yorkville Health Center, 411 East 69th Street). This is a diagnostic clinic purely for referral of patients requiring medical attention to private physicians or other clinics. Here too, the effort is coöperative, the New York City Cancer Committee, Cornell University Medical College, and the Strang Cancer Prevention Clinic of Memorial Hospital sharing sponsorship. The director is Emerson Day, M.D., Assistant Professor of Public Health and Preventive Medicine, Cornell University Medical College.

The Public Affairs Committee has revised its *Pamphlet No. 38* on Facing the Facts about Cancer. This brings up-to-date the figures on cancer incidence and the information on cancer organizations and their activities which have expanded extensively since the pamphlet was first produced. Available from Public Affairs Committee, 22 East 38th Street, New York 16. 20 cents each; special rates on quantity orders.

"TIC" CONTINUES TO TICK

Tic, the enterprising magazine of a commercial dental prosthetics manufacturer that discusses the social aspects of dentistry and which has previously been mentioned in Credit Lines, devotes its November, 1947, issue to the story of the Cleveland Health Museum. Prepared by Henry A. Hartman, D.D.S., Health Officer, of Parma, Ohio, and illustrated with many photographs of the museum's exhibit, this brings the story of the Cleveland Health Museum

NEWS FROM THE FIELD

DR. CHISHOLM DIRECTOR OF WHO

At the first session of the World Health Assembly held in Geneva, June 24-July 24, Brock Chisholm, M.D., was elected Director General of the World Health Organization. Dr. Chisholm has been Director of the Interim Commission which has carried on world health activities until the charter was ratified and the first organization meeting held. A Canadian and a psychiatrist, he has indicated in a number of addresses his interest in physical and mental health as a means to world peace.

At the first session of the Assembly, Dr. Andrija Stampar of Yugoslavia, who had served as Chairman of the Interim Commission, was elected President of the Assembly by acclamation. Sir Aly Tewfik Shousha, Pasha, of Egypt was elected Chairman of the Executive Committee.

As of July 15, the membership of WHO numbered 68 countries, 11 of which are not yet members of the United Nations. The United States House of Representatives voted ratification of the WHO Constitution just in time for this country to be represented at the first World Health Assembly. In spite of its addition of a one year withdrawal clause, the Assembly voted to accept the ratification of the United States. Thomas Parran, M.D., former Surgeon General of the U. S. Public Health Service, who headed the 33 member delegation of the United States, assured the delegates that his country "stands solidly behind the World Health Organization and its objectives."

Among the matters agreed upon in the Assembly were the declaration of principle that WHO should in no way interfere in local affairs but confine itself to strengthening national health admin-

istrations in their efforts to deal effectively with the problems that faced them. Priority was granted to four programs for 1949, combating malaria, tuberculosis, and venereal disease on a global scale, and the improvement of maternal and child health. With respect to malaria, it was proposed that governments offer free therapeutic and prophylactic treatment; for tuberculosis the use of BCG vaccine was recommended and the establishment of an expert BCG panel. The United States and Mexico proposed an expert committee to combat water-borne and milk-borne diseases; an international study of cancer and other diseases was also proposed. A preliminary report on WHO's survey of the world's insulin supply was made, including the hopeful aspect due to the Lindner method of preserving the pancreatic glands of slaughtered animals, from which insulin is made. WHO is publishing this method in full.

Establishment of a world influenza center in the London National Institute for Medical Research was recommended, as were international centers in other areas for the study of brucellosis and schistosomiasis. The question of establishing a WHO medical supply bureau will also be studied for report to the next meeting of the Assembly.

Geneva was unanimously selected as WHO permanent headquarters, and regional offices were recommended for the Eastern Mediterranean, Western Pacific, Southeast Asia, Europe, and Africa, with negotiations in process to integrate the Pan American Sanitary Bureau with WHO as the regional office of the Americas.

The United States delegation included the following:

to a new audience. *Tic* is available from Ticonium, 413 North Pearl Street, Albany, N. Y. at 25¢ per copy, \$2.50 per year.

HAVE YOU A PROBLEM CHILD?

The American Academy of Pediatrics announces that it has written and produced a new 16 mm. sound film on the "Problem Child." With a running time of about 25 minutes, it deals with feeding schedules, food and toilet habits, discipline, parental attitudes, etc. It is intended primarily for special lay groups such as Parent Teacher Associations. It is being distributed free of charge to both lay and medical groups by the Pet Milk Company, Research Division, St. Louis 2, Mo.

The picture was made possible by a grant of funds from Pet Milk to the Academy. In requesting the picture, prospective users are asked to give the date when the film is to be shown and to allow at least three weeks for handling the order.

HEALTH PROGRAM AIDS

Agenda began publication in July, 1947, as "the magazine for women's club leaders" with the purpose of furnishing aids in program making for women's clubs.

The second issue, September, 1947, carried two articles, one on "Better Health in Your Community" by Surgeon General Thomas Parran of the U. S. Public Health Service, and another on "How To Form a Health Council" which was the case history of the development of the public health lay committee of Montgomery County (Maryland).

Number 3, for November-December, has an article by bandleader Kay Kyser on "How to Make People Health-Conscious" in which he reports on some of the publicity aspects of the Good Health Campaign being carried on by the North Carolina Good Health Association.

Another article on "'Selling' Health Through Movies" is the story of the movie health program in Houston, Tex. Apparently pages 24 and 25 of these issues are being reserved for health matters.

The magazine is published by the Printers' Ink Publishing Company, 205 East 42nd Street, New York, but it is not sold either at subscription prices or on newsstands and it is reported that back issues are no longer available. The magazine, however, is distributed to practically all public libraries. Write to the publisher if you are interested in knowing how to get on the distribution list.

TELEVISION HEALTH EDUCATION

The American Medical Association, conscious of its history as a pioneer in health education by radio, is preparing for television. The Associate Director of its Bureau of Health Education, William W. Bolton, M.D., has prepared a small 22 page pamphlet, *Television Handbook*. This outlines the problems and form of presentation of health education through television and summarizes some 30 television programs that have been given.

The A.M.A. has also had a second printing of its radio handbook, first published in 1946. The two handbooks are alike in format and printing.

The handbooks are available from the American Medical Association, 535 North Dearborn Street, Chicago 10. 50 cents per copy; quantity prices on request. Sample copies will be furnished to official and voluntary health agencies.

WHERE EACH TOWN STANDS

It is well known that Connecticut has no full-time local health officers except in 13 cities comprising about half of the state's population. All the rest of its 169 towns, all but 21 with populations of less than 20,000, have part-time

Nursing Education in Chicago in June, the following officers for the three organizations were elected:

AMERICAN NURSES ASSOCIATION

President—Pearl McIver, R.N., Chief, Office of Public Health Nursing, U. S. Public Health Service

1st Vice-President—Janet M. Geister, R.N., Organization Consultant, Chicago

2nd Vice-President—Mrs. Bethel J. McGrath, R.N., Powers Dry Goods Co., Minneapolis

Secretary—Mrs. Linnie Laird, R.N., Executive Secretary, Oregon State Nurses' Association

Treasurer—Lucy Germain, R.N., Director of Nurses, Harper Hospital, Detroit

NATIONAL ORGANIZATION FOR PUBLIC HEALTH NURSING

President—Ruth W. Hubbard, R.N., General Director, Visiting Nurse Society of Philadelphia

1st Vice-President—Ruth B. Freeman, R.N., Administrator of Nursing Services, American National Red Cross

2nd Vice-President—Mrs. Carl B. Grawn, Board Member, Visiting Nurse Association of Detroit

Treasurer—L. Meredith Maxson, Vice-President, First Boston Corporation, New York

Secretary—Anna Fillmore, R.N., General Director, National Organization for Public Health Nursing

NATIONAL LEAGUE OF NURSING EDUCATION

President—Agnes Gelinas, R.N., Chairman, Department of Nursing, Skidmore College

Vice-President—Mrs. Hazelle B. Macquin, R.N., Dean, School of Nursing, University of Utah

Secretary—Mrs. Henrietta A. Loughran, R.N., Director, School of Nursing, University of Colorado

Treasurer—Henrietta Doltz, R.N., Department of Nursing, University of Oregon Medical School

PROPOSAL TO CONTINUE NATIONAL HEALTH ASSEMBLY

Three proposals to carry out the recommendations of the National Health Assembly, held in May, were made by its Executive Committee, meeting late in June:

1. That the Assembly's Executive Committee continue as an advisory and coordinating agency;
2. That the Federal Security Administrator appoint a small working subcommittee to

recommend to the full committee plans on public education relating to health, and on continuing organization and financing;

3. That each state be urged to hold a health assembly, patterned after the National Assembly, and giving equal representation to professional and "consumers'" groups in order to stimulate the widest possible co-operation among all concerned in health; that these state conferences, in turn, stimulate local conferences along the same lines to develop essential local planning and operation of health services.

As a means of exploring practical methods of carrying out the Health Assembly's recommendations, the Federal Security Administrator, Oscar R. Ewing, has asked the subcommittee to consider:

Publication of the final recommendations of the 14 Sections constituting the National Health Assembly;

Exploring methods for follow-up of recommendations made by the Sections of the National Health Assembly—wherever possible, such follow-up should be carried on by organizations already specializing in these fields of activity;

Development of plans and guidance for state and local health assemblies.

HONORARY DEGREE TO DR. ELIOT

Martha M. Eliot, M.D., President of the A.P.H.A. and Associate Chief of the U. S. Children's Bureau received the honorary degree, Doctor of Humane Letters, at the Commencement exercises on June 21, of the University of Rochester. In presenting Dr. Eliot for the degree, Janet Clark, Professor of Biophysics and Dean of the College for Women of the College of Arts and Sciences, said:

When we contemplate the slow progress that the world is making towards political unity we are often discouraged. It is with particular thankfulness that we turn to fields in which notable progress has been made towards bettering the conditions of the human race. Nothing is more inspiring than the great strides made in the last fifty years in the field of public health. The men and women who have devoted their lives to controlling disease have fought a battle for the conservation of human lives and resources, not their destruction. The contribution they make often

health officers, and many of them have other personnel.

In the November *Connecticut Health Bulletin*, James A. Dolce, M.D., Chief of the Division of Local Health Administration, analyzes the 1946 expenditures for health services of the 169 towns and cities of the state. He finds that they spent an average of 88 cents per capita; 94 cents in towns of less than 1,000 population, and \$1.10 in cities of 50,000 or over, with towns between 2,500 and 20,000 averaging the least, 63 cents. One town of 300 persons spent \$4.20 and another of 1,300 spent \$18.

These cold figures are a telling argument for the consolidation of towns into health districts, for a part of the cost of operating which a new Connecticut law now provides.

CHRONICLING WORLD HEALTH

Volume 1, No. 1-2 of the *Chronicle of the World Health Organization* appeared recently. It aims to be "a readable summary of the activities of WHO" and "to mark the stages in the attempt to implement, through international action, the declaration of its Constitution that 'the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being.'"

Published in the five official languages of UN, its subscription is \$2 for 1947, and is available from the WHO Interim Commission Headquarters Office, 350 Fifth Avenue, New York 1. Specimen copies sent free on request.

FROM BOWDITCH TO GETTING IN MASSACHUSETTS

The first 75 years of the Massachusetts Department of Public Health, completed in 1944, have now been set down for future students and historians in a special number of *The Commonwealth*, a publication of the department. Entitled "75th Anniversary of the Massa-

chusetts Department of Public Health, 1869-1944," it is written by Raymond S. Patterson, PhD., Director of Health Education, John Hancock Life Insurance Company, assisted by Mary Carr Baker, Supervisor of Health Education in the Massachusetts Department of Public Health. It has the unmistakable Patterson flavor familiar to *Journal* readers through his *Selected Public Health Bibliography with Annotations*.

Using the surveyor's technique as analogy, the authors divide their story into five bench marks, 1869, 1879, 1886, 1914 and 1936, giving the influences and events of each and relating the Massachusetts story to that of public health in the United States. There are pictures of the 8 state health commissioners (or secretaries of the state board of health) from Bowditch in 1869 to Getting of today.

This pamphlet of some 70 pages should be in every library as a part of the permanent record recalling the establishment of the first state board of health in the United States. Though the report does not so indicate, it is presumably available from the Massachusetts State Health Department, State House, Boston.

OKLAHOMA'S MERIT SYSTEM

As a result of the Credit Lines items about Oklahoma's 6th annual *Merit System Council Report* (Jan, 1947, p. 98), it has been reported that a number of health officers requested the pamphlet and were stimulated to get further information about merit systems.

The 7th *Report* for the year ending June, 1947, is now at hand. It maintains the high standard set in the earlier, doing a particularly good job of simplifying in layman's language and with humorous illustrations some questions and answers about the merit system's advantages to worker and public.

Some indication of the extent of Oklahoma's Merit System operation is that

by the National Organization for Public Health Nursing at its closing business session on June 4, 1948, during the Biennial Nursing Convention in Chicago:

WHEREAS, the people of the United States are not at present receiving adequate public health care, and

WHEREAS legislation has been introduced in the Congress of the United States to permit federal assistance to states in the development of local public health services, passage of which would improve and extend the nursing care available to the people of the United States, be it therefore

RESOLVED that the N.O.P.H.N. approve the principle of legislation to provide aid to states in the development of local public health services and urge members to support aggressively such legislation as is presently proposed or may be subsequently introduced to achieve this end, and to interpret to other civic groups the import of such legislation and the urgency for public action in support of it.

NEW YORK STATE HOLDS ANNUAL HEALTH CONFERENCE

The 44th Annual Health Conference under the auspices of the New York State Department of Health was held in Saratoga Springs July 21-23. More than 1,000 health officers, public health nurses, and engineers were in attendance.

Among the out of state speakers were Dr. Leonard A. Scheele, Surgeon General, U. S. Public Health Service, Washington; Dr. Austin M. Brues of the Argonne National Laboratory, Chicago, Ill.; Dr. William Roemmich, Minneapolis, Minn.; Dr. Frederick J. Stare, Harvard School of Public Health, Boston; Dr. W. H. Sebrell, National Institute of Health, Bethesda, Md.; Dr. Vlado A. Getting, Commissioner of Public Health, State of Massachusetts, Boston, and Dr. Ernest L. Stebbins, School of Hygiene and Public Health, Johns Hopkins University, Baltimore.

A new mobile X-ray truck was delivered to the State Department of Health during the conference and keys to the unit were presented to Dr. Herman E.

Hilleboe, who said that the truck was provided in order that services may be brought to people where the people cannot be brought to the services. The unit was put into operation in making photofluorographs of the chest of those in attendance at the conference.

NEW YORK STATE TO BUILD VIRUS LABORATORY

The New York State Department of Health at Albany announced on July 20 that construction would begin immediately of a new virus laboratory as an addition to the present laboratory on New Scotland Avenue, Albany. Dr. Herman E. Hilleboe, State Commissioner of Health, said that facilities would be provided for the Department's research program in virus diseases and other activities.

DR. VAN HEUVELEN BECOMES SUPERINTENDENT OF HEALTH IN SOUTH DAKOTA

The appointment of Gerald John Van Heuvelen, M.D., as Superintendent of Health in South Dakota, effective July 1, was recently announced. Dr. Van Heuvelen succeeds Gilbert Cottma, M.D., who has retired.

Dr. Van Heuvelen is a graduate in medicine of Rush Medical College in 1932, and is a diplomate of the National Board of Medical Examiners in the same year. He has for some time limited his practice to public health and has served as Assistant Superintendent and Epidemiologist in the South Dakota State Department of Health.

KATHARINE LENROOT RECEIVES UNIVERSITY HONORS

Katharine Lenroot, Washington, Chief of the U. S. Children's Bureau, received on June 2, the degree of Doctor of Laws from Tulane University, New Orleans, at the Annual Commencement. The citation reads:

One of the outstanding women in American public life, Miss Lenroot is known throughout the world for her distinguished work in be-

there were about 5,500 applications for examinations, of whom about four-fifths were accepted. Fewer than three-fourths of those accepted appeared for the examination and about three-fourths of these passed. Thus more than twice as many applications were processed in order to get about 2,500 eligible candidates for state positions.

The public health nursing shortage is highlighted by the fact that of 25 nurses applying for two examinations, 23 were accepted but only 5 appeared, all of whom passed the examination. Fewer than half of sanitation personnel accepted for examination appeared but all who took the examination passed. A total of 83 persons applied for health unit clerk examinations; 51 were accepted; 12 appeared for the examination and only 6 passed.

If more merit system administrators prepared such understandable reports, much of the prevailing mystery about merit systems would be dispelled.

SAYING IT WITH PICTURES

The extent of tuberculosis in Alaska, where the death rate in 1945 was nearly 9 times as great as in Continental United States, has been widely discussed in recent months. That some action is being taken is indicated by *Home Care of the Tuberculous in Alaska*. This is an excellently printed pamphlet in words and pictures that tell the story of fisherman Brown's 16 year old daughter, Sally, who contracted tuberculosis, was diagnosed at an early stage and recovered after a long period of home care.

The homely details of sterilizing dishes, preparing the patient's bed, taking temperatures, and all the necessary improvising that are a mystery to the average uninfected family are told step by step in words and photographs of actual people in an Alaskan home.

The handbook is the result of cooperative effort by the Alaska Native Service, the Alaska Tuberculosis Asso-

ciation, and the Territorial Health Department, with assistance from the U. S. Public Health Service and the U. S. Indian Service.

Available from the Alaska Tuberculosis Association, Juneau, \$1.50.

HEALTH SERVICES IN BRITAIN

Britain's National Health Service Act became law in November, 1946, and will come into full operation in mid-1948. The Reference Division of the British Information Services is distributing a pamphlet with the above title which in concise and simple form explains the new Act, how it has developed, how it will work, and what it will provide. It gives particular attention to the effect the new Health Center Scheme will have on the role of the general practitioner as well as the interrelation of the various medical and public health services.

As to the historical background of the National Health Service Act, the pamphlet says:

The National Health Service aims at ensuring that everyone in Britain, irrespective of means, age, sex, or occupation, shall be entitled to the best and most up-to-date care available. This universal concept of national health services is an innovation, but it is not revolutionary.

It is a logical development showing continuous evolution over the past centuries from Government measures to check the spread of pestilence to the modern concept of maintaining the health of the individual, whether he is a menace to the community or not.

Available without charge from the British Information Services, 30 Rockefeller Plaza, New York 20.

THIRTY YEARS OF UNION MEDICAL SERVICES

Coinciding with its announcement of a million dollar expansion program, the Union Health Center of the International Ladies Garment Workers Union of New York City (275 Seventh Ave.) recently issued a *Triennial Report* for

the years 1944-1946. This three year report traces the history of the Center's service in the more that a quarter of a century since it started giving service.

In 1916 the medical services were limited to the amount of work a general medical doctor could do with the aid of his stethoscope and his medical knowledge. In 1916 total services numbered about 7,000; in 1946 nearly 208,000. In the intervening years, 12 specialized clinics had been added and the worker's fee of \$1 now includes not only the basic physical examination but laboratory and x-ray tests, physical therapy treatments, and service in specialty clinics.

The Union now has a complete health and welfare service based upon a pre-paid medical plan. Its experience and that of similar plans like the CIO Labor Institute in St. Louis has much to offer the developing programs of medical care, industrial and other.

THE MENTAL HEALTH PROGRAM

There are now reported to be 8,000,000 persons in the United States suffering from some form of nervous or mental illness. Moreover, since the incidence of mental disease rises with age, an increase is forecast for the coming years. Which makes it none too soon that there is now a three-way national mental health program in operation, authorized by the 79th Congress in 1946 and implemented by Congressional appropriation of \$7,500,000 in 1947.

Over a million dollars annually will be made in grants to public and private non-profit institutions for the development and improvement of facilities for training mental health personnel. Nearly half a million will be spent on grants-in-aid to similar institutions for research in the mental hygiene field. Three million dollars is earmarked for grants-in-aid to the states for development of local mental health programs, particularly for the development of traveling mental hygiene clinics in sparsely settled rural

areas, areas which have had practically no facilities at all. The goal is one outpatient mental health clinic for each 100,000 of the population as soon as personnel is sufficient to meet this demand.

Other activities to be carried out through the national mental health program are field studies, inservice training for general practitioners, and administration of hospitals for the mentally ill. An appropriation of \$850,000 has also been made for a site for the National Institute of Mental Health to be constructed in Washington.

In December, 1947, on recommendation of the National Advisory Mental Health Council, a grant was made to the International Committee on Mental Health for a study of the effects of war, the report to be presented at the August International Congress on Mental Health in London. A grant was also made to the National League of Nursing Education to set up a professional accrediting body in the field of psychiatric nursing.

CHILDREN'S FUND OF MICHIGAN

The *Eighteenth Annual Report* of the Children's Fund of Michigan for the year ending April 30, 1947, is of particular interest because of its paragraph on county health departments which says in part, "For the first year no appropriations were made to numerous county health departments that at the time of their origin were promoted and subsidized by the Children's Fund . . . Each county or district health department has continued to receive its annual appropriation from the supervisors and no health unit established by the Children's Fund has ceased operations or failed to carry on a reasonable good program . . . and have become integrated into the county government and county life."

This led the Credit Lines Editor to look into earlier reports. He found that

the first help to local health units was less than \$8,000 to two four-county units in 1930. The next year, four units received more than \$60,000; the next year five received more than \$75,000. Year by year aid was extended until the peak of 1940 when \$210,600 was given to 19 health units involving 41 counties. Since then the program has declined until the current year when all the units stood on their own local governmental feet, as it were. This would appear to be an outstanding example of pioneering, one of the basic functions assigned to voluntary agencies by the Gunn-Platt Report.

STANDARDS FOR LOCAL HEALTH DEPARTMENTS

Effective October 1, 1947, the California State Board of Health adopted standards and recommendations for local public health departments as a basis for the allocation of the \$3,000,000 appropriation made by the 1947 legislature for the development of local health services. These standards were first recommended by the California Conference on Local Health Officers before adoption by the State Board.

Although California is perhaps not unique in having established definite standards for local health departments as a prerequisite to state aid, the methods of their adoption and their general outline might serve as a stimulus or a guide to other states in developing such definite standards.

The first requisite is that there shall be a full-time medical health officer except that counties with populations of less than 25,000 with a part-time health officer may be given provisional approval until June 30, 1948, while a plan for full-time service by joining with contiguous counties or by some other means is developed.

A local health department must maintain a headquarters office on a full-time basis, must have a clerical staff under

proper supervision, a public health nursing staff under supervision (one nurse per 5,000 population is recommended; if school nursing is included, one per 3,500; and if bedside nursing also, one per 2,000), an adequate sanitation staff with at least one worker per 20,000 population recommended; and must carry on the six basic standard health services.

Available from California State Department of Public Health, 760 Market St., San Francisco 2.

LOOKING AT LOCAL GOVERNMENT AGAIN

The local government studies of the Council on Intergovernmental Relations have previously been mentioned in *Credit Lines* (1946, pp. 184, 1327; 1947, p. 601). Further details have now been published. In September, the National Council on Intergovernmental Relations, Washington, D. C., published *Grass Roots: A Report and An Evaluation*. It gives the backgrounds of the Spelman Fund supported project to strengthen local government by rationalizing it.

This pamphlet tells how the five counties in which the experiment is being carried on—Blue Earth, Minnesota; Henry, Indiana; Colquitt, Georgia; Santa Clara, California; and Skagit, Washington—were selected, how the local councils were set up and given responsibility.

In each of the counties, the mosaic of political pieces that make up the sum total of local government are analyzed and a program of coöperation between them put into effect. Contrary to previously accepted easy judgments not all the confusion is due to the federal government's operation in a local area.

Following the earlier *Blue Earth County Report* mentioned in *Credit Lines* of February, 1946, a later one, *A Study of Public Health Administration*, has been issued. It found that in this county of fewer than 40,000 per-

sons, there were 24 health officers, 6 public health nurses, divided among 5 jurisdictions but none in either towns or villages.

These studies are worth following. In their various approaches they all add up to more coördination of local government rather than transferring responsibilities to state or federal governments.

TYPHUS IN WORLD WAR II

The December, 1947, issue of the *Military Surgeon* carries the article "Typhus on The Western Front in World War II" by Lt. Col. Hartwin A. Schultze, M.C. That typhus did not develop into a major cause of morbidity and mortality during the last war is attributed to the skill and united efforts of the military and civilian personnel working in preventive medicine and public health. Colonel Schultze gives a brief account of what some of these preventive measures were as undertaken by the military forces. Aside from military organization and administration, he attributes the remarkable control of typhus to the use of immunizing vaccine and DDT.

THE HEALTH STORY IN HAWAII

In a pocket size pamphlet of about 100 pages, the Public Health Committee of the Honolulu Chamber of Commerce tells Hawaii's current health story. In brief text and in photographs, it tells what are the chief health problems and the various health services available to meet these problems. Background data on industries, population, schools and the island's history are included. It may surprise Mainlanders to discover that for tuberculosis and typhoid alone among a dozen infectious and parasitic diseases, the death rates are higher in Honolulu than in Continental United States. This little booklet should serve as a useful health education tool for the Hawaiian population but also has good capsule information for the visitor.

Its photography and printing are uniformly good. R. G. Nebelung, Dr.P.H., is the Executive Director of the Public Health Committee.

NEW YORK H.I.P. BURGEONS

The Health Insurance Plan of Greater New York has been developing so rapidly that three of its 25 groups have begun to publish bi-monthly bulletins to keep their members informed, as well as a means of health education. *Doorway to Health* of the Central Medical Group of Brooklyn (membership 8,000) first came out in September, *To Your Health* of the Central Manhattan group and *Richhaven Medical Group Review* of the Richhaven, Queens Group, in November. They represent an interesting illustration of closing the language gap between professional and layman.

H.I.P.'s enrollment at the end of 1947 was 110,000.

CONSUMERS UNION ON HEALTH MATTERS

Credit Lines has been delayed in acknowledging receipt of *Consumers Union Reports*. Early in 1947, its health and medical section which is under the general supervision of its medical adviser, Harold Aaron, M.D., was enlarged. Each monthly issue has a scientific discussion in simple language of some medical problem, particularly one around which superstitions and old wives' tales or a great curtain of secrecy have developed. It is also on the lookout for quackeries and exaggerated claims.

Samples of its articles are: *The Irritable Colon* (April), *Tonsillectomy in Children* (May), *The Problem of Infertility* (July), *Government and Medicine* (April), and *The Rise and Fall of Fleischmann's Yeast* (September).

BUSINESS CONCERNS WILL HELP TOO

The Massachusetts State Department of Health, with the financial assistance

of the United-Rexall Drug Company, has prepared and distributed a *Handbook for Physicians*, which presents in condensed form the services offered to physicians by the Department of Public Health and the facts a physician should know concerning the practice of medicine in the state. The Professional Relations Department of the drug company helped in the preparation of an appendix that includes a compilation of Massachusetts laws of interest to the medical profession.

WORTH ACQUIRING

Help Fight Tuberculosis—A Story for You—a new booklet of information on tuberculosis intended for elementary school children. Its language, format, and printing are all suited to the youthful reader who, it is presumed, will take the story home as well. Published by the National Tuberculosis Association and available from state and local associations.

Dental Health Program for Elementary and Secondary Schools—prepared by the Council on Dental Health of the American Dental Association is the first part of a manual on the dental health program to be prepared. Later pamphlets will cover prenatal and preschool dental health programs. The present pamphlet discusses the financing, administration, and lay education and participation in a dental health program. The printing is excellent and black and white illustrations help to carry its message.

Sample copies free and quantity orders at 15 cents per copy from the American Dental Association, 222 East Superior Street, Chicago 11.

UNESCO and You: A Six-Point Program—This is described as "questions and answers on the How, What, and Why of your share in UNESCO." The six-point program for individuals gives

suggestions on how to help rebuild war devastated schools and libraries, how to make personal opinion felt on the side of peace, how to train the younger generation in peace, how to dramatize UNESCO's aims in one's community, how to take part in its continuing adult education, and how to establish inter-racial and inter-religious understanding in a community. Available from the U. S. Government Printing Office, Washington 25. 15 cents.

Broken Homes—This 135th pamphlet of the Public Affairs Committee has as its thesis that tightening divorce laws is a mistaken attempt to apply legal remedies to a problem that is sociological and mental. "A modern marriage must be held together from within rather than from without," says the author, George Thorman.

This same agency's *When You Grow Older* is another recent publication and is a plea for the young and middle aged, to prepare themselves for retirement age not merely with the old fashioned copy-book thrift but chiefly with something interesting to do and with learning to live with one's age as to diet, exercise, etc.

Public Affairs Committee, 22 East 38th Street, New York 16. 20¢ per pamphlet; less in quantity.

Social Service and Rehabilitation in a Tuberculosis Sanatorium—Credit Lines is indebted to one of its Fellows, Lillian Wurzel, Medical Social Worker of the Los Angeles Tuberculosis Sanatorium of the Mt. Sinai-Duarte National Medical Center, for this symposium by the staff members of the sanatorium. It deals with the "mind-salving measures" necessary to the cure of the patient in addition to medical and surgical measures.

Available from Mt. Sinai-Duarte National Medical Center, 208 West 8th St., Los Angeles 4.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted. All books reviewed in these columns may be purchased through the Book Service.

Unto the Least of These—Social Services of Children—*By Emma Octavia Lundberg. New York: Appleton-Century, 1947. 424 pp. Price, \$3.75.*

This is a good source book for those deeply interested in the development of social services in this country, and also gives a general picture to those less oriented. The book should be of particular value to those who work in the public health services for children and do not have a clear idea of the function and operation of child welfare services. The book discusses social welfare and its history in this country and considers in some detail the problems of foster care, of delinquent and neglected children, and of public and private agency services for them. Historical and documentary material are scattered throughout the text. In the opinion of this reader, two chapters devoted to the contributions of various individuals seem to be inserted to not very good purpose in the middle of this story.

The author, who has long been associated with the child welfare work in the federal Children's Bureau, has approached different topics with varying degrees of understanding and breadth of vision. For example, in a discussion of care for foster children, we find this sentence:

Those of us who remember the bitter controversies, most of them academic and partisan, which raged two decades ago over the question of institutional *versus* family-home care know how futile was this discussion of methods of care, and how it bypassed the vital issue of the circumstances under which a child should be received for care by *either* institutions or child-placing agencies.

The broad approach that this point of view indicates to the foster care pro-

gram is, however, not apparent when day care for children is discussed. Here, consideration of the contributions made by research groups in child growth and development, by progressive nursery schools, etc., is almost entirely ignored. The problem is seen in the following terms:

Experience during the past few years has shown that the states and communities must assume public responsibility for the proper care and protection of children who are orphans for the day, and that proper provision for this form of care demands the combined efforts of agencies in the fields of social welfare, health, and education.

True, there is brief mention of the rôle which day care can perform "in the physical and mental development of young children," but there is no real consideration of the value of social and group experience for young children for the sake of the children themselves regardless of their "orphan state."

It is also of some interest that in the discussion of federal aid for services to children great emphasis, as is to be expected, is placed on child welfare services and some attention given to services for crippled children. The assistance given through maternal and child health funds available also through the Social Security Act is ignored. Actually, however, this cannot stand as a criticism of the author for, as one looks at child welfare services in general, he sees that they too follow the pattern which the author has presented.

LEONA BAUMGARTNER

Science and Public Policy—*Volume I. A Report to the President by John R. Steelman, Chairman, The President's Scientific Research Board.*

Washington: U. S. Government Printing Office, 1947. 71 pp. Price, \$.20.

This report, prepared by the President's Scientific Research Board, provides a valuable summary of present official and private resources in this country for scientific research and a suggested plan for the rapid expansion of those resources. Although until World War II we had never consciously defined our objectives or organized our resources for science, there had been a rapid growth in research expenditures, rising from \$166 million in 1930 to \$345 million in 1940. In order to meet the defense needs and economic requirements of the country the report strongly recommends that annual expenditures for research and development be increased as rapidly as facilities can be expanded and trained man power be increased. At the moment it is estimated that the total research funds available for the nation are about as high as they can effectively go in view of the limitations in trained man power and facilities. The report advocates, however, that the present research budget should be doubled by 1957 so that at the end of a ten year period at least one per cent of our national income shall be devoted to research and development in the universities, industry, and the government.

The drying up of scientific sources in Europe, the interruption of normal interchange of scientific knowledge and the over-emphasis during the war years on applied rather than basic research make it imperative that the federal government launch a comprehensive program of development without delay. In order to promote such a program effectively the Board recommends that a National Science Foundation be established with a director appointed by and responsible to the President. It is proposed that this Foundation should support basic research in the universities and nonprofit research institutions at

a progressively increasing rate, reaching an annual expenditure of at least \$250 million by 1957, for, as Sir Henry Dale pointed out in a recent address, "to concentrate almost the whole of a rapidly growing scientific effort on practical applications and developments, as happened during the war, would correspond to reckless cropping of land without care to nourish the soil." The Board further recommends that federal assistance to universities and colleges be developed in supplying laboratory facilities and scientific equipment as an integral part of a general program of aid to education. The program would also include scholarships and fellowships for students of the sciences.

Many other important aspects of a national scientific program which cannot be covered in a short review are discussed in the report. Anyone interested in the future of science in this nation will wish to study the report for himself with care.

HUGH H. SMITH

Medical Care and Costs in Relation to Family Income—By Helen Hollingsworth, Margaret C. Klem, and Anna Mae Baney. (2nd. ed.). (Bureau Memorandum No. 51) Washington, D. C.: Supt. of Documents, 1947. 349 pp. Price, \$1.25.

This is the second edition of a statistical source book on medical economics. It is a paper bound, 8 x 10 inch volume, published by offset printing, and contains 317 tables taken from various publications.

The sections added since the first edition contain 14 tables on the economic characteristics of the population and 21 on vital statistics. A 7 page table gives in detail the benefits included in each of 44 new industrial group insurance plans using commercial insurance companies.

This useful reference book should be on the shelves not only of all those interested in medical care and health in-

surance but of health departments, schools of public health, and community hospitals. It contains most of the statistical information commonly referred to.

Brief descriptions are given of 23 important studies from which tables are taken. These enable the reader to form his own conclusions as to value. A footnote under each table and an alphabetical list of 138 references gives the reader the sources of each of the tables.

The greatest value in this book is the newness of the material. Most of the tables are more recent than 1940 and a considerable number go beyond 1944. It is gratifying that this type of material is not only available but is being republished at reasonably frequent intervals.

V. L. ELLICOTT

Water Supply and Sewerage—By Ernest W. Steel. (2nd rev.) New York: McGraw-Hill, 1947. 666 pp. Price, \$6.00.

The author states that this book is an attempt to present for engineering students those essentials of principles and present-day practice necessary to solution of the problems of water supply and sewerage. The changes from the first edition (1938) are minor.

There are a number of details relating to developments in the past ten years which need correction by checking on current practice and reference to current literature. In some cases apparatus is described, without qualification, which has been more or less discarded since the first edition. The material on sludge treatment and sludge processing, as well as on handling garbage with sewage, needs revision.

The usefulness of the book would be enhanced by a concise bibliography of outstanding articles and books. Should a new edition be contemplated, the author would do well to submit the various parts of the book to practising engineers for correction and suggestion.

For health officers and others desirous of a general view of the field, the book should prove useful and informative.

LANGDON PEARSE

Food Poisoning—By Elliott B. Dewberry (2nd ed.). London: Leonard Hill, Ltd, 1947. 246 pp. Price, \$5.00.

This volume, which is a revision of the book first published in 1943, brings together voluminous information in regard to the varieties, causes, modes of transmission and control of the agents which cause food poisoning. It is a valuable handbook for both the field investigator and the laboratory worker. In such an exhaustive treatment of the subject, much technical information and phraseology must necessarily be included. This does not make it easy reading for persons lacking the necessary scientific background.

The book is attractively printed and well illustrated for one which has been issued during this period of shortage of paper and restrictions upon printing. One interesting feature is the inclusion of photographs of investigators who have contributed to our knowledge of food poisoning. This will be the first time that many persons will have seen the likeness of some of these individuals.

There is a very thorough discussion of salmonella infections carried by food, staphylococcus food poisoning and botulism. Those who read the book should realize that toxins produced by salmonella organisms have not been conclusively demonstrated and there is reason to believe that such supposed toxins may really have been produced by accompanying staphylococci rather than salmonella organisms.

The information regarding contamination of foods by poisonous metals and that in regard to poisonous plants makes a very useful check list of items to be considered when investigating outbreaks of illness due to foods. A well selected bibliography at the end of each chapter

makes it possible to explore further into both the historical papers and the more recent investigations.

ROY F. FEEMSTER

5,000,000 Casualties on the Home Front—By Louise Neuschutz. New York: Beechhurst Press, 1947. 184 pp. Price, \$3.50.

Correctly called a handbook of home safety, this volume gives evidence of a wide knowledge of the causes of accidents and impresses one with the author's sincere conviction that accidents can be stopped.

Mrs. Margaret Culkin Banning in a foreword calls upon the nation to wipe out accidents and expresses a belief that this book is a tool toward such action.

Physical and mental causes of accidents are touched upon, although the book leans quite heavily on the theme of carelessness, especially in accidents to children. Parents are given suggested reading.

In addition to the several chapters on home safety, chapters are included on farm safety, fire prevention, first aid, and safety for the physically handicapped.

Good type, attractive headings, chapter summaries and questionnaires, illustrations and an index, add to the readability and usefulness of the book. Case histories taken from newspaper accounts are liberally used.

Intended primarily for the home-maker, the book is of value to school teachers, public health nurses, health educators, and safety engineers. The author has the ability to arouse interest and to point out a job in accident control for every type of reader.

ETHEL M. HENDRIKSEN

Nursing—By Lulu K. Wulf. New York: D. Appleton Century, 1947, 534 pp. Price, \$3.50.

Miss Wulf's treatment of the subject, nursing, is on an unusually broad scale,

taking in nursing history, current trends and problems and then, under finer focus, nursing techniques and procedures. Her approach is fresh and typical, it is to be hoped, of all future textbooks which remind the student that the patient comes to the hospital from a home, usually as a member of a family and that he will return to a home, a place of work and to normal living in a community. Such headings as "Methods of reassuring the patient on admission to the hospital," "Interpreting hospital regulations regarding visitors," and "Helping the patient and his family plan for his care at home," are indicative of this richer point of view which widens the function of the hospital and of the nursing care given in it.

The descriptions of nursing techniques which occupy more than half of the book are simply expressed and clarified by effective illustrations. To an unusual degree they take into account the patient's reactions and his need of understanding what goes on around him.

The criticism which will be made by many readers is that in choosing a wide angle lens for her picture of nursing, Miss Wulf has necessarily had to omit many details, so that instructors will find many subjects, such as medications and diagnostic tests, only partially covered and frequently that which is given, duplicates the usual presentation in special textbooks. This reviewer, also takes exception to the order of subject matter which places today's developments in nursing at the beginning of the book, and closes it with "Preparing the patient for the morgue."

DOROTHY DEMING

Reading and Visual Fatigue—By Leonard Carmichael, Ph.D. and Walter F. Dearborn, M.D., Ph.D. Boston: Houghton Mifflin, 1947. 483 pp. Price, \$5.00.

In this monograph the authors present a subject which has previously been

characterized by confusion in an orderly and intelligible manner. The initial chapter provides a summary of fact and current speculation concerning the physiology and psychology of vision and the phenomena which are generally grouped together under the term "visual fatigue." The visual task of "reading" is analyzed, with special attention given to the problems presented by typical forms of the printed page. The extensive literature on "blink-rate" as an index of visual fatigue is tabulated and discussed. A logical doubt concerning the validity of this criterion is clearly stated.

The problem of illumination is not answered by any definite recommendations. The extensive but inconclusive investigations of the lighting engineers on the one hand and the biological scientists on the other are cited. The differences of these groups, which exist only in special cases and have proved to be more apparent than real, are somewhat overemphasized by the present authors. Unfortunately the fundamental work of H. C. Weston (Medical Research Council—London—*Industrial Health Research Board Report 87*) on the relation of illumination and visual efficiency is not considered.

The authors' own work, involving the optical recording of eye movement and the electrical evaluation of eye muscle activity, is described in detail. Visual fatigue is concluded to combine, in varying proportions, mental, physical and chronic fatigue. As fatigue develops it results in an alteration of the general attitude of the subject and characteristic changes in the reading pattern. Breakdown of the coordinated physiological mechanism made up by the sensory cells, the eye muscles and all the related nervous system cannot be demonstrated and direct evidence of physiological fatigue of the visual processes is evident only under the most abnormal conditions.

The authors have been very success-

ful in presenting the main facts and the important experimental work relating to the problem of visual fatigue in reading. The unsolved problems, listed in every chapter, give a valuable reminder of the tentative nature of all present conclusions in this field.

DONALD YOUNG SOLANDT

Problems of Early Infancy — *Transactions of the First Conference, March 3-4, 1947. New York: The Josiah Macy, Jr. Foundation, 1947. 69 pp. Price, \$.75.*

This publication is a record of the transactions of a conference sponsored by the Josiah Macy, Jr. Foundation and composed of a group of psychiatrists, psychologists, pediatricians, and educators interested in the emotional problems of early infancy. It was the consensus that emotional instability in children and mental disease have their origin during the early period of infancy and that the elimination of problems at that stage should provide a psychologically healthy adult. Comparisons of unique parent-infant relationships to mental disease rates of various races and nationalities are given as supportive evidence.

This group believed that in this country the greatest hazard to healthy emotional development is encountered during the lying-in period when the infant is subjected to routine hospital care, rigid feeding schedules, and separation from the mother. The "rooming-in" plan and "self-demand" schedule was enthusiastically proposed as a means of fostering a more healthy and natural parent-infant attitude and as a means of encouraging breast feeding.

There was considerable discussion concerning the most effective means of educating medical students, physicians, and the general public to this line of thought.

Very little or no objective data were presented in support of the proposal, which was more in the nature of an hy-

pothesis but which, after very careful trial and analysis, may prove to be helpful in the prevention of behavior disorders and mental disease.

RANDOLPH BATSON

Dr. Kirkbride and His Mental Hospital—By *Earl D. Bond, M.D.* Philadelphia: Lippincott, 1947. 162 pp. Price, \$3.50.

This little book is both a historical document and a reminder that "we are better scientists than Kirkbride and his friends, but not better people" for all the fact that a hundred years have passed since Kirkbride's Pennsylvania Hospital was opened. The biographic section paints the picture of Kirkbride's Quaker family living in the neighborhood of Philadelphia and of the education of a physician from 1820 to 1830. During Kirkbride's life, Philadelphia grew from a town of about 100,000 to a city eight or nine times that size. Dr. Bond sketches in with interesting anecdotes, though at times rather too briefly for the reader's satisfaction, the effect of this growth on the mental hospital and on Kirkbride.

Kirkbride's ideas on the treatment of patients in a setting of pleasant and safe buildings and grounds remain the ideal of hospitals for the mentally ill. His firm belief that "the best hospital—best built, best arranged and best managed—is always cheapest in the end," is particularly pertinent at this time of large scale hospital planning and construction and applies equally for the general as for the special hospital. His gentle and kindly attitude toward his patients was based on a sincere respect for them, a respect which it was easier for him to teach his attendants because he held it so sincerely. Kirkbride's conception of occupational therapy was hardly behind the best thought of 1947, and his accomplishment was far above that of most hospitals of the present time.

This is not an intimate type of biography. We see the man Kirkbride largely through his acts, not by interpretation of what his biographer conceived his thoughts and drives to have been. His hospital plans, the daily routines he set up, his formal relations with fellow physicians are recorded in a simple, artless style most pleasant to read.

PAUL V. LEMKAU

City Finances: 1945. Volume 1: Individual City Reports (For each city having a population over 250,000); **Volume 2: Topical Reports** (On debt and other selected topics); **Volume 3: Statistical Compendium** (Cities having populations over 25,000)—*Prepared under the supervision of Allen D. Manvel, Bureau of the Census. Washington, D. C.: U. S. Government Printing Office, 1947.* Price, \$1.25 each.

Here are statistical tables covering practically everything one might want, or at least could reasonably find out, about city finances. There are tables showing, city by city, expenditures for sanitation and for health and hospitals, as well as for other municipal functions.

MARTHA LUGINBUHL

Report of the Working Party on the Recruitment and Training of Nurses—*Prepared by Department of Health for Scotland, Ministry of Health, Scotland. London: His Majesty's Stationery Office, 1947.* 122 pp. Price, \$.75.

Those who are concerned with the basic problems of recruitment and training of nurses in North America will be interested in this *Report* representing a study of more than one year for the British Ministry of Health and the Department of Health for Scotland. The attempt was made to review the problems of nursing from a very broad point of view.

There are familiar phrases among the

conclusions such as, "Nurses in training must no longer be regarded as junior employees subject to an outworn system of discipline. They must be accorded full student status. . . ." "If student nurses were relieved of domestic work and of nursing duties dictated solely by the staffing demands of hospitals, a period of two years would suffice for a general training." "The period of two years would be based on a five-day training week of 40 hours and would allow for six weeks annual holiday." "The explicit aim of the new system would be the development of a nursing service in closer accord with modern ideas of social and preventive medicine. Health nursing and sick nursing must be considered side by side."

This is an illuminating discussion of how the problem is being faced in Great Britain. REGINALD M. ATWATER

On Hospitals—By S. S. Goldwater, M.D. New York: Macmillan, 1947. 395 pp. Price, \$9.00.

This volume will influence health-minded people of the future as much as Dr. Goldwater's dynamic personality stimulated those who were fortunate enough to know him personally. No other book can surpass it for sound philosophy, keen awareness of problems, and excellence of writing. One regrets only that *On Hospitals* does not tell us more about Dr. Goldwater as a man, a husband, and a father, as well as how his thinking led him to meet the opportunities of his time.

Every doctor, nurse, and person in public health should consider *On Hospitals* as a "must" to keep thinking in broad channels. JOHN E. GORRELL

Fungi—By Frederick A. Wolf and Frederick T. Wolf. New York: Wiley, 1947. Vol. I, 438 pp., price, \$6.00—Vol. II, 538 pp., price \$6.50.

This two volume treatise is intended as a reference and textbook. Volume I is devoted to a consideration of developmental morphology and taxonomy of fungi. Chapters 1 to 3 are devoted to a consideration of history, methods of isolation and cultivation, and classification and taxonomy. The remaining 5 chapters treat the specific classes. These chapters are unique in their presentation in that they stress the differential properties without going into the detail structural make-up of each species. They briefly point out the ecological and practical importance of these species.

The second volume, divided into 22 chapters, deals more specifically with the biology, chemistry, and activity of fungi, including pathogenicity for plants and animals. The two volumes bring together a wealth of factual data in this extensive field. In attempting to compress the essential knowledge concerning fungi into two small volumes it is to be expected that the treatment of each broad field must be sketchy. For example, the entire field of medical mycology is treated in chapter 16 of Volume II in 31 pages. *Coccidioides immitis* is discussed in 1 page with no reference to several noteworthy contributions of the past 3 years. Slightly over 1 page is devoted to *Histoplasma capsulatum*. Poisonous and edible fungi rate 25 pages, while soil fungi are allotted 16 pages. These figures are given to emphasize that the student of any special field will find little of value in his specific field. However, such was not the intent of these volumes. They do provide the basic information and do it exceptionally well. Both volumes are replete with references to which the authors repeatedly refer the reader for more detailed information in specific fields.

The numerous illustrations, many of which are original, are excellent. The discussions are lucid and the organiza-

tion of the material logical. In place of the usual summary at the end of each chapter, the authors have elected to use the term "implications." Any student of biology will find these well worth reading, even if he skips the rest of the volumes. The printing and binding are better than we have seen in a long time.

While these volumes will be found to be valuable reference books on the fundamentals of mycology for public health laboratories and workers specifically interested in mycology, they will find little use by other public health workers.

M. H. MERRILL

Dynamic Mental Hygiene—By Ernest and Catherine Groves. Harrisburg, Pa.: Stackpole Sons, 1946. 559 pp. Price, \$3.75.

This book is a very detailed exposition of mental hygiene as seen by two devoted workers who have spent their lives as non-medical counselors in the field of personality interactions. It is divided into two sections, the first tracing the mental hygiene implications of various scientific and professional disciplines, including the general field of medicine and the specialty of psychiatry along with biology, psychology, education, sociology, social work, the law, and finally, the ministry. In this section there is also a chapter on the home and its mental hygiene implications. The second section deals with the application of mental hygiene principles in family counseling, the area of the authors' particular interest.

The definition of mental hygiene exemplified in this book implies a vast range of knowledge on the part of the specialist in the field, as indicated in the table of contents. For the most part, the Groveses have this knowledge and it is coupled with good common sense in most instances. That such knowledge can be present in people of lesser endowment who are in service rather than academic positions is, however, ex-

tremely doubtful. This book is prepared, apparently, for use as a textbook, though at what educational level is unclear. It is extremely doubtful that it could be used to advantage below the level of the Ph.D. candidate, since it involves such a tremendous background of knowledge that those of less education would find it so far beyond them it would be useless. There is less of the material of personality development than might be expected in so thorough a treatise.

The attitude toward medicine reflects the non-medical background of the authors. Medicine is conceived as having primarily the function of ruling out or ruling in the presence of organic disease. The interrelation of the emotional life of the patient and his disease is freely granted, but the problem of therapy of the patient and his disease is considered to be primarily non-medical. ". . . some doctors have, more or less willingly as their individual preferences dictated, become mental hygiene counsellors as well as physicians" (p. 78). The psychiatrist is likewise considered to be one who confines his attention to the mentally ill, and to have mental hygiene only as a secondary interest. This attitude toward physicians probably is the result of long experience which has found them useful only in the ways stated; it should prove a challenge to those who feel that the medical student should be educated so that his medical view includes the personality functions of his patient.

The book is printed on very shiny paper which constantly gives extremely bothersome highlights that interfere with the reading. It is poor ophthalmologic hygiene to read it, a matter the publisher might well give attention to in future printing. PAUL V. LEMKAU

An Approach to Social Medicine—By John D. Kershaw, M.D., D.P.H. Baltimore: Williams & Wilkins, 1946, 329 pp. Price, \$4.50.

Dr. Kershaw, a British Medical Officer of Health, has formulated an approach to social medicine that will surprise most public health readers in this country. It is a philosophical account of the social functions of medicine which hardly mentions health insurance or group practice, makes only passing comment on problems like the distribution of medical personnel and facilities, or the incidence of illness in different population groups, and offers no discussion on the administration of various programs of medical care.

Instead, this comprehensive volume takes a truly Aristotelian view of social medicine, a view so broad that strict preventive or therapeutic services, as we usually understand them, play only a minor part. Rather it is the fundamentals of community organization, economic relationships, law, social psychology, and such subjects that comprise Dr. Kershaw's sweeping analysis of the "anatomy," "physiology," and "disorders" of society. The discussion

of "health and sickness in society" deals briefly with some of the ethical and humanistic problems of surgery, obstetrics, industrial hygiene, communicable disease control, and other special fields. Fuller discussion is offered on the significance in the healthful life of food, housing, work, leisure, sex, genetics, and education.

This study can probably be best described as a general social critique, written rather incidentally by a physician. It is mindful in some ways of the sociological writings of Edward Bellamy or Lester Ward, with all social functions described somewhat mechanistically as adjusted to social needs, though recommendations for improvement are offered. The entire concept of social medicine is under active discussion today. It is likely that American definitions of the field will be somewhat more restricted, but Dr. Kershaw's broad-gauge view provides valuable perspective against which our approach can be hammered out.

MILTON I. ROEMER

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Last Word Department—In summary form, the nutritional advantages of breast milk and the emotional advantages of breast feeding are discussed, together with objections and contraindications. The statement carries top-notch approval.

ALDRICH, C. A., *et al.* The Advisability of Breast Feeding. J.A.M.A. 135, 14:915 (Dec. 6), 1947.

You Buy Health—Possibly you will not be surprised by the findings of this study—that total death, infant and maternal mortality rates, as well as death rates from certain diseases vary inversely with family income status—but

you should know about it for you will want to preserve the paper for ammunition in case you find yourself in a medico-economic argument some day.

ALTENDERFER, M. E. Relationship between per Capita Income and Mortality, in the Cities of 100,000 or More Population. Pub. Health Rep. 62, 48:1681 (Nov. 28), 1947.

British Health Services—Everyone who has access to the publication should make a practice of reading the "Letter from Britain" section of the *Canadian Public Health Journal*. These little essays reveal the adult frame of mind with which your conservative Briton perceives the encroachments of socializa-

tion, making the best of what must seem to him a pretty dubious bargain. Wouldn't it be wholesome if some of our bad-name-calling protagonists could catch a little of this infectious emotional maturity?

BROCKINGTON, F. Letter from Britain. *Canad. Pub. Health J.* 38, 11:552 (Nov.), 1947.

Stopping Epidemic Diarrheas—

In the last decade a revolutionary change has come about concerning childbirth. Ten years ago there were many home deliveries: now there are almost none. There can be but one answer to this phenomenon, asserts the writer. People are convinced that the hospital is the safest place for a mother to have a baby. Safest for the mother, it is; but is it safest for the baby? Improvements are proposed to make hospitals safer for new-borns.

CLIFFORD, S. H. Diarrhea of the Newborn. *New England J. Med.* 237, 26:970 (Dec. 25), 1947.

"Easier To Read Than Skip"—

If you never write anything but duty letters to your dear old mother then you may safely ignore this item. Otherwise you should know about the pains the Extension Service takes to make its educational material readable. Also, this note gives me the chance to add to hers, my boost for Flesch's "Art of Plain Talk," a book you need to read once each year.

COWING, A. G. Readable Writing. *J. Am. Diet. Assn.* 23, 12:1036 (Dec.), 1947.

Newly Discovered TB—Expanding diagnostic and treatment facilities for tuberculosis serve to make the shortage of nurses a bottleneck (if I may resurrect a tired word). One solution is the employment of non-professional workers to take over the chores the nurse shouldn't have to do. There are other solutions discussed here.

CHRISTENSEN, H. G. and BOWE, A. Current

Trends in Tuberculosis Nursing. *Pub. Health Nurs.* 39, 12:590 (Dec.), 1947.

More about the Histoplasmin Monkey Wrench—Widespread pulmonary lesions caused by other agents than Tb and occurring especially in Tennessee, Kentucky, Arkansas, Missouri, Kansas, Illinois, Indiana, and Ohio complicate the problem of mass chest x-raying. Photographs are appended to show typical pictures of patients who are histoplasmin-sensitive and tuberculin-negative.

FURCOLOW, M. L., *et al.* The Roentgenographic Appearance of Persistent Pulmonary Infiltrates Associated with Sensitivity to Histoplasmin. *Pub. Health Rep.* 62, 49:1711 (Dec. 5), 1947.

Polio Studies—Relative epidemicologic importance of virus in stools and in the throat remains to be ascertained, say these researchers, but the fact that stools may remain infective for weeks whereas the infectious period seems usually to end a few days after onset suggests that the source is *contact* infection and not via feces.

GORDON, F. B., *et al.* Recovery of Polio-myelitis Virus from Throat During the Incubation Period. *J.A.M.A.* 135, 14:884 (Dec. 6), 1947.

Extra Dividends—In cancer detection clinics conducted in Maryland the prevalence rates were ten times the expected rates for men and twice the expectancy for women. This experience seems to suggest that we should have more detection centers, for one thing. Preceding this story of the detection clinics is the introductory chapter of what will become a book on the diagnosis and treatment of cancer. Don't fail to look it over.

JONES, H. W. JR., and CAMERON, W. R. Case-Finding Factors in Cancer Detection Centers. *J.A.M.A.* 135, 15:964 (Dec. 13), 1947.

Quote—Today we are beginning to realize that although arthritis is not

communicable as a disease, its sociologic, economic, and public health implications are fully as serious. Unquote. You shouldn't need more to be convinced that this excellent paper is for you.

MARGOLIS, H. M. Rheumatoid Arthritis. *Am. J. Nurs.* 47, 112:787 (Dec.), 1947.

It will Not Stop—Of interest to every administrator should be this story of a year's experience in providing home care for the chronically ill. Essential to success was the close collaboration of all the agencies and professional groups concerned.

NOTTER, L. E. Coördinating Home Care for Persons with Long-Term Illness. *Pub. Health Nurs.* 39, 12:602 (Dec.), 1947.

Not on Dust—Oiling floors and treating blankets with oil emulsion lowers dust content of air. From past studies good effects in preventing bacteria-caused respiratory diseases have been reported, but the spread of virus infections seems not to have been affected markedly in this investigation.

SCHUCHMEISTER, I. L., and GREENSPAN, F. S. The Relation of Oil Treatment of Floors and Bedding to the Control of Respiratory Diseases among Naval Personnel. *Am. J. Hyg.* 46, 3:376 (Nov.), 1947.

Quotes from Immortal Bard—"What a piece of work is man, how noble in reason, how infinite in faculties.

In form and moving how express and admirable, in apprehension how like a god. The beauty of the world, the paragon of animals." With tongue-in-cheek a British M.O.H. begins his discussion of psycho-somatic disease with those words.

STALLYBRASS, C. O. The Social Implications of Medico-psychological Disorders. *M. Officer.* 78, 20:213 (Nov. 15), 1947.

In a British San—Pregnant tuberculous patients were compared with a similar group of married tuberculous patients, who were not pregnant. There was little or no evidence that childbearing had any effect on the course of the disease, and none that surgical interference was needed.

STEWART, C. J. and SIMMONDS, F. A. H. Child-Bearing and Pulmonary Tuberculosis. *Brit. M. J.* 4531:726 (Nov. 8), 1947.

Lo, the Poor Indian—Probably this is of little interest to you, but the report says the Navajo Indians have practically no preventive medical services and no sanitary protection. The reservation is alleged to be a dangerous reservoir of communicable diseases (especially tuberculosis) for nearby states.

WOODS, O. T. Health among the Navajo Indians. *J.A.M.A.* 135, 15:981 (Dec. 13), 1947.

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

AMERICAN FOUNDATIONS AND THEIR FIELDS. Part I (6th Survey). Edited by William B. Cherin, Ph.D. New York: Raymond Rich & William Cherin Associates, 1947. 58 pp. Price, \$6.00. (4 parts)

AMERICAN MEDICAL RESEARCH. PAST AND PRESENT. Richard H. Shryock, Ph.D. New York: The Commonwealth Fund, 1947. 350 pp. Price, \$2.50.

APPLIED MEDICAL BACTERIOLOGY. Max S. Marshall, Ph.D. Philadelphia: Lea & Febiger, 1947. 340 pp. Price, \$4.50.

ATLAS OF BACTERIOLOGY. R. Cranston Low, M.D., and T. C. Dodds. Baltimore: Williams & Wilkins, 1947. 168 pp. 168 illus. Price, \$8.50.

COMMUNICABLE DISEASE CONTROL TERRITORY OF HAWAII. Postwar Planning Committee

- on Health—Public Health Committee. Honolulu: Chamber of Commerce, 1947. 78 pp.
- EXPERIMENTAL AIR-BORNE INFECTION. Theodor Rosebury. Baltimore: Williams & Wilkins, 1947. 222 pp. Price, \$4.00.
- FOOD, NUTRITION AND HEALTH (6th ed.) E. V. McCollum, Ph.D., Sc.D. and J. Ernestine Becker, M.A. Baltimore: Johns Hopkins University, 1947. 146 pp. Price, \$2.00.
- FURTHER EFFECTS OF ADDED THIAMIN ON LEARNING AND OTHER PROCESSES. Ruth Flinn Harrell. New York: Teachers College, Columbia University, 1947. 102 pp. Price, \$2.75.
- HEALTH INSTRUCTION YEARBOOK. Edited and Compiled by Oliver E. Byrd, Ed.D., M.D. Stanford, Calif.: Stanford University Press, 1947. 325 pp. Price, \$3.00.
- HEALTH PRACTICE INDICES 1943-46. A Collection of Charts Showing the Range of Accomplishments in Various Fields of Community Health Service. New York: American Public Health Association, 1947. 77 pp. Free.
- IES LIGHTING HANDBOOK. (THE STANDARD LIGHTING GUIDE). New York: Illuminating Engineering Society, 1947. 856 pp. Price, \$7.50.
- NATIONAL CONFERENCE ON PREVENTION AND CONTROL OF JUVENILE DELINQUENCY. Following pamphlets may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.:
- Community Coordination. \$.15
 - General Recommendations for State and Community Action. \$.10
 - Juvenile Court Laws. \$.15
 - Juvenile Court Administration. \$.10
 - Juvenile Detention. \$.15
 - Institutional Treatment of Delinquent Juveniles. \$.20
 - Role of the Police in Juvenile Delinquency. \$.15
 - Recreation for Youth. \$.25
 - Housing, Community Development, and Juvenile Delinquency. \$.15
 - Mental Health and Child Guidance Clinics. \$.10
 - Youth Participation. \$.10
 - Citizen Participation. \$.15
 - Case Work—Group Work. \$.15
 - Church Responsibilities. \$.15
 - School and Teacher Responsibilities. \$.15
 - Home Responsibility. \$.15
 - Rural Aspects of Juvenile Delinquency. \$.25
 - Statistics. \$.15
- ON THE PROBLEMS OF POLIOMYELITIS. Bertel S: Son Bertenius. Sweden: Lund, A.-B. Ph. Lindstedts Univ. Bokhandel, 1947. 212 pp.
- PLANTS AND ENVIRONMENT. R. F. Daubenmire. New York: John Wiley, 1947. 424 pp. Price, \$4.50.
- PSYCHOTHERAPY IN CHILD GUIDANCE. Gordon Hamilton. New York: Columbia University Press, 1947. 340 pp. Price, \$4.00.
- PUBLIC HEALTH ADMINISTRATION IN THE UNITED STATES. Wilson G. Smillie, M.D. (3rd. ed.) New York: Macmillan Co., 1947. 637 pp. Price, \$6.50.
- SEXUAL BEHAVIOR IN THE HUMAN MALE. Alfred C. Kinsey, Wardell B. Pomeroy, and Clyde E. Martin. Philadelphia: Saunders, 1948. 804 pp. Price, \$6.50.
- TIFUS EXANTHEMATICO. Dres. F. Fonseca Y Fr. Wohlwill. Barcelona-Buenos Aires: Salvat Editores, S. A., 1944. 212 pp.
- TUBERCULOSIS LAWS—RULES AND REGULATIONS. (California). Compiled by Mary Graham Mack. New York: National Tuberculosis Association, 1947. 250 pp. Price, \$2.00.
- VITALITY AND CIVILIZATION. Griscom Morgan. Chicago: Human Events Associates, 1947. 25 pp. Price, \$.25.
- THE FOLLOWING REPORTS HAVE BEEN RECEIVED
- CARNEGIE CORPORATION OF NEW YORK. Annual Report, 1947. 81 pp.
- CITY OF MONTREAL, CANADA. Report of the Department of Health, 1945. 299 pp.
- HOSPITAL COUNCIL OF GREATER NEW YORK. 9th Annual Report, 1946-1947. 21 pp.
- LOS ANGELES COUNTY, CALIFORNIA. Annual Report for the Health Department, 1946-1947. 69 pp.
- PUBLIC HEALTH IN A CHANGING WORLD. A Survey of Medical and Health Progress During the Period of 1917-1946 and a Report of the Jefferson County Department of Health for 1945-1946. Birmingham, Alabama, Department of Health.
- STATE OF ILLINOIS. 29th Annual Report of the Department of Public Health. July 1, 1945 to June 30, 1946.
- THRU THE WAR YEARS 1941-1947. Health Unit, Des Moines County, Iowa.

ASSOCIATION NEWS

76TH ANNUAL MEETING

BOSTON, MASS., NOVEMBER 8-12, 1948

Members of the Association are already asking about hotel rooms in Boston.

On or about April 1, a hotel reservation application form will be mailed to every member and the Housing Bureau in Boston will operate on and after that date. The *Journal* will also quote hotel rates beginning with the April number.

ASSOCIATION COMMITTEE ON CHILD HEALTH

The officers and Section Councils of five of the Association Sections—Maternal and Child Health, School Health, Health Officers, Public Health Nursing, and Health Education—have unanimously approved a plan for an Association Committee on Child Health. This plan was formulated by the Executive Board at the Annual Meeting in Atlantic City on the basis of a report from Martha M. Eliot, M.D., President, and Hugh R. Leavell, M.D., a member of the Board, growing out of conversations with representatives of the Maternal and Child Health and School Health Sections.

The plan indicates the following purpose for the new committee:

To consider matters related to the health and medical care of children and to maternity care and to act for the American Public Health Association in its relations with national organizations and agencies, professional or nonprofessional, that are concerned with the advancement of child health, having due regard for the work of the Sections and of other committees of the Association. This would include the development of recommended standards, procedures and policies and development of relationships with such organizations as the American Academy of Pediatrics, the Federation of Obstetrical Associations, the American Medical Association, the National Education Association, the American School Health Association, and the National Congress of Parents and Teachers.

It further suggests the following duties:

1. Develop statements of principles and policies, content of program, and standards of performance in the maternal and child health field for the guidance of the Association;

2. Consider and make recommendations concerning undergraduate and graduate education for professional and technical workers in the maternal and child health field;

3. Consider research or investigations that are required to provide information on administrative, organizational and program matters necessary for the improvement of child health; and,

4. Act on matters related.

The plan recommends that funds be sought to provide the committee with a staff, including a physician competent to develop the work of the committee, clerical assistance, and such other professional consultants as may be needed, and to provide for other costs of the committee.

The following committee has been appointed by the Executive Board:

Leona Baumgartner, M.D., *Chairman*, Director, Bureau of Child Hygiene, New York City Department of Health.

Margaret Adams, R.N., Instructor in Nursing Education, Teachers College, Columbia University.

Allan M. Butler, M.D., Massachusetts General Hospital, Boston.

Richard F. Boyd, M.D., Director, Local Health Administration, Illinois State Health Department.

Edwin F. Daily, M.D., Director, Division of Health Services, U. S. Children's Bureau.

Mayhew Derryberry, Ph.D., Chief, Health Education and Training, U. S. Public Health Service.

Paul Harper, M.D., Associate Professor, Department of Public Health Administration,

Johns Hopkins School of Hygiene and Public Health.

Herbert R. Kobes, M.D., Director, Division of Services for Crippled Children, University of Illinois.

Frank Stafford, M.S., Specialist for Health Instruction, Physical Education and Athletics, U. S. Office of Education.

Frederick J. Stare, M.D., Associate Professor, Head of Department of Nutrition, Harvard School of Public Health.

Myron Wegman, M.D., Professor and Director, Department of Pediatrics, Louisiana State University School of Medicine.

J. M. Wisan, D.D.S., American Dental Association.

Kent A. Zimmerman, M.D., Consultant in Mental Health, California State Department of Public Health.

PHOTOGRAPH OF MILK SEDIMENT STANDARDS AVAILABLE

With the acceptance of the Off-Bottom Method of determining sediment in a can of milk, the need became apparent for a set of sediment standards based upon a definite weight of sediment and prepared from a recognized standard sediment mixture. The use of such standards guarantees that both the milk industry and the respective regulatory agencies will have a common reproducible standard for the grading of milk on the basis of its sediment content.

The standard sediment mixture consists of screened, oven-dried cow manure, garden soil, and charcoal, mixed in definite proportions. Measured quantities of the sediment are added to a pint of milk before filtration through sediment discs. The photograph represents the amount of sediment remaining on the discs after filtration of pint samples containing 0.0, 0.2, 0.5, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 12.0, and 14.0 mg. of the standard mixture.

From the photograph, both the industry and the respective regulatory agencies may determine the limit in terms of milligrams of sediment beyond which milk will not be acceptable. Acceptable

limits may be established both for producer deliveries and for retail deliveries. Either actual discs or the photograph may be used in the field or in the laboratory for the purpose of making comparisons. The use of a photograph assures a high degree of uniformity.

Photographs of the discs are available at \$1.50 each from the American Public Health Association, 1790 Broadway, New York 19, N. Y. In order to protect the photographs from damage and fading, they are enclosed in acetate and manila envelopes. Directions for the preparation and use of the standards appear in the forthcoming ninth edition of *Standard Methods for the Examination of Dairy Products*.

NOTICE TO BIOLOGISTS INTERESTED IN PUBLIC HEALTH

Interest in the formation of a Public Health Biology Section of the American Public Health Association has been expressed by individuals whose major fields of interest and activity involve the application of biological knowledge and techniques to public health practice. These fields include medical or public health entomology, parasitology, mamalogy, limnology, ichthyology, malacology, herpetology, mycology, allergenic botany, and doubtless other related specialties. Existing Association Sections—mainly Laboratory, Epidemiology, and Engineering—provide proper affiliation for certain of the A.P.H.A. biologists; it is not proposed that any of these currently satisfactory relations be disturbed. Other biologists with investigational or operational concerns find themselves in the Unaffiliated Section for lack of an Association category indicative of their professional interest. It is believed that some public health biologists have failed to join the American Public Health Association because there appears to be no specific place for them within the existing compartmentalization of the society.

A petition for the formation of such a Section in the Southern Branch of the A.P.H.A. has already been sent to the Governing Council of that organization. It seems desirable, however, to measure interest in the activation of a comparable Section on a national basis to provide the opportunity at the annual meetings of the A.P.H.A. for the presentation of more detailed papers and technical discussion of mutual problems in public health biology than might be

undertaken in the general sessions of the Association.

As a preliminary step in this direction, it is requested that those interested in the formation of a Public Health Biology Section in the American Public Health Association indicate their approval of such a plan and their willingness to cooperate in its activation by writing to Justin M. Andrews, Communicable Disease Center, U. S. Public Health Service, Atlanta, Ga.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Athemas Bellerive, M.D., 311 Glenn Ave., Ann Arbor, Mich., Director, Malaria Control Section, Public Health Service of Haiti
Joseph H. Gamet, M.D., Court House, Janesville, Wis., Medical Director, Rock County Sanitary Unit
Seth M. Kerron, M.D., 1949 Main St., Klamath Falls, Ore., Director, Klamath County Health Dept.
Norbert A. Lasher, D.V.M., Station Hospital, Randolph Field, Tex., Medical Inspector, U. S. Army
Albert M. Richmond, M.D., M.P.H., Hdq. 3rd Army, Medical Section, Atlanta 3, Ga., Chief of Preventive Medicine and Commanding Officer, 3rd Army Area Laboratory.
Harry P. Ross, M.D., 220 South 19th St., Richmond, Ind., City Health Commissioner

Laboratory Section

Alice J. Arnold, 191 N. El Molino Ave., Pasadena, Calif., Bacteriologist, City Health Dept.
Frank R. Bozza, Ph.G., 56 Sinawoy Road, Cos Cob, Conn., Bacteriologist, Greenwich Health Dept.
H. Gilbert Crecelius, Ph.D., 1010 Orleans, Topeka, Kan., Asst. Director, Division of Public Health Laboratories, State Board of Health
Carroll E. Heist, M.S., Dept. of Bact., Univ. of Illinois, Urbana, Ill., Student
Nicholas A. Milone, State Dept. of Health, 35 Market St., Poughkeepsie, N. Y. District Sanitarian
Lucille K. Schulze, 4954 West Pine Blvd., St.

Louis 8, Mo., Senior Asst. Bacteriologist, St. Louis Health Division
Guydell L. Schwartz, M.A., 618 Elmwood Ave., Joliet, Ill., Chief Laboratory Technician, Hilo Memorial Hospital, Hilo, Hawaii

Vital Statistics Section

Robert Lewis, 228 MacArthur Blvd., Oakland 10, Calif., Student of Public Health Statistics, Univ. of California.
Eleanor Poland, Ph.D., 2000 F. St., N.W., Washington, D. C., Special Consultant, U. S. Public Health Service
Matthew Taback, A.M., State Dept. of Health, 28 Howard St., Albany 7, N. Y., Senior Statistician, Division of Tuberculosis

Engineering Section

Robert V. Barnes, M.S.E., State Health Dept., 519 Dexter Ave., Montgomery, Ala., Principal Sanitary and Public Health Engineer
Walter M. Basford, M.A., Station Hospital, Randolph Field, Tex., Post Sanitary Engineer
Jose Capocchi, 615 Monroe, Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health
Philip Dreifuss, Box 2305 University Station, Gainesville, Fla., Student, Univ. of Florida
Hoke J. Duncan, P. O. Box 374, Dalton, Ga., Sanitarian, Dalton-Whitfield County Health Dept.
Warren R. Lawson, M.P.H., State Health Dept., University Campus, Minneapolis 14, Minn., Asst. Public Health Engineer
Lee J. Schreiber, 1705 Jancey St., Pittsburgh, Pa., Student, Univ. of Michigan School of Public Health

Henry L. Schuldener, 423 W. 126th St., New York 27, N. Y., President and Technical Director, Water Service Laboratories, Inc.
 Robert B. White, C.E., 222 Tyler House, East Quad, Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health

Industrial Hygiene Section

Marcelo Ernesto Auguste, M.D., 203 North Ingalls St., Ann Arbor, Mich., Physician, Medical Dept., Standard Oil Co. (Argentina)
 P. Cartier, M.D., D.P.H., Thetford Industrial Clinic, Inc., Thetford Mines, Que., Canada, Medical Director
 Comdr. Clark P. Jeffers, M.C., USN, Staff, Comdr. in Chief, Pacific Fleet, FPO, San Francisco, Calif., Medical Officer for Preventive Medicine and Asst. Fleet Surgeon
 Edwin M. Joseph, 1240 Ontario St., Cleveland, Ohio, General Manager, "Occupational Hazards"
 Jacques C. Presner, M.D., C.M., 30 West 54th St., New York 19, N. Y., Visiting Physician, City Dept. of Welfare
 Capt. Ivan C. Tiholiz, M.C., 19D McCann St., Edgewood, Md., Industrial Toxicologist, Army Industrial Hygiene Laboratory

Food and Nutrition Section

Cefairl W. Carlson, 623 N. Humphrey, Oak Park, Ill., Sanitarian, City of Oak Park
 Dale D. Chow, D.D.S., 769 Jackson St., San Francisco, Calif., Instructor in Anatomy, Univ. of California College of Dentistry
 Penelope S. Easton, West Lodge Dorm. 2, Ypsilanti, Mich., Student, Univ. of Michigan School of Public Health
 Luther A. Kohr, 1265 Broadway, Rm. 806, New York 1, N. Y., Exec. Secy., American Association of Medical Milk Commissions, Inc.
 Milton E. Lindemann, 230 South Park St., Fairmont, Minn., Sanitarian, Fairmont Canning Co.
 Elsie W. Russell, 1824 Geddes Ave., Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health

Maternal and Child Health Section

Harold M. Goldstein, M.D., 1282 East 23 St., Brooklyn, N. Y., Resident Pediatrician, Mount Sinai Hospital
 M. Alexander Novey, M.D., City Health Dept., Rm. 700, Municipal Bldg., Baltimore 2, Md., Director, Bureau of Maternity and Child Hygiene
 Deogracias J. Tablan, M.D., 1930 Washtenaw, Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health

Antonio H. V. Valente, 1312 Olivia St., Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health
 Frank W. Van Dyke, 47 Melrose Ave., Albany, N. Y., Consultant on Administrative Methods, U. S. Children's Bureau

Public Health Education Section

Edna Y. Bond, 15 East Kinney St., Newark 2, N. J., Health Education Director, New Jersey Tuberculosis League
 Mary T. Connelly, 10 Chestnut St., Quincy, Mass., Health Educator, Norfolk County Health Assn.
 Enoch O. Dugas, 431 S. Broadway, Tyler, Tex., State Representative, National Foundation for Infantile Paralysis, Inc.
 John K. Ellis, West Lodge Dorm. 19, Rm. 85, Ypsilanti, Mich., Student, Univ. of Michigan School of Public Health
 Elmer L. Guenther, 1535 Summit Ave., Seattle 22, Wash., Secretary, Health Division, Council of Social Agencies
 Judson Hardy, 214 Monroe, Rockville, Md., Chief, Office of Technical Services, Venereal Disease Division, U. S. Public Health Service
 Dorothy Y. Kirk, M.P.H., R.N., 29 Wood St., Hamden, Conn., Nurse Supervisor and Assistant in Administration, Bureau of Venereal Diseases, New Haven Health Dept.
 Karl P. Meister, D.D., 740 Rush St., Rm. 510, Chicago 11, Ill., Exec. Secy. Board of Hospitals and Homes of Methodist Church
 Helen de Ramus Mitchell, 1278 Grant Ave., Bronx 56, N. Y., Asst. in Health Education, Westchester-Pelham Health Center
 Lily E. Orth, 12 South Oxford St., Brooklyn, N. Y., Supervisor, Out-Patient Service, Cumberland Hospital
 Elizabeth T. Pearson, County Court House, El Centro, Calif., Exec. Secy., Imperial County Tuberculosis and Health Assn.
 Ellaleen C. Williams, R.N., M.S., 458 H. St., S.W., Washington 4, D. C., Psychiatric Social Worker, St. Elizabeths Hospital

Public Health Nursing Section

Margaret E. Bernard, Box 261, Garden City, N. Y., Unemployed (formerly Public Health Nurse, State of California)
 Laura M. Brooks, R.N., Fair St., Carmel, N. Y., Public Health Nurse, District Nursing Assn.
 Madolin M. Dickinson, R.N., B.S., 929 Forest, Denver, Colo., Public Health Nurse, Denver Tuberculosis Society
 Dorothy G. Erickson, 4884 MacArthur Blvd., N. W., Washington 7, D. C., Asst. Nurse Officer, U. S. Public Health Service

Mary E. Lewis, R.N., 720 Church St., Trenton, Tenn., Acting Senior Public Health Nurse, Gibson County Health Dept.

Erna E. Maas, R.N., 52 Harrison Ave., Roseland, N. J., Public Health Nurse, Bloomfield Health Dept.

Rosemary M. MacIsaacs, R.N., 97 Border St., Cohasset, Mass., Unemployed (formerly Public Health Nurse, Social Service League)

Dorothea F. Miller, R.N., B.S., Rt. 3, Box 319A, Bremerton, Wash., Public Health Nurse, Kitsap County Health Dept.

Clara Rechtschaffer, R.N., B.S., 310 West 97 St., New York, N. Y., Field Supervising Nurse, City Health Dept.

Reva Rubin, M.N., Frontier Nursing Service, Brutus, Ky., Resident District Nurse and Nurse Midwife

Marjorie E. Schlotterbeck, 47 Beaver St., New York 4, N. Y., Nursing Consultant, American Cancer Society

Mabel A. Wandelt, 1110 Calvert, Detroit 2, Mich., Student, Univ. of Michigan School of Public Health

Epidemiology Section

Byron D. Casteel, M.D., 1840 Monroe Street, N. W., Washington 10, D. C., Officer-in-Charge, Communicable Disease Control Section, Bureau of Medicine and Surgery, Navy Dept.

Alfred E. Fischer, M.D., 73 East 90 St., New York 28, N. Y., Pediatrician

Prof. Gunnar A. Fischer, Statens Institut for Folkhalsan, Tomtebodavägen, Sweden, Professor of Hygiene, Royal Carolinian Institute

O. Elliott Ursin, M.D., 55 Shattuck St., Boston, Mass., Student, Harvard School of Public Health

School Health Section

Sidney Blumenthal, M.D., 1097 Park Ave., New York, N. Y., Pediatrician

H. Veazie Markham, M.D., 6095 Cerritos Ave., Long Beach 5, Calif., School Physi-

cian, Redondo Union High School and Torrance City Schools

Margaret H. Moore, M.D., 584 Copley Road, Akron, Ohio, School Physician, Summit County Health Dept.

Dental Health Section

Sylvia E. Zappler, D.D.S., M.D., 33 Davis Ave., White Plains, N. Y., Dentist

Unaffiliated

Bennett F. Avery, M.D., M.S., American Embassy, Tehran, Iran, Advisor to Imperial Iranian Ministry of Health

L. Whittington Gorham, M.D., Albany Hospital, New Scotland Ave., Albany 1, N. Y., Chairman, New York State Public Health Council

Joseph F. Poges, Box 230, Springfield College, Springfield, Mass., Student in Health Education

Donald B. Seeley, M.S., Flint Laboratory, Univ. of Massachusetts, Amherst, Mass., Student

DECEASED MEMBERS

W. M. Brien, M. D., Orange N. J., Elected Member 1935, Health Officers Section

Hyman M. Charm, Sc.D., Bronx, N. Y., Elected Member 1937, Laboratory Section

Mrs. Sigrid M. Dudley, Marinette, Wis., Elected Member 1930, School Health Section

Joseph P. Franklin, M.D., Cumberland, Md., Elected Member 1946, Health Officers Section

Sara Kerr, Buffalo, N. Y., Elected Member 1935, Vital Statistics Section

Kingsley Roberts, M.D., New York, N. Y., Elected Member 1939, Unaffiliated

Wellington P. Shahan, Springfield, Ill., Elected Member 1941, Public Health Education Section

Herbert F. True, M.D., Sacramento, Calif., Elected Member 1926, Elected Fellow 1930, Health Officers Section

Kenneth M. Wheeler, Ph.D., Hartford, Conn., Elected Member 1940, Elected Fellow 1943, Laboratory Section

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

(Supplemental to list in January Journal)

POSITIONS AVAILABLE

Health Educator, graduate of a university of recognized standing with courses in the biologic and social sciences, psychology and education. Experience in writing desirable, experience in the field of health education required. Salary \$4,047. Large city. Midwest. Write Box H-548.

Health Officer for county health department, near Chicago, suburban towns and good farming community. Department operating efficiently. Salary \$6,000 to \$7,200 depending on training and experience. Apply to Dr. Arthur S. Webb, Professional Arts Building, Glen Ellyn, Ill.

Food Microanalyst, bacteriologist for staff of long established canning industry laboratory in East. Training and experience in food microanalysis and bacteriology required. Opportunity for permanent position in charge of project on microanalysis of foods. Write National Canners Association, Research Laboratories, 1739 H Street, N. W., Washington 6, D. C.

Assistant Director, Division State Public Health Laboratories, in direct charge of laboratory in Bismarck. Requirements under Merit System: Master's Degree Bacteriology and/or Serology, 4 years' practical experience; or, 3 years' experience, 1 year in public health school. Salary: \$325-\$400, depending on qualifications. Write: Director, Public Health Laboratory, Box C, University Station, Grand Forks, N. D.

Director of Nurses and Supervisor of Nurses; city-county health department; generalized program; office in industrial city and county of 165,000; salaries \$3,000-\$3,780 and \$2,520-\$3,180 respectively. Substantial car allowances for both. Positions available from December 1. For further information write Paul A. Lundquist, M.D., M.P.H., Director of Health, Kansas City-Wyandotte County Health Department, 619 Ann Avenue, Kansas City, Kan.

Several Health Officers in Texas. Salary \$6,000 a year plus \$50 per month travel allowance. The Public Health Program operates under a Merit System with the usual vacations, sick leave, and retirement benefits under certain conditions. For further information write to: Dr. George W. Cox, State Health Officer, Austin, Tex.

Public Health Nurses for family health program having special emphasis on prenatal patients and children to school age. Nurse must qualify for Illinois registration. Initial salary \$2,430; 5 day week; 1 month's vacation annually; on-the-job transportation allowance; outdoor uniform furnished; group insurance coverage; retirement plan in operation. Salary consideration for previous public health education and/or experience. Write Superintendent, Infant Welfare Society of Chicago, 203 North Wabash Avenue, Chicago 1, Ill.

Qualified Public Health Nurse, Director for family health service in Mid-West city. Experience in maternal and child health field necessary. Salary open. Write Box N-419. Employment Service. A.P.H.A.

Bacteriologist and Serologist (assistant). College graduate. Salary range \$210 to \$260. Retirement benefits, vacation, sick leave, permanency. Apply to Charles A. Neafie, M.D., Director, Department of Public Health, Pontiac 15, Mich.

Bacteriologist: Male, Ph.D. Meticulous worker, stable, who can manage a department of a vaccine producing laboratory connected with a large Mid-West medical school. Salary \$4,500 to start. Apply Box Y-2. Employment Service. A.P.H.A.

Health Officer for eastern city. Applicant must have graduate degree in Public Health Administration. State educational background, experience and salary expected. Write Box U-4. Employment Service. A.P.H.A.

Health Officer in one of the most desirable locations in Montana; population 30,000; salary \$6,000 to \$7,000, depending upon training and experience. Write Box A-1. Employment Service. A.P.H.A.

Executive Director for community health agency in suburban Philadelphia. Professional staff of twelve nurses and dentist. Generalized nursing service affiliated with local Boards of Health and Schools; Dental Clinic; Child Health Centers; Practical Nurse Registry. Nurse with academic degree plus supervisory and administrative experience in official and nonofficial public health nursing. Retirement plan, one month vacation, 5 day 39½ hour week, sick leave. Salary open. Write Mr. H. H. Perry, President, Community Health and Civic Association, 25 East Athens Avenue, Ardmore, Pa.

Public Health Nurse and a Physiotherapist. Metropolitan Area of Washington, D. C. Excellent working relations. Good salary. Apply to Mrs. Sarah Brooks, Director of Nursing Bureau, Arlington Health Department, 1800 N. Edison Street, Arlington, Va.

Bacteriological Technician to assist in Bacteriology Department of Research Division of large pharmaceutical and biological firm. College graduate and at least one year of experience required. Experience in immunology or chemotherapy desirable. \$55 per week to start. Regular increases. Paid vacation. Five day week. Write Box A-2, Employment Service, A.P.H.A.

Public Health Nursing Field Supervisor; B.S. degree with major in Public Health Nursing and theory and experience in supervision required. Salary: minimum \$3,000, higher, depending upon qualifications. Interesting and growing program. Write: Director, Public Health Nursing Association, Des Moines, Iowa.

Qualified Bacteriologist, Serologists and Sanitarians wanted for positions in New Mexico Department of Public Health. Permanent tenure, vacations and sick leave with pay. For application blanks and information write Merit System Supervisor, Box 939, Santa Fe, N. M.

Sanitarian for metropolitan county 300,000 population to assist in generalized sanitation program. Area includes rural as well as urban sanitation problems; offers excellent opportunity for activity in all fields of environmental health. Experience in general sanitation activities required. Salary \$3,315 to \$3,795. Retirement plan, liberal vacation allowance, sick leave, 5 day week. Mileage allowance 7¢.

Must furnish own car. Write Wayne County Health Department, Eloise, Mich.

Public Health Nurses needed in Nevada. Permanent positions in rural counties and local county health unit.

Junior Public Health Nurses: (salary range \$2,160-\$2,640 annually) minimum of 6 months postgraduate public health nursing training.

Senior Public Health Nurse (salary range \$2,340-\$2,940 annually). One academic year of postgraduate training in public health nursing plus satisfactory experience in official agency. Mileage allowance 7½¢, if nurse owns car.

Supervisory Nurse for 6-7 counties (salary range \$2,580-\$3,300 annually plus travel allowance). Degree plus 1 year postgraduate training in public health nursing and two years' experience. All positions subject to Merit System examination. Write: Division Public Health Nursing, Nevada State Department of Health, 12 Fordonia Building, Reno, Nevada, for full details.

School Physician for combined position city health officer and Director of school health department. Community in Indiana with population of approximately 70,000. Salary about \$8,000. Write Box X-2, Employment Service, A.P.H.A.

Public Health Supervisor, salary \$3,300. Four staff nurses, salary \$2,460, for newly established health unit in east-central Illinois. Staff will also consist of one sanitarian, two clerks, one clerk-stenographer, besides the director. Opportunity to help formulate new public health program for entire staff personnel. Write Director of Health, P. O. Box 175, Dewitt-Piatt County Health Unit, Clinton, Ill.

School Physician for Teachers College. Population 1,500 (near Chicago). Complete charge of clinic and work with health coördinator and health council in improving school health program. Salary open. Write to President Karl L. Adams, Northern Illinois State Teachers College, DeKalb, Ill.

Director of Health for new combined city-county Health Department in Indiana. Challenging opportunity to reorganize and increase health program of considerable scope for capable and well-trained man. Salary possibly up to \$10,000. Write Box A-4. Employment Service. A.P.H.A.

Research Microbiologist, as Chief of Division of Research and Investigations of State Health Department, N.E. Must be well grounded in bacteriology, immu-

nology, and laboratory techniques of virus diseases; ability to encourage research in other divisions. Salary \$4,620-5,820 plus \$180 cost of living increase. Annual increments of \$240 based on achievement. Write Box A-5. Employment Service. A.P.H.A.

Public Health Commissioner in Tuscarawas County, New Philadelphia, Ohio. Must have degree in public health. To serve in a county with a population of approximately 40,000. Beginning salary \$6,000 or more. Write Box A-3. Employment Service. A.P.H.A.

Several Vacancies Nursing Division; also bacteriologist. Merit System. New salary ranges. Submit credentials and recommendations with first communication to: Floyd R. Town, M.D., Director, Bremerton and Kitsap County Department of Public Health, Bremerton, Wash.

Public Health Nurse Position. Generalized public health nursing. Civil Service

requirements: one year of public health nursing at approved university; experience preferred. Salary range \$2,400 to \$2,880—\$120 increase per year. Three weeks' vacation, sick leave 12 days per year, accumulative. Personal car; mileage 6¢ for travel on duty. Write to Adele Didricksen, R.N., Director Public Health Nursing, Ulster County Health Department, 61 Albany Avenue, Kingston, N. Y.

Bacteriologist—\$3,360. Three years' experience in clinical or laboratory diagnosis. Master's or Doctor's degree. Complete charge of Public Health laboratory, town of approximately 10,000. Apply to Bureau of Personnel, State Capitol, Madison 2, Wis.

Public Health Nursing Supervisor for county unit in process of organization, degree and experience desirable. Salary \$3,000 and travel. Write to: Montgomery County Health Department, Hillsboro, Ill.

PUBLIC HEALTH OPPORTUNITIES IN INDIANA

1. Medical Director for branch office, Indiana State Board of Health. Car furnished; salary \$5,400 to \$6,600 per year, depending on qualifications.

2. Health Educator for branch office, Indiana State Board of Health. Salary \$225-375, depending on training and experience.

3. Assistant Sanitary Engineers for branch offices and central office, Indiana State Board of Health, salary \$250-350 depending on training and experience.

4. Public Health Nursing Consultant and Assistant Consultant, Indiana State Board of Health, salary \$225-375. Degree with major in public health nursing and experience required. Submit training and experience or inquiries to L. E. Burney, M.D., State Health Commissioner, Indianapolis, Ind.

5. Health Officer for City of Gary, Ind. Salary \$7,500; travel \$600. Submit training and experience or inquiries to T. J. Senese, M.D., 504 Broadway, Gary, Ind.

POSITIONS WANTED

Licensed Veterinarian: Public Health and disease control experience in United States and abroad desires position in public health or industry. Write Box V-308, Employment Service, A.P.H.A.

Physician, woman, considerable clinical and administrative experience in child health work. Last 3½ years: senior physician, hospital school for crippled children including responsibilities for rehabilitation, X-ray and laboratory work. Interested in openings in Maternal and Child Health and crippled children's work, schools, industry. Write Box C-421, Employment Service, A.P.H.A.

Industrial Hygienist, 6 years' experience in industrial hygiene work in state and city health departments, 2 years as industrial chemist in industry. Present position: Assistant Director of Industrial Hygiene in official agency. Master's degree in sanitary engineering (2 years graduate work). Male 32, married, veteran. Desires position in governmental agency or industry. Write Box I H-463, Employment Service, A.P.H.A.

Physician, specialized in tuberculosis work. Thirteen years' clinical and administrative tuberculosis experience in public health agencies and institutions.

Currently employed but seeking position offering wide professional scope and responsibility. Male 40 years old, married. Write Box C-425.

Dentist: D.D.S., M.S.D. (Major Pedodontia) M.P.H., wishes full-time teaching position in his specialties or institutional employment. Opportunity for employment abroad is considered. Write Box D-22, Employment Service, A.P.H.A.

Non-medical Administrator, male, age 34, experienced in community organization, program development, public relations; presently employed as director of a state rehabilitation and welfare agency. Interested in position as executive secretary in voluntary or official health or welfare agency, or as director of an industrial welfare program. Prefer the West Coast. Write Box M-515, Employment Service, A.P.H.A.

Public Health Engineer and Bacteriologist, B.S. and M.P.H. Degrees from prominent eastern universities. Five years' experience includes work with private agency, state health department, and U. S. Army. Seeks position with private industry or official agency preferably in northeast. Write Box E-524, Employment Service, A.P.H.A.

Senior Serologist seeks position in southern California; 15 years' experience including 4 years as laboratory officer. Major Army United States. Write Box L-1, Employment Service. A.P.H.A.

Veterinarian with training in bacteriology, organic chemistry, and pathology; experience in public health work as a veterinary inspector for large Midwestern city; experience in clinical laboratory procedures; desires position in or outside United States requiring initiative and diligence. Write Box V-1, Employment Service. A.P.H.A.

Position in School Health Education or public health education wanted by woman with many years' experience in teaching and community organization in public health. Master's degree in public health. East or Middle West preferred. Write Box H-E-1, Employment Service. A.P.H.A.

Biological and Physical Chemist available for research, control, teaching. Extensive experience research, industrial development and control on pharmaceuticals, biologicals, bio-assays, also expert in animal surgery. Original analytical and physical-chemical methods. Former University professor, 60 publications; many in medical research; books. Executive ability. Age 35, married, children. Seeks responsible position Hospital Laboratories or Educational Institution, New York Metropolitan area preferred. Box L-2, Employment Service. A.P.H.A.

Sanitary Engineer, A.B., M.S., C.E., 3 years' experience in Public Health Engineering with Federal, State, and local agencies. Army experience in water supply in the Pacific. Desires position in public health engineering. Write Box E-1, Employment Service. A.P.H.A.

Health Educator, B.S. in Education, New York University, M.P.H., Yale University Department of Public Health. Experienced in community organization with City Health Department; Instructor of Health Education in University. Interested in Health Education in the community or as School Health Coördinator. Write Box H.E.-2, Employment Service. A.P.H.A.

Graduate Veterinarian with undergraduate and graduate work in dairy technology, experienced in both fields, desires position as sanitarian in a public health capacity or related work; suggestions solicited. Write Box V-2, Employment Service. A.P.H.A.

*Advertisement***Opportunities Available**

WANTED—(a) Health educator to serve as consultant to educators in state health department; Master's degree in public health and three years' experience required; \$4,000-\$4,800. (b) Graduate engineer with major in sanitary or public health engineering; to join staff of large industrial company having operations in Latin America; duties consist of directing sanitary program in two or three districts; work of non-routine nature. (c) Public health engineer; municipal health department; Rocky Mountain state. (d) Sanitary engineer to direct department serving population of 7,000,000; experience in water and malarial control required; M.A. degree and public health background essential; South America. (e) Public health statistician and, also, health educator; county department of health; southern California. (f) Health educator; city health department; university medical center, Middle West; around \$4,000. PH2-1. Please write to Berneice Larson, Director, The Medical Bureau, Palmolive Building, Chicago 11.

WANTED—(a) Public health officer; Korea; \$6,000, traveling expenses. (b) Public health officer; degree in public health and experience in rural health desirable; administrative position; headquarters in one of the leading cities of South America; \$7,200. (c) Public health officer to administer program of two counties; combined population 50,000, principally agricultural in nature; well staffed department; Middle West. (d) Student health physician to direct department, eastern university. (e) Medical director and

administrator, health service; duties consist of directing health program, serving as consultant and adviser to other departments such as nursing, nutrition, and safety service; \$6,108-\$7,968; university medical center of Middle West. (f) Public health physician experienced in administration for assignment in Greece. (g) Student health physician, man or woman; faculty rank of assistant professor; Pacific Coast. PH2-2. Please write to Berneice Larson, Director, The Medical Bureau, Palmolive Building, Chicago 11.

WANTED—(a) Advisory nurse for generalized program; duties consist of supervising local agencies throughout state, \$3,600-4,300. (b) Public health nurse faculty members, interested in university teaching; ranks: assistant professorships; 10 month year; \$4,000-\$5,000. (c) Public health supervisors and staff nurses for positions in South America; knowledge of Spanish or Portuguese desirable. (d) Pediatric and orthopedic nursing consultants; state crippled children's department; program being reorganized; considerable traveling. (e) Public health nurse for administrative position in Korea; \$5,000, traveling expenses. (f) Outpatient supervisor; teaching clinic averaging 100,000 visits annually, affiliated with medical school and hospital; \$3,000-\$5,000; East. (g) Public health supervisor to direct generalized public health nursing and school health program; should be qualified to develop service; ample assistance; town of 85,000; minimum \$3,600-\$4,000. California. PH2-3. Please write to Berneice Larson, Director, The Medical Bureau, Palmolive Building, Chicago 11.

*Advertisement***Opportunities Wanted**

PUBLIC HEALTH NURSE is available for administrative position; B.S. in public health nursing; Columbia University; M.A. degree in health education; in addition to several years' successful teaching experience, has served for five years in administrative capacity with state department of health; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

SANITARIAN; B.S. degree in Civil Engineering; six years, maintenance engineer with large institution; seven years, sanitary engineer where assignments have included insect control and general environmental sanitation; for further information, please write Burneice Larson, Director, The Medical Bureau, Palmolive Building, Chicago 11.

HEALTH EDUCATOR; B.S., M.A. degrees, eastern universities; several years, director of physical education in public schools; four years, health educator,

nationally known organization; three years, health educator in industry; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

INDUSTRIAL HYGIENIST; Ph.D. degree; several years, instructor of industrial hygiene and bacteriology, graduate school of eastern university; past two years, industrial hygienist of large industrial company; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

PUBLIC HEALTH PHYSICIAN seeks directorship; medical degree, eastern university; M.P.H. Johns Hopkins; 17 years' experience in public health field; during the war held important assignment abroad; now director of health, city of 100,000; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

NEWS FROM THE FIELD

WHERE WE ARE ON FOOD

The Food and Nutrition Board of the National Research Council, believing it had an obligation to help the people of the United States understand the world food situation, in November, 1947, prepared what it considered dependable conclusions based on facts available. These have been published in an 11 page mimeographed statement summarized below.

The recovery of the food situation in Europe has been slowed because of soil depletion, lack of fertilizer, due primarily to lack of coal for nitrate plants, which in turn is due in part to lack of adequate food to sustain productive capacity among coal miners, and in part to loss of livestock and consequent depletion of natural manure fertilizer; to the extreme cold of last winter which froze much winter wheat, and to the drought of last summer which resulted in a poor cereal crop and reduced pasturage. At the moment, lack of feed is sending light weight animals to market and thus temporarily providing more meat but making for severe shortage both in meat and breeding animals later. For another 2 or 3 years, Europe must rely chiefly on food rather than feed crops to sustain its population.

As to the disputed question of whether there is underfeeding, malnutrition or starvation in European countries, the report divides the problem into four groups: the well-to-do who can usually supplement rationed foods with unrationed, and thus have maintained good nutritional status; working classes in the cities whose diets have been good enough to keep most of them in good health but without enough calories to enable them to perform the full quota of the heavier kinds of work, thus giv-

ing the uninitiated observer the impression that they lack ambition rather than nourishment, especially if the observer does not also see the evidence of underfeeding in the workers' growing children; the farm population who are generally better fed than urban dwellers, except in areas of extreme soil depletion, loss of equipment, or displacement of families, conditions probably most severe in Greece, Italy, and Poland; and low income urban groups among whom many families have been underfed ever since the war and often even before the war because there is no breadwinner, their income is insufficient to buy their rations or the rationing system has broken down and they are unable to buy food in the black market. This group may be as high as a third of the families in some cities and among them there are not only evidences of underfeeding but often high mortality rates.

The report discusses also the ability and the responsibility of the United States in the situation. Europe must cut down its use of breadstuffs 75 grams or 3 slices of bread daily unless cereal imports can be increased by 280,000 bushels. Such a cut would be serious in countries where meats, oils, fats, dairy products, and eggs are far below pre-war levels.

The United States can save wheat and other cereals substantially only by reducing amounts fed to livestock and poultry. Meat is the most expensive form of calorie and protein production. An average acre of wheat, if consumed as bread, will provide 6 times as many calories as if fed to poultry and consumed as eggs, 8 times as many as if fed to broilers, and 19 times as many as if fed to beef cattle to fatten them after they leave the ranges. The most

following questions about cardiac rehabilitation:

- a. Work tolerance of various cardiac types.
- b. The cardiac's needs in "reëducation for living."
- c. Type of medical supervision essential during sheltered employment and after reëmployment.
- d. Non-medical services needed during the "hardening" and rehabilitation period such as vocational guidance, family social service, and psychological adjustment.

CONFERENCE OF MUNICIPAL PUBLIC HEALTH ENGINEERS

At the October, 1947, meeting of the Conference of Municipal Public Health Engineers in Atlantic City, the following officers were elected for a period of one year:

Chairman—Charles L. Senn, Director, Sanitation Bureau, Los Angeles City Health Department

Vice Chairman—Morton S. Hilbert, Director, Bureau of Engineering and Sanitation, Wayne County (Mich.) Health Department

Secretary-Treasurer—A. H. Herberger, Director, Division of Sanitation, Nassau County (N. Y.) Health Department

All three are Fellows of the Engineering Section of the A.P.H.A.

RESEARCH ON ORTHOPEDIC APPLIANCES

The Mellon Institute of Pittsburgh announces a comprehensive multiple research fellowship to conduct broad scientific investigation and development about orthopedic appliances. Problems of mechanical design, improvements in construction materials, and methods of fitting appliances will receive particular study.

The program is headed by Senior Fellow John R. Young, a research specialist in metallurgy and mechanical engineering. Eugene F. Murphy, Engineer of the Committee on Artificial Limbs of the National Research Council, serves as Advisory Fellow. A medical advisory committee of three orthopedists also serves the fellowship.

The work is made possible through a grant by the Sarah Mellon Scaife Foundation of Pittsburgh.

NAVAL AIR RESERVE TRAINING

The Naval Air Reserve Training Command makes the following announcement:

The Naval Air Reserve Training Command, with headquarters at Naval Air Station, Glenview, Ill., has 17 nationally located Naval Air Stations and 4 Naval Air Reserve Training Units at which Naval Reserve Medical Officers may serve on active duty with full pay and allowances and with the privilege of returning to civilian life at any time upon request. Additional details may be obtained from Chief of Naval Air Reserve Training, Naval Air Station, Glenview, Ill.

FIRST TOWNS IN CONNECTICUT TO VOTE FOR DISTRICT HEALTH DEPARTMENTS

The August *Journal* (p. 1079) reported the action of the Connecticut State Legislature in appropriating funds for state aid to consolidated health districts. The October *Bulletin of the Connecticut State Health Department* reports that three towns, Andover, Roxbury, and Vernon, the first with a population of about 9,000, the others with fewer than 1,000, have voted to join district departments of health when neighboring towns take similar action. Four groups of towns comprising 44 of the state's 161 towns have met to discuss the health district plan, but no group has yet officially applied to the State Department of Health to establish a district department of health.

MINNESOTA PUBLIC HEALTH CONFERENCE

The Minnesota Public Health Conference created in January, 1947, held its first annual meeting November 14, 1947, in the Radisson Hotel in Minneapolis. An evening session was devoted to a banquet commemorating the 75th anniversary of the Minnesota State Board of Health and to paying respects

to A. J. Chesley, M.D., who has served the Board for 46 years, for 26 years as Secretary and Executive Officer. The toastmaster was Thomas B. Magath, M.D., President of the State Board of Health.

The newly elected officers for 1948 are:

President—J. Lawrence McLeod, M.D., Grand Rapids

First Vice-Chairman—Melvina Palmer, Minneapolis

Second Vice-Chairman—S. P. Kingston, Rochester

Treasurer—Charles G. Sheppard, M.D., Hutchinson

Secretary—D. A. Dukelow, M.D., Minneapolis

DR. MELENEY HEADS PROFESSORS OF PREVENTIVE MEDICINE

At the recent annual meeting of the Conference of Professors of Preventive Medicine, Henry E. Meleney, M.D., Hermann Biggs Professor of Preventive Medicine at the New York University College of Medicine, was elected President for the 1947-1948 year. A mimeographed directory of persons engaged in teaching preventive medicine and public health in the 88 medical schools in the United States and Canada was issued at the meeting. Copies may be obtained by writing to Dr. Thomas D. Dublin, Secretary, 248 Baltic Street, Brooklyn 2, N. Y.

FIVE YEAR PLAN FOR VISUAL EDUCATION

A community program for developing visual education aids has been developed in New Orleans. The Louisiana State and New Orleans City Departments of Health and the Newcomb Art School of Tulane University have agreed on a five year program of visual aid training and production to cost about \$200,000.

Under the plan the Art School will train undergraduate and graduate students in the production of visual aid materials, produce materials such as still photography; film strips; animated sta-

tistical graphic and pictorial matter; exhibition layouts; pamphlets and posters; provide consultation service; and train selected members of the two agencies in the visual aid program.

The State and City Health Departments will provide a portion of the funds by pooling the money ordinarily used for health educational materials, will provide a visual aid consultant, and develop a joint advisory committee on public health in planning the audio-visual art program.

DUST OR BACTERIA COUNTS

The Office of Technical Services, U. S. Department of Commerce, announces sale of a recently published report which describes a photoelectronic counter for use in counting colloidal particles in air to record the presence of dust or bacteria. According to the announcement the counter was designed as a smoke penetrometer for comparisons of concentrations of very dilute aerosols and was used to give rapid quantitative tests of penetrations of gas mask filters. Adaptation of the counter for other uses in colloidal chemistry, biology, and industry are suggested.

The counter is actuated by electric impulses produced by the action on a photoelectric cell of beams of light reflected from particles in a stream of the air being examined as it passes through the counter. The report, "A Photoelectronic Counter for Colloidal Particles," can be obtained through the Office of Technical Services, Department of Commerce, Washington 25, D. C. Microfilm copies, \$1.00; photostatic copies, \$2.00.

WORKSHOP ON MENTAL HEALTH ASPECTS OF NURSING

A workshop on the Mental Health Aspects of Nursing is offered by the Catholic University of America June 11-22, 1948. There will be special emphasis on ways and means of incorporating mental health principles in all areas of nursing.

For further information write to: Miss Theresa G. Muller, Coördinator in Psychiatric Nursing, School of Nursing Education, Catholic University of America, Washington 17, D. C.

NEW INFORMATION CENTER ON ALCOHOLISM

The Detroit Committee for Education on Alcoholism, one of 28 such local committees in 14 of the 48 states and the District of Columbia, has opened an information center. The center provides consultation and advice and provides guidance in securing professional treatment when needed, in addition to promoting a continuous educational campaign. One of 15 information centers operated by local committees, this has the collaboration of the National Committee for Education in Alcoholism and of the Yale School of Study of Alcoholism.

BUFFALO CITY-ERIE COUNTY HEALTH DEPARTMENT

New York's largest upstate city with more than half a million population has joined with Erie County in forming a city-county health department. This consolidation went into effect on January 1, 1948, with Berwyn Mattison, M.D., as Health Officer. Dr. Mattison has recently been Health Officer of the City of Yonkers and before that District Health Officer in the Kingston State Health District.

This new health department covers all of Erie County except the cities of Lackawanna and Tonawanda with 1940 populations respectively of 24,000 and 13,000. The respective municipal officials failed to act favorably on the plan to consolidate the services of the entire county. Each city has a part-time health officer.

HERBERT HOOVER SELECTS AIDES FOR FEDERAL STUDIES

It was announced in Washington on

December 18 that former President Herbert Hoover, who heads the U. S. Commission on the Organization of the Executive Branch of the Government, had selected several of those who would make studies in connection with the Commission's work.

The Brookings Institution of Washington has been selected to report upon the health, education and social security functions of the federal government, as well as on the government's transportation activities.

Among the other selections was that of Thomas Jefferson Coolidge of Boston, former Under Secretary of the Treasury, to head a committee to study overlapping administration, taxation, and grants-in-aid between the federal and state governments.

PROPOSED END OF U. S. TAX ON MARGARINE

On December 18, Senator J. William Fulbright of Arkansas introduced into the Senate a bill repealing all federal taxes on oleomargarine on the basis that they are "directly opposed to the spirit of free enterprise."

This proposal is in line with the spirit of a resolution adopted unanimously by the Governing Council at the 75th Annual Meeting of the American Public Health Association (*A.J.P.H.*, Dec., 1947, p. 1623).

According to Senator Fulbright, the taxes and licenses on margarine is the only case where a federal tax is levied on one domestic product for the benefit of a competing product.

MISS FILLMORE SUCCEEDS MISS HOULTON IN N.O.P.H.N.

On January 19, 1948, Ruth Houlton, R.N., retired as General Director of the National Organization for Public Health Nursing, a position she has held since 1942 when she became Director after serving 7 years as Assistant and then Associate Director:

Miss Houlton was succeeded by Anna Fillmore, R.N., who has been with the Visiting Nurse Service of New York since 1940 successively as staff nurse, supervisor, industrial nursing consultant, and assistant director. Previous to 1940 she was Director of the Bureau of Public Health Nursing in the Utah State Health Department and Assistant Director of the American Nurses Association. She holds a B.S. degree from Teachers College, Columbia University, and the degree of Master of Public Health from Harvard University.

Miss Fillmore has held special lectureships at Teachers College, Columbia University, Toronto University, and the School of Public Health, Harvard University, and is the author of several articles on public health nursing and industrial nursing which have appeared in professional magazines.

RESEARCH ON HUMAN REPRODUCTION

Haven Emerson, M.D., Chairman of the National Committee on Maternal Health, which was organized in 1923 by a group of physicians, recently announced the first comprehensive program for research in reproduction to be undertaken. This program will be under the direction of the National Research Council which has established a Committee on Human Reproduction to study needs and, on the basis of findings, to recommend grants for specific research projects. The Planned Parenthood Federation will collaborate in and seek to contribute substantial funds for the research program while its clinics and records can serve as a valuable field for some of the research projects.

The Chairman of the Council's new Committee on Human Reproduction is Howard C. Taylor, Jr., M.D., Professor of Obstetrics and Gynecology at Columbia University's College of Physicians and Surgeons. His committee is made up of 14 experts in several fields; obstetrics and gynecology, urology, anat-

omy, zoölogy, embryology, general medicine, population problems, psychology, psychiatry, and physiological chemistry.

Coincident with this announcement a reorganization of the Board of the National Committee on Maternal Health was completed. Formerly made up of physicians, it is now predominantly a lay board made up of the following persons in addition to Dr. Emerson:

William Harding Jackson, Chairman of the Board of the New York Hospital and Cornell Medical Center, and of the Hospital Council of Greater New York

Frank Notestein, Head of the Office of Population Research at Princeton University

Frederick Osborn, United States representative on the United Nations Atomic Energy Commission

John D. Rockefeller, 3rd.

Dr. Kenneth Rose, Secretary of the Planned Parenthood Federation

Dr. Irvin Stewart, President of the University of West Virginia

Spencer Byard of New York, Legal Council

Sidney D. Gamble of New York, Treasurer

This Board will determine broad comprehensive policies and will appeal to the public for financing the research program.

In commenting on the new program, Dr. Emerson said, "We are confident that the public will support this program enthusiastically once they understand it. Nothing is more obviously important to all Americans than the good health which begins with a sound foundation—healthy mothers and babies."

DR. FLORENCE R. SABIN ASSUMES DENVER POST

Florence R. Sabin, M.D., President of the Western Branch of the American Public Health Association, well known because of her leadership of a public health movement in Colorado and elsewhere, assumed her duties as Director of Health and Charities in Denver on January 1. Dr. Lloyd Florio, Denver, will continue as City Health Officer in the plan for reorganizing the Department.

An effort in Denver to revise the city

charter and to abolish the position of Health and Charities Director was defeated with the November election. Dr. Sabin's appointment is understood to be for the interim until it is hoped the charter can be amended. Dr. Sabin has recently served as Chairman of the Board of Health of Denver and is a member emeritus of the Rockefeller Institute for Medical Research, New York, N. Y.

DR. PARRAN PROPOSES FEDERAL PLAN TO
FINANCE TRAINING OF MEDICAL
STUDENTS

At the conference in Washington, D. C., between the Surgeon General of the U. S. Public Health Service and the Association of State and Territorial Health Officers early in December, Dr. Thomas Parran, Surgeon General, proposed that the United States Government should subsidize medical students as one means of increasing the supply of physicians. The plan was supported at the same meeting in an address by Oscar R. Ewing, Federal Security Administrator.

Also supporting Dr. Parran, the Association of State and Territorial Health Officers approved such a plan and included scholarships in dentistry, nursing, and allied fields. Under this plan those applicants would be admitted to undergraduate medical schools of their choice under a plan similar to that now prevailing for men to attend military and naval schools. The applicants would obligate themselves to spend a month in federal service for each month of scholarship benefit, or at the discretion of the government, in state or local public health service.

Other steps recommended by the Association included federal aid to the states to expand and extend local public health services, federal grants to medical schools, transferral of the activities of the Children's Bureau to the Public Health Service, a more liberal plan for

the loan of U. S. Public Health Service personnel to the states, and the set-up of an inter-agency committee on tuberculosis evaluation methods, including representatives of the A.P.H.A., National Tuberculosis Association, American Medical Association, U. S. Public Health Service, and the Association of State and Territorial Health Offices.

It was also proposed to improve U. S. Public Health Service laboratory services, including the establishment of a national Salmonella typing center, the supply of rare biologicals to public health and other laboratories, and the creation of a national virus and rickettsial identification center. They recommended continuation of the federal appropriations for a national school lunch program and supported steps in the direction of the topical application of sodium fluoride to children's teeth.

CANCER CONTROL GRANTS

The National Cancer Institute made grants of 1½ million dollars to 64 colleges, laboratories, and public health institutions as a result of the recommendations made at the two day meeting of the National Advisory Cancer Council in December. Half a million dollars was made available for research in 32 institutions, more than half a million for the improvement of teaching in medical schools, more than \$100,000 for other projects largely in state health departments, and a quarter of a million for reconstruction of the Roscoe B. Jackson Memorial Laboratory in Bar Harbor, Me., destroyed in the November forest fires. This represents the first substantial construction grants ever made by the Council.

These December grants included other notable firsts. Grants of \$13,000 and \$10,000 respectively to scientists in the Pasteur Institute in Paris and the Hebrew University represent the first grants to scientists working outside the country. "They constitute," said Leon-

ard Scheele, M.D., Director of the National Cancer Institute, "a move to assist in the mobilization of an international attack on cancer." This same meeting produced also the largest grant made to a single institution—\$112,500 to Memorial Hospital in New York for 5 research projects and \$30,000 for cancer pathology and medical training.

BORDER PUBLIC HEALTH ASSOCIATION TO MEET MARCH 20-22

M. F. Haralson, M.D., El Paso, Tex., Secretary of the United States-Mexico Border Public Health Association, has announced that the annual meeting which originally had been announced for late March will be held March 20-22, in Laredo, Tex., and in Neuvo Laredo, Mexico.

The Border Public Health Association is closely linked with the program of the Pan American Sanitary Bureau, Washington. Dr. Haralson, who represents the Bureau in El Paso, would welcome word from public health workers who could be in that vicinity at the time of the meeting.

MANUAL OF RECOMMENDED WATER- SANITATION PRACTICE

This *Manual* presents in concise form the salient features essential to the sanitary control of a water supply system and its operation. It "primarily is to serve as a guide to Public Health Service engineers in evaluating the sanitary features of water supplies with which they are concerned." It should prove equally valuable to state departments of health and others concerned with water sanitation.

Prepared coöperatively by the Water and Sanitation Investigations Station, Cincinnati, and the Sanitary Engineering Division, U. S. Public Health Service, the text is divided into four sections. They cover: Part I, those features of water supply systems which should be included in any survey and which are

important enough so that defects would be detrimental to the safety of the supply. Parts II and III deal with recommended sanitary requirements for water treatment and distribution. Part IV is an explanatory discussion of the bacteriological and chemical requirements for potable drinking water as set forth in the 1946 *Public Health Service Drinking Water Standards*.

May be obtained from the Superintendent of Documents, Washington, D. C., 15 cents.

BALTIMORE MEDICAL SOCIETY REQUESTS MEDICAL CARE PROGRAM EXTENDED

In October, 1947, the Baltimore Medical Society unanimously voted a resolution requesting the Baltimore City Health Department to organize a medical care program such as is now in effect in the 23 counties of Maryland. This program was begun in the state in 1945 in accordance with state legislation authorizing a medical care program through the state and local health departments. After two years of its operation in the counties, the Baltimore Medical Society recommends its extension and promises the Baltimore Health Commissioner "that its officers will be glad to coöperate in every way possible in carrying out this important program."

VAN METER PRIZE AWARD

The American Association for the Study of Goiter again offers the Van Meter Prize Award of \$300 for the best essays submitted concerning original work on problems related to the thyroid gland. Essays may cover either clinical or research investigations, should not exceed 3,000 words, and must be in English, typewritten in double spaced copy. The award will be made at the annual meeting of the Association in Toronto, May 6-8. Address Dr. Thomas C. Davison, Corresponding Secretary, 207 Doctors Building, Atlanta 3, Ga.

PERSONALS

Central States

OTTO A. BESSEY, Ph.D.,* will become Professor and Head of the Department of Biological Chemistry, University of Illinois, College of Medicine, Chicago, as of April 1. He is now Chief, Division of Nutrition and Physiology, Public Health Research Institute, New York City.

HAYSE H. BLACK,† has become Associate Professor of Sanitary Engineering in the Department of Civil Engineering, University of Iowa. He has been the Officer in Charge of the U. S. Section, International Joint Commission Boundary Water Pollution Investigation, Detroit.

JACQUES P. GRAY, M.D.,* has joined the staff of Parke, Davis and Company in Detroit as Medical Consultant to the Sales and Promotion Division. Dr. Gray has a varied public health background in both the California and San Francisco Health Departments and with the Community Health Project of the W. K. Kellogg Foundation, among others.

NEW HEALTH OFFICERS IN ILLINOIS

CHARLES R. KINCAID, M.D.,† has been appointed Health Officer for the Will County Health Department, with offices in Joliet. He was for 3 years each with the Indiana State Board of Health, the City-County Health Department, at Eau Claire, Wis., as Director, and with the U. S. Army.

ERNEST J. BECKNER, M.D.,‡ was recently appointed Health Officer for the Montgomery County Health Department effective October 1. Since 1941 he has served with the Health Department in Pratt County and later with the Butler County Health Department in Kansas.

RACHEL M. LEHMAN, Instructor in

Medical Technology, University of Indiana Medical School, has been elected President of the American Society of Medical Technologists.

FRED LONG, M.D.,* of the Nebraska State Department of Health has been appointed Director of the City-County Health Department, Lincoln. He succeeds CORINNE EDDY, M.D.,† recently resigned. Dr. Long has been directing the preventable disease control work of the State Department of Health and has been acting director of the Division of Venereal Disease Control.

ALLAN STONE,† has been named Executive Director of the Minnesota Cancer Society, a division of the American Cancer Society. For the past six years he has been Research Director of the Amherst H. Wilder Charity of St. Paul, and earlier Assistant Head of the Bureau of Research and Statistics, Minnesota Division of Social Welfare.

EDGAR WILLIAM WARREN, M.D., was recently appointed as Director of the newly established Mental Hygiene Division, Kansas State Board of Health. Dr. Warren has served on the staff of the Louisiana State Health Department, and since January, 1946, with the Menninger Foundation.

Eastern States

P. G. AGNEW, Ph.D., who for the past 28 years has served as Secretary and head of the staff of the American Standards Association, New York, N. Y., retired January 1, but the Board of Directors has retained his services as Consultant.

THEODORE E. BOYD, M.D., has been named associate director of research for the National Foundation for Infantile Paralysis, New York, N. Y. He has been on the faculty of the Loyola University School of Medicine.

PHILIP S. BROUGHTON,* recently joined

the staff of A. W. Mellon Educational and Charitable Trust of Pittsburgh in an administrative capacity. He was formerly public relations counsel of Young and Rubicam, a national advertising agency with headquarters in New York.

CHARLES M. CARPENTER, M.D.,† on January 1, accepted appointment as Professor and Chairman of the Department of Infectious Diseases at the new medical school of the University of California at Los Angeles. Dr. Carpenter was previously Associate Professor of Bacteriology and Public Health at the University of Rochester (N. Y.) School of Medicine and Dentistry.

HOWARD ENNES, Chief, Extension and Training Section, and MARGARET K. LUMPKIN,† Venereal Disease Division, U. S. Public Health Service, have been detailed to New Haven, Conn., respectively as Executive Secretary and Associate in Medical Social Work, with the Cooperative Studies in the Social and Educational Aspects of Venereal Disease Control, a joint undertaking of the Department of Public Health of Yale University and the Venereal Disease Division of U. S. Public Health Service.

ROBERT U. GATES was recently appointed as a representative of the Engineers Joint Council on the U. S. Commission for United Nations Educational, Scientific and Cultural Organization. Mr. Gates is President of the American Society of Mechanical Engineers and a specialist in the design and construction of fuel burning and steam generating installations.

HARRY HEIMANN, M.D.,† has been appointed Industrial Hygiene Consultant to District 1 of the U. S. Public Health Service, New York, N. Y.

With the rank of Senior Surgeon he has been in the Washington office of the Service since 1946. Previously he was in the Syracuse, N. Y., office and in the Division of Industrial Hygiene and Safety Standards of the New York State Department of Labor.

JOSEPH HIRSH,* Associate Director, The Research Council on Problems of Alcohol, New York, has become Director of Public Information, World Health Organization, Interim Commission, of the United Nations. He participated in the Fifth Session of the World Health Organization, Interim Commission in Geneva, Switzerland, January, 1948.

VICE ADMIRAL GEORGE F. HUSSEY, JR., USN (Ret), wartime Chief of the Navy's Bureau of Ordnance, on January 1 assumed his duties as administrative head of the American Standards Association. He will direct the coöperative efforts of industry, consumers, and the government in the vital problem of standardization.

EVA LANDSBERG, M.D.,† has been appointed Chief of the Division for Physically Handicapped Children in the New York City Department of Health, succeeding SAMUEL M. WISHIK, M.D., resigned.

HAROLD H. MITCHELL, M.D.,† recently was appointed Director of School Health for the public schools of Montgomery County, Maryland, with headquarters in Rockville. Dr. Mitchell was previously a district health officer of the New York City Department of Health.

ROBERT W. OSBORN* was recently elected by the board of managers of the State Charities Aid Association of New York as executive secretary of its State Committee on Tuberculosis and Public Health and assistant secretary of the Association. Mr. Osborn is the third executive secretary of the state committee since it was organized in 1907 to fight tuberculosis. He

* Member A.P.H.A.

† Fellow, A.P.H.A.

joined the S.C.A.A. staff as administrative assistant in 1924.

LUCILE PETRY, Chief of the Nursing Division of the U. S. Public Health Service, and AGNES CHAGAS, Nursing Director of the Pan American Sanitary Bureau, are in Mexico City studying the feasibility of establishing a school of nursing at the University of Mexico.

SOL PINCUS, C.E.,* retired as Senior Sanitary Engineer with the New York City Health Department on October 1. Mr. Pincus served with the City Health Department from July, 1935, until his retirement, and at one time held the title of Deputy Commissioner, being in charge of Food and Drug Control and Sanitary Activities for the department. He is now in private practice as a public health engineering consultant.

ARTHUR B. ROBINS, M.D., Dr.P.H.,* was designated as Acting Director of the Bureau of Tuberculosis, Department of Health, New York City, effective September 1, 1947. He has been associated with the department as Supervisor of Clinics in the Bureau of Tuberculosis since 1937.

DEAN THORNDIKE SAVILLE, of the College of Engineering, New York University, has been appointed a member of the New York State Public Health Council by Governor Dewey, filling the vacancy created by the recent death of PROFESSOR HENRY E. OGDEN of Cornell.

Southern States

ROBERT L. CHERRY, M.D.,† in October became Deputy Medical Director of the Eastern Area, American Red Cross, with headquarters in Alexandria, Va. During the war Dr. Cherry served with the Allied Military Government in North Africa and Italy as communicable disease officer for the Public Health Subcommittee of the Allied Commission. He was awarded

the United States Army Typhus Commission medal by the American Government and the Knight Order Crown of Italy by the Italian Government for his services during the Naples typhus epidemic.

Western States

ADDITIONS TO STAFF OF DENVER, COLORADO, HEALTH DEPARTMENT

WARD L. CHADWICK, M.D.,† as Director of Communicable Disease Control. A pediatrician who was a medical officer in charge of venereal disease control in the Army during the War, he was previously pediatric consultant to the Colorado State Division of Public Health.

EVELYN RAHM,* Health Education Consultant with the U. S. Public Health Service, District 8, has been on loan from the U. S. Public Health Service, since September 15.

HAROLD J. BARNUM, as Chief of the Milk Section of the Environmental Sanitation Division. He has been in the public health phase of milk work for 14 years, having served on the National Committee of the International Milk Association continuously since 1933. He is author of several special bulletins issued by the Michigan Agriculture Experimental College, and has been employed in the Milk Division of the City of Detroit, and was in charge of the sanitation program for Ann Arbor.

J. ROBERT CAMERON,† as Chief of the Denver Sanitation Section of the Environmental Sanitation Division, will be in charge of rodent and insect control, and will supervise swimming pools, private water supplies, and act in an advisory capacity for sewage disposal and garbage collection. He was former engineer for the Washtenaw County, Michigan Health Department.

JAMES A. KING,† recently of the U. S.

Public Health Service as Chief of the Education and Training Section of the Environmental Sanitation Division.

RUTH RAATTAMA, M.D.,* as Director of the Maternal and Child Health Division. Recently with the Idaho State Health Department, she has just completed a 3 months' Fellowship at the Mayo Clinic.

HELEN GRIFFIN TIBBITTS, was appointed State Vital Statistics Registrar of Oregon. She has been with the U. S. Public Health Service, and more recently engaged in special studies in the department of sociology, University of Michigan.

Other Areas

MIGUEL BUSTAMANTE, M.D.,† has been appointed Secretary of the Pan American Sanitary Bureau. He was formerly chief of the Epidemiology Laboratory of the Mexico Department of Health.

JESSE C. ELLINGTON, M.D., M.P.H.,* recently received from the Republic of Panama, the Order of Vasco Nunez de Balboa, grade of "Commendador." This is the highest decoration for distinguished public health service given by Panama.

JOHN E. ELMENDORF, M.D.,* Rockefeller Foundation, Bogota, Colombia, was recently decorated as Honorary Officer of the Military Division of the Most Excellent Order of the British Empire, in Bogota. Dr. Elmendorf's decoration was conferred on him in recognition of his work as Director of the U. S. Army School of Malariology in Panama.

HERNAN ROMERO, M.D., M.P.H.,* Director of the School of Public Health, Santiago, Chile, has recently been appointed permanent head of the Department of Hygiene and Pre-

ventive Medicine in the Medical Faculty, where he will be responsible for the undergraduate program.

Death

WELLINGTON PORTER SHAHAN,† Executive Secretary of the Illinois Tuberculosis Association for 18 years, died on November 21, 1947.

CONFERENCES AND DATES

American Association of Medical Social Workers. Atlantic City, N. J. April 19.

American Association of Psychiatric Social Workers—Annual Meeting. Atlantic City, N. J. Week of April 18.

American Association of Social Workers. Atlantic City, N. J. April 16-18.

American College of Physicians—Annual Session. San Francisco, Calif. April 19-23.

American Hearing Society—National Conference and Annual Meeting. Pittsburgh, Pa. May 19-23.

American Industrial Hygiene Association—Annual Meeting. March 30-April 1. Boston, Mass.

American Public Health Association. 76th Annual Meeting. Boston, Mass. Week of November 8, 1948.

Canadian Public Health Association. Vancouver, May 18-20.

Community Chests and Councils—Annual Meeting. Atlantic City, N. J. April 14-17.

Fourth International Congresses on Tropical Medicine and Malaria. Washington, D. C., May 10-18.

International Conference of Social Work. Atlantic City, N. J. April 17-25.

International Council for Exceptional Children—24th Annual Convention. Des Moines, Iowa. April 25-28.

International Poliomyelitis Conference (First)—Sponsored by the National Foundation for Infantile Paralysis. New York, N. Y. July 12-17.

National Conference of Social Work. Atlantic City, N. J. Week of April 18.

National Conference on Family Life. Washington, D. C. May 6-8.

National Organization for Public Health Nursing—Biennial Nursing Convention. Chicago, Ill. May 31-June 4.

National Society for the Prevention of Blindness. Minneapolis, Minn. April 5-7.

New England Health Institute. Amherst, Mass. June 16-18.

* Member A.P.H.A.

† Fellow, A.P.H.A.

Puerto Rico Public Health Association. San Juan, P. R. February 11-14.
 Southern Branch. American Public Health Association. New Orleans, La. April 12-14.
 United States-Mexico Border Public Health Association—Annual Border Health Conference. Laredo, Texas, and Nuevo Laredo, Mexico. March 20-22.
 Western Branch. American Public Association. Salt Lake City, Utah. May 25-27.



**TO THE
HEALTH**
 OF THOSE WHOM YOU
 STRIVE TO PROTECT



DIXIE CUPS

Directory of Health Service

BLACK & VEATCH

CONSULTING ENGINEERS

4706 Broadway

KANSAS CITY, MISSOURI

Sewerage, Sewage Disposal, Water Supply,
 Water Purification, Electric Lighting, Power
 Plants, Valuations, Special Investigations, Re-
 ports and Laboratory Service

E. B. Black N. A. Veatch, Jr. A. P. Learned
 M. F. Lutz F. M. Veatch R. E. Lawrence
 E. L. Filby

Established 1843

ANALYSTS BACTERIOLOGISTS
 CONSULTANTS

Chemical, Bacteriological, Biochemical Analy-
 ses, Industrial and Sanitary Problems
 Microbiological Examinations

FOODS WATERS DRUGS BEVERAGES

Scientific Investigations

Inquiries invited

BENDINER & SCHLESINGER

LABORATORIES

Third Avenue and Tenth Street
 New York 3, N. Y.

Telephone: ALgonquin 4-2300

Serving the field of Public Health over 45 yrs.

Publications of the A.P.H.A.

An Appraisal Method for Measuring the Quality of
 Housing: A Yardstick for Health Officers, Housing
 Officials and Planners. Part I. Nature and Uses
 of the Method. 1945. 71 pp. \$1.00.

Part II. Appraisal of Dwelling Conditions. Director's
 Manual; Field Procedures; Office Procedure (1946).
 \$5.00.

Basic Principles of Healthful Housing. 2nd ed. rev.
 1946. Report of the Committee on the Hygiene of
 Housing. 34 pp. \$4.00.

Control of Communicable Diseases. The. 6th ed., 1945.
 Size 4 3/4" x 7 3/4". 149 pp. \$3.50.

Diagnostic Procedures and Reagents. Techniques for the
 Laboratory Diagnosis and Control of the Commu-
 nicable Diseases. 2nd ed., 1945. \$4.00.

Health Practice Indices. A collection of charts show-
 ing the range of accomplishment in various fields
 of community health service. 1945. 87 pp.
 Free.

Membership Directory. 1946. (Free to A.P.H.A. mem-
 bers). \$5.00.

Methods for Determining Lead in Air and in Bio-
 logical Materials. 1944. 41 pp. \$75.

Occupational Lead Exposure and Lead Poisoning.
 1943. 67 pp. \$75.

Panum on Measles. By P. L. Panum (translation
 from the Danish). Delta Omega ed., 1940. 111 pp.
 \$2.50.

Check above the publications desired and mail this advertisement to us, together with your remittance to cover
 (check, money order, or stamps). Members of the Association are entitled to 10% discount on the above.

Public Health in Midstream. Papers presented at the
 Special Sessions at Atlantic City. Supplement to
 A.J.P.H., Jan. 1948. \$1.00.

Proceedings of the National Conference on Local
 Health Units. Supplement to A.J.P.H., Jan. 1947.
 160 pp. Covered, \$1.00.

Shellfish and Shellfish Waters, Recommended Methods
 of Procedure for Bacteriological Examination of.
 1947. 12 pp. \$25.

Spanish Summary of 8th edition (1941) of Standard
 Methods for the Examination of Dairy Products.
 1945. 52 pp. Free to Latin American countries.
 \$1.00 in the United States.

Standard Methods for the Examination of Water and
 Sewage. 9th ed., 1946. 286 pp. \$4.00.

Physical and chemical examination of water and
 sewage, microscopical examination of water and bac-
 teriological examination of water.

Survey Form for Milk Laboratories. Indicating Con-
 formity with Standard Methods for the Examination
 of Dairy Products (8th ed.). May, 1944. Single
 copies 10¢; 50 copies \$1.00; 100 copies \$1.50; 1,000
 copies \$10.00.

Swimming Pools and Other Public Bathing Places.
 Recommended Practice for Design, Equipment and
 Operation of. 1942. 56 pp. \$50.

Vital Statistics Directory. Compiled by the Vital
 Statistics Section. 3d ed., 1945. \$75.

Name.....Address.....

Order from the Book Service

AMERICAN PUBLIC HEALTH ASSOCIATION

1790 Broadway at 58th Street

New York 19, N. Y.

American Journal of Public Health

and THE NATION'S HEALTH

Volume 38

March, 1948

Number 3

Public Health in Britain— The Changing Scene*

SIR ANDREW DAVIDSON, M.D., F.R.C.P., F.R.C.S.,
F.R.S.Ed., D.P.H.

Chief Medical Officer, Department of Health for Scotland, Edinburgh

BACK in the dark days of the recent war the strenuous work of health officers in Britain was much lightened by visits, from time to time, of many distinguished medical colleagues from your country. When the outlook seemed gloomiest, these visits were alike encouraging, sustaining, and helpful. To mention all who contributed in this way would be to repeat a lengthy catalogue of names well known in many branches of American medicine. Without individually mentioning those occurring to my memory I should like to take this opportunity of thanking all who visited us then for the intellectual refreshment which they brought and for the practical advice which they gave during those critical days. For this reason alone my presence here today would be well worth while; but there are others. The opportunity of meeting leaders of public health of this country, of exchanging views, of discussing common problems,

and of observing how these problems are being tackled here, would also of itself be sufficient to make for unhesitating acceptance of your Association's kind invitation to attend this 75th Annual Meeting and to make a modest contribution to its deliberations. Moreover, by inviting me personally, you have honored the Public Health Service of our relatively small—although we like to think important—country of Scotland. My colleagues at home share my high appreciation of this distinction, implicit in your invitation.

But even acceptable invitations bring their problems. In this case the most difficult one to solve is the choice of a subject for my remarks. As public health organization in Britain is in the process of rapid change, it has been suggested that an appropriate theme would be the changing scene in British public health. To me, however, it has at least two limitations. To depict clearly such a scene within the space of a few minutes is well-nigh impossible; and my more intimate knowledge of what is happening is confined mainly to Scotland. The lat-

* Presented before the Health Officers Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 8, 1947.

ter, however, is less important for, broadly speaking, the trends are similar over Britain as a whole; and to this extent the task is made easier, perhaps more so, because of the very close coöperation between the Ministry of Health for England and Wales and the Department of Health for Scotland. Nevertheless, any attempt to describe in the limited time at my disposal the changing scene in British public health must necessarily be confined to the broadest outline.

The present year of grace finds us, in Britain, celebrating the centenary of the appointment of the first Medical Officer of Health and, at the same time, standing on the threshold of great new developments in the organization and administration of our National Health Services. We believe that these two events are phases of the same evolutionary process of public health development in our country. A survey of the progress made in the intervening period has helped us to appreciate the philosophical and scientific background of our public health endeavor and to respect the strenuous efforts of the pioneers in preventive medicine. But it does more. It demonstrates the historical reasons for the gaps and deficiencies which exist in our present services and defines lines of approach toward future reorganization. By and large, our health problems have hitherto been tackled tactically rather than in accordance with a strategic plan, for the evolutionary movement began by the compulsion of events associated with the immense industrial developments of the 19th century. In these earlier days effort was mainly directed toward the lessening or, where possible, the removal of harmful environmental influences, the control of epidemic diseases, and the provision of medical attention through the Poor Law system for those unable to pay for it. Behind the advances there was a stimulus of social need although action was

governed by fear rather than philosophy or scientific principles. Moreover, priority of public health problems was determined by the force of public opinion. As the state of medical knowledge advanced, however, public health administration came to rest on a scientific basis.

The change from the approach to better public health through cleansing, drainage, and water purification, to the approach to positive health through social amelioration and preventive and curative medicine, is both a fascinating and an instructive story. It is too lengthy, however, to relate now. As an alternative I shall pick up the thread by attempting to describe where we now stand and to touch on what we hope to achieve in the future.

As I have already indicated, the main and obvious problems which were tackled first have been, in many cases, solved or alleviated. We have traveled far as regards measures designed to prevent certain contingencies such as the outbreaks of old-time plagues. Also we have recognized that conditions not bad enough to create epidemics are nevertheless conducive to inferior physical and mental development, or to the existence of actual disease or impaired health. Thus, housing was recognized as an important influence and the effect of poor housing bore heavily upon those predisposed to mental or physical disease. Likewise, nutrition, especially during the past decade or two, has been made the subject of intensive inquiry and research, with the result that feeding now aligns itself with and, in some respects, takes precedence of housing. But the worker spends much of his day in the factory or workshop; therefore, adverse conditions there have been constantly under review. The wide advances in industrial health bear witness to the resolution with which these problems are being tackled. Similarly, the school environment, in which the growing child spends so much of his time, has been

the subject of a continuous process of improvement for the past 40 years since the School Medical Service was established.

The curative medical services, however, have up till now largely operated independently without being in full and free coöperation with the social and environmental services. Curative medicine has dealt with the casualties but has not always searched for causes any further than in the pathological and bacteriological laboratories. It has been essentially individualistic and therefore has not had the opportunity to verify its findings on a broad statistical basis. Moreover, it has not had the opportunity to search for early departures from the normal where properly applied experience would have laid these probabilities open.

A near approach, however, to a linkage with the preventive services is to be found in our Highlands and Islands Scheme for providing general practitioner, specialist, nursing and ambulance services covering the sparsely populated northern districts of Scotland. These services, apart from bringing the necessary curative medical advice to "the crofters and those of similar economic circumstances," are closely interwoven with the preventive health services, such as School Medical Service, maternity and child welfare, of the local authorities. Again, in the case of the school child, medical inspection, with the detection and treatment of minor ailments, is applied to all school children receiving publicly provided education. The School Medical Service was the first scheme to bring the benefits of preventive medicine to a large group of the population, and to recognize that early diagnosis with early treatment is prevention.

The opportunities are now at hand for all the agencies concerned with health—social and personal, preventive and curative—to get into harness to-

gether. We in Britain are about to project new developments which we hope will go a long way toward that objective. The schemes of the past have been the spearpoint of the attack and they were directed to the most vulnerable, and probably the least regarded, sections of the community. Their operations have brought to light much evidence on which to base future action. They have provided, for example, statistical information on the well-being or otherwise of infants, preschool and school children; they have disclosed the difficulties and dangers of pregnancy and childbirth; while they have given us the yardstick with which to measure trends in health and physical development. But as to the adolescent, the population at working ages, and the aged, information is meager. It is true that a medical service has been provided, through the National Health Insurance Act, 1911, for the working age groups; but this covers only 44 per cent of the population.

In Scotland, for eight or nine years before the war, annual statistics were recorded and published of the incidence of incapacitating sickness of insured persons. These have been helpful pointers to health policy. But in fact, while the National Health Insurance Act provided a sound enough though incomplete scheme for medical care of the individual worker, its influence as an instrument of preventive medicine was less potent. The medical care of the non-insured adult was dependent upon private arrangements or, for those unable to pay privately, through the medium of the Poor Law. It is only fair to say that the Poor Law has for many years provided a reasonably satisfactory individual and hospital service for those who came under its care. Its service was restricted, however, by financial qualifications and it varied in efficiency according to the type of local authority. The Poor Law

as a means of succor for the sick, and indeed for the able-bodied, is now likely to pass into the limbo of forgotten things and to be replaced on the one hand by a National Health Service which will be available to everyone, and, on the other hand, by a system of national assistance for those who require material help.

A new outlook on long-term or chronic incapacity, sharpened by the influence of war, finds expression in the development of rehabilitation as an instrument of prevention. For many years—indeed, since World War I—orthopedists have given attention to the benefits it provides for the surgical cripple. Now more interest is being shown in its possibilities in general surgery and in general medicine. No longer can the medical or surgical worker remain satisfied if he has merely succeeded in postponing the event of death or guiding his patient through an acute illness into quiescence or chronicity. He must aim at rehabilitation. The patient must be returned to circulation as an active healthy worker or brought to as high a grade of fitness as possible.

The idea of rehabilitation is accepted, but to achieve its complete fulfillment involves coöperation with other government departments than the Health Department, and with industry itself. If a patient through a residual disability is prevented from returning to his normal occupation, steps must then be taken to fit him into another occupation so that he shall not fall into the scrap heap of the permanently useless and unfit. Therefore there is now on the Statute Book the Disabled Persons Act, 1944. This Act provides for the registration of all persons with a disability and it compels employers to employ a proportion of disabled persons. It enables the Ministry of Labour to give such training as may be necessary to fit a disabled person for a new job, and to provide sheltered occupation for those for whom industry can offer no opening. Reha-

bilitation applies to both medical and surgical cases. It is an essential part of preventive medicine in the future because it has become clear that the provision of a useful and satisfying occupation is one of the strongest psychological factors in maintaining and in regaining health.

The changing age constitution of the population, with the increased weighting of the older age groups, is directing more and more attention toward the care of the old people and of the chronic sick. It has been in this field of health effort that the old Poor Law system has made an important contribution. Within recent years a more enlightened view of the care of old people and the chronic sick has been evolving; and, at the present time, there is a stirring of the public health conscience concerning the previous neglect of those problems. All this is reflected in the increased interest by many organizations and the establishment of important research groups for the medical and social study of the aging population.

The mental services in the past shared with others the handicap of dealing only with well established diseases. Psychological medicine received a great impetus during the recent war, and the experience gained in both the grading and the assessment of mental aptitude and in treatment will, it is hoped, be translated into practice in civilian life. The influence of mental conditions on the causation or aggravation of bodily illness is now being scientifically investigated. The adverse effect of misfitting the man to the job is realized; and no doubt the newer methods of analysis will in time be used more and more in selection for employment. The boundaries between neurosis and disease of known structural pathological change are being explored and may lead to a clearer comprehension of many of the causes of disability and breakdown.

An almost intractable problem which

courses through our preventive and curative services, more intensive in the fields of tuberculosis, mental health, and chronic sick, is that of providing nurses. Recently a special group of investigators has inquired into this complex matter on behalf of the government, and their report* is awaited with intense interest by all concerned in the operation of the health services.

As regards the social provision against breakdown and accident, there have been enacted within the past year the National Insurance Act and the National Insurance (Industrial Injuries) Act. These two provide for insurance against sickness, unemployment, and injury.

Housing, of course, maintains its eminence as a public health problem, but economic factors are inhibiting progress. One recent development, however, is the advent of the New Towns Act which aims at the development of new areas rather than the extension of existing population overgrowths. In such an industrial country as ours—for example, in Scotland, four-fifths of the population live on one-quarter of the country's area—a spreading out of inhabitants is a prime public health measure.

The feeding of the nation during the war was, of course, the province of the Ministry of Food, and the activities of that ministry have succeeded in maintaining an equitable distribution of food among all classes. The distribution has been carried out with due attention to the qualities of the nutrients required and to the quantities needed by various sections of the community. Thus, the interests of the young and the factory worker, have been safeguarded. The expectant and nursing mother has had secured to her the food that she needs. This is an important social experiment and has brought nutrition into a prominent place in administration. Its reper-

cussions on health are apparent and no health policy in the future will neglect this most important subject.

Education has an important part to play. The young must be taught the rudiments of healthy living, and the schools have an important function in the health services in this respect. It is to them that we must look for the development of the correct attitude to health in the citizens of the future. The education authorities as well as the health departments have had laid upon them the duty of safeguarding the health and insuring the treatment of school children; so there is a double check on the welfare of this important population group.

Thus in the health field we have to consider the influence of several ministries, each of which has something important to contribute. The success or otherwise of their policies must be taken into full consideration in formulating future developments.

Apart from the environmental health services, we have at the moment organized personal services for the care of the young, the expectant mother, for certain diseases such as tuberculosis, infectious diseases, and a less organized service for cancer. Moreover, there is a partially organized service for health in industry and for curative medicine in hospital, and at home as regards the adult-working population. The aged and the chronic sick have been cared for to some extent and the other non-medical services which I have just mentioned, namely, social insurance and nutrition, have been developed.

But few, in Britain, will deny that our national health services have been developed in a piecemeal fashion. The new objective is to bring them together within a comprehensive health policy which takes into full consideration the changing medical outlook toward health and the prevention of disease and disability; the developing conception of

* Published September 11, 1947.

social medicine; the importance of psychological factors in disease; the close relationship between health and industrial efficiency; and the key position of health in any complete scheme of social security.

To achieve this objective an essential step is to train the personnel of the health services in accordance with the lines of that policy. Already a start has been made with medical students, undergraduate and postgraduate. The General Medical Council, the body charged with the responsibility for maintaining a satisfactory standard of medical education, has recently adjusted its educational program giving more attention to preventive medicine and to the social and psychological aspects of sickness and disability.

Now we are facing other developments designed to improve the existing services, to fill in the gaps and to keep a running audit of progress. The new National Health Service Acts—one for England and Wales and a separate one for Scotland—place on the Minister of Health for England and Wales and on the Secretary of State for Scotland the duty of providing a hospital and specialist service for all members of the community, also a general practitioner

or family doctor service including dentistry, home nursing, and other adjuncts. The duty still remains with local authorities to provide the services of preventive medicine and health education as well as the original environmental health services. The hospital and specialist services are to be operated through a different organization from the family doctor service. Thus, there are three separate administrative units to be built up and the problem will be to keep them in harmony with one another. The problem of their integration is, of course, a real one, but since the danger of separation is recognized the necessary administrative measures for securing unified action and coöperation are being taken. We believe that the proposals in these Acts represent a bold and purposeful step forward. As health administration can never be static and as experience of the new arrangements emerges, further advances may be anticipated in the course of time.

These remarks contain a brief and necessarily incomplete survey of the changing scene in British public health, yet they may serve to show how we are wrestling with the current problems and how we are endeavoring to face the future.

The Health Officer in Post-war Britain*

SIR ALLEN DALEY, M.D., F.R.C.P., D.P.H., K.H.P.

*Medical Officer of Health, County of London, England, and
President, Society of Medical Officers of Health*

WHILE we are celebrating here the 75th anniversary of your Association, I bring to you the greetings and cordial good wishes of the Society of Medical Officers of Health of Great Britain—an institution now 90 years old.

I believe that this country appointed health officers long before we did in Great Britain. In fact, it was only in 1847 that the first medical officer of health was appointed in England—Dr. Duncan, of Liverpool—and the second, appointed by the City of London in 1848, was the famous Dr. (afterward Sir John) Simon, whose writings will be well known to most of you.

I will not weary you with an account of the progressive development of the British Public Health Service. Suffice it to say that it was born to cope with cholera, smallpox, and typhus fevers, and with gross insanitary conditions. During the past forty years its activities have extended more and more into the field of the personal health services, and hospital care and management have been major responsibilities during recent years.

The Coalition Government produced a plan for integrating voluntary and municipal hospitals on the basis of a local government service. The volun-

tary hospitals would have retained their status but would have been subject to an overall plan as to uses and would have been heavily subsidized by public money. The new government brought out early in 1946 a revised scheme which has now been approved by Parliament and within a few months will be implemented. The basis of the scheme, as was that of the Coalition, is a comprehensive medical service free to all at the time of need, though the universal National Insurance Scheme with which it is linked requires weekly contributions from every family. The transfer from Insurance Funds will, however, meet only about a quarter of the total cost of the Health Scheme. There are three pillars of the scheme, but the medical officer of health has direct concern with only one of them.

The first pillar is the hospital and specialist service. At present the local authorities provide a hospital service but there are in most areas a number of voluntary hospitals as well. In London, the municipality provides over 70,000 hospital beds and the number of beds in voluntary hospitals occupied by Londoners is under 20,000. In the new scheme, all hospitals except those run for private profit, are to be taken over by the Central Government. This has certain advantages. Competition and rivalry between municipal and voluntary hospitals will disappear and there will no longer be vexatious limitations on the admission of patients which in a

* Presented before the Health Officers Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 8, 1947.

scheme based on local government must depend on where they happen to live.

It is also recognized that a comprehensive hospital service must be based on a large area. It is generally agreed that a population of some two million inhabitants at least is needed and, except for London and possibly Middlesex, no individual local authority area contains a sufficient population. The government has realized the risk of over-centralized bureaucratic control and has devised a system of decentralization which, so far, is unique in the administration of a public service. The country is divided for hospital purposes into fourteen regions. Each will be in charge of a regional hospital board nominated by the Minister from names suggested by the universities, the teaching hospitals, the doctors, the local authorities, and those now administering voluntary hospitals. They, in turn, will devolve the day-to-day management to local hospital management committees each responsible for about 1,000 beds in one hospital or in a group of hospitals.

Financial control must dominate the situation, and success or failure, contentment or discontentment of the staffs will depend largely on its looseness or tightness and how control is effected. The velvet glove is essential in a service such as this. All specialists will have a hospital attachment, and the regional hospital boards will be responsible for the specialist service which is, under the scheme, to be available for domiciliary consultations.

The taking of hospitals out of local government means that medical officers of health will lose their control of fever hospitals, which they have held since they were first built seventy to eighty years ago, and also of tuberculosis sanatoria, which they have had for over thirty years. It has also reversed the policy of the past twenty years, which has been directed toward building up all the local medical services under the

same administration, that is, the major local authority and its medical officer of health.

Another of the three pillars of the new service—the general practitioner service—never has been in the local public health departments except for the domiciliary treatment of the destitute sick under the Poor Law Acts. The new provision of a general practitioner service available for all is a natural development of medical benefit under the National Health Insurance system which started in 1913. The local administration of that service has been the responsibility of the local insurance committees. There is one for each major local authority and the local authority itself has a small representation upon it. The organized medical profession has always fought against domination or any form of control by local authorities and hence their insistence in 1912 that the local insurance committees, though covering the same areas, should be completely independent of the local health authority and, incidentally, of its medical officer of health. The medical profession has representatives on these insurance committees which receive advice, therefore, on medical matters from them. The new councils to be responsible for the general practitioner (and the dental) services are to cover, as did the insurance committees under the National Health Insurance Act, the same areas as those of the major health authorities, but the representation of the health authorities is to be strengthened, being one-third of the total. Unless, however, he is nominated to membership by his authority, the medical officer of health has no part in the work of these "executive councils." There is strong representation of the medical profession on these councils.

We now come to the third pillar. This is composed of the major health authorities, the counties and county boroughs renamed the local health authorities. The

local health authorities have many important duties in the new regime. Some are old duties, some new, and some which were formerly powers are now turned into duties.

At this stage I may point out that the new National Health Service Act makes no mention of the environmental health services—legislation concerning them remains unchanged. The duties of local health authorities are to provide a child welfare service (the Education Act of 1944 had placed on the major local authorities the duty of providing a school health service), a domiciliary midwifery service, a health visiting service, a home nursing service, an after-care service, and an ambulance service. Provision must also be made for immunization and vaccination. There is also power to provide a home help service. All the above, in some form or other, is a development of existing services. It is interesting to note that the methods to secure voluntary immunization against diphtheria have been so successful, and the laws for compulsory vaccination had been so weakened by the conscientious objection clause under which some 50 per cent sought and gained exemption, that the almost century-old Vaccination Acts have been repealed.

There is, however, one entirely new duty placed on the local health authority which may well be the seed from which a mighty tree will grow. This is the provision of health centers from which general practitioners will work in group practice. These centers are to be provided by the local health authorities, who will be responsible for the provision and maintenance of the fabric and for the non-medical personnel, including nurses and clerks. The doctors and dentists who work in these centers will, however, be employed and paid, not by the local health authorities, but by the executive councils. The conditions of service will be settled nationally by negotiation between the Ministry of Health

and the professions. The extent to which doctors and dentists will be willing to work in health centers rather than in their private surgeries is by no means clear, and a serious administrative problem arises as to exactly where new health centers, which obviously must be on an experimental basis, should be located. New housing estates, to which new doctors will have to be imported, are an obvious first choice, but otherwise there is a considerable element of doubt whether the existing local doctors who join the new service will wish to use them. Health centers cannot be built, or even adapted from existing buildings, in a trice, and it will need much administrative skill to insure that the doctors who wish to work in a health center have one available when and where they need it, and, *per contra*, if a health center is provided first, that the local doctors and dentists will use it. I should add that these health centers will, we hope, be associated closely with the various other activities of public health departments and contain within the curtilage or in adjoining buildings maternity and child welfare and school clinics of various sorts.

To sum up the past, the trend was definitely to make the medical officer of health the chief administrator of all the health and hospital services in his area. He was becoming less and less concerned with the environmental services—all that was reasonably necessary had been done or the work was passing to expert technical hands, e.g., housing clearance areas are being dealt with on the reports of surveyors on town planning grounds rather than on the reports of medical officers of health on health grounds, the collection and disposal of household refuse is rightly being transferred from health departments to the engineer or often to a separate department of its own. The medical officer of health is still, of course, the watch-dog over the purity of the water supply and

on prevention of river pollution, but he has no technical responsibility for the engineering side. Sanitary inspectors are more highly educated than they were and are pressing to have independent commands. While these environmental services were occupying less and less of the time of the medical officer, the personal health and the hospital services needed more and more of his attention.

Another trend must be noted and that is recognition of the fact that responsibility for the administration of public health services must be in the hands of authorities sufficiently large to assure the financial resources necessary to do the work properly. Further, the child health and the school health authorities should be the same. This is leading to a transfer of certain services from the smaller to the larger authorities. Demonstrations of local civic pride and much heart burning have been noted in some of the areas from which functions are being transferred.

To revert to the health officers of the large authorities, the medical officer of health of a county borough or a county council will not only have responsibility for the important services entrusted to the local health authorities, some of which have been already listed, but, as the Minister of Health has recently said, he will be the bridge which joins the other two parts of the service—hospitals and family doctor service—to the health service. Opinions differ widely as to whether or not it is a good thing to put the hospital and health services under separate administration and so reverse the trend of recent years. The main justifications for the separation have already been touched upon. Others are that the increasing cost of hospitals would cast a heavy burden on local finance, and the reluctance of voluntary hospitals and the specialists who work in them to be subject to local government control. The arguments against that

are that the health service depends on hospitals for much of its work, e.g., fever hospital beds, maternity beds, beds for cardiac rheumatism, and for the tuberculous. If the health officer could rely on getting his needs for hospital beds met on demand the question of which authority administered a hospital would not much matter, but as people who are hospital administrators now, we know that all demands cannot be met and the priorities given by a purely hospital administration if it has the last word may not be the same as would be given by a health officer controlling a hospital service. The answer to this may well be that the Ministry of Health and not the regional hospital boards will have the last word as to the disposal of beds, but intervention at this level would not be conducive to a happy relationship between the hospitals and the local health services.

Liaison committees of officers to try to solve the interlocking problems will, of course, be necessary, but the hard core of the matter is that the health officer will not be able, as he can now do, while he controls a hospital service, to *direct* that particular classes of patient must have priority in admission because it is of importance to the public health. A further point I may mention, which, no doubt, affects you too, is the increasing amount of time we have to spend in conferences and committees to the detriment of our executive and field work. As a result we have insufficient time for thought and calm reflection on matters of really high policy or on new projects for improving the public health.

The health officer of the future must have access to the basic facts of morbidity for his area if he is to do his job effectively. He now has information about mortality and about the notifiable infectious diseases, but he needs to know much more than that. He must have detailed information about the incidence of *all* the diseases which occur in his

area, and a vast field of research and of subsequent action would be opened if he had access to the records of the hospitals and of the general practitioners of his area. The new service for the first time gives an opportunity for this. But the health officer must have not just the gross figures for a large area. He must be in a position to have access to the *detailed* facts so that he can analyze them in such a way as is likely to lead to conclusions from which action can be taken. For example, it will not be of great value for him to know that rheumatic diseases, neuroses, chest or gastric complaints are unduly prevalent in his area as a whole. He must be able to find out whether the incidence is general or localized to particular districts, to particular types of housing, or to workers in particular factories.

I mention this, despite what I said earlier about the severance of the hospital from the public health side, because we will now have all hospitals in the same service and a general practitioner service which all, men, women, and children, are entitled to use and which the vast majority will use. I trust that by good will on the part of all, such coöperation as I have indicated will enable this important information to be available. I envisage that in the future the public health officer will be regarded as a friend and colleague by those working on the curative side. I remember the days when general practitioners were critical of the public health departments' clinic services. Those criticisms are now heard seldom, but one hopes they will disappear entirely when, for the great mass of people, payment will be on a capitation or salary basis and not on a fee per consultation or attendance. The general practitioner health centers should bring the general practitioners and the health officers working there into a close and amicable relationship such as has never existed before.

One more point I may mention, and that is the development of the social welfare side of public health work. This is becoming increasingly important and covers a wide range: rehabilitation after accidents and serious illness, the fitting of the tuberculous, the crippled, the blind, and the deaf into the community in such a way that they are not a burden to themselves or to the community or, at the worst, that they are the least possible burden, etc. Medical advice and guidance for the planning and administration of this type of scheme are essential, but a question arises as to whether the whole administration need be under medical control. Our Poor Law system, dating from Elizabethan times, is being broken up. The payment of cash benefits will go to the State but much welfare work will remain with the local authorities. Should it be in the public health departments or should a separate social welfare department, parallel to the public health department, be established? and if the latter, what should the line of demarcation be? The views of public health officers and of those now engaged in the Poor Law and social welfare departments may well differ on this matter.

I have indicated some of the problems about which we are thinking on the eve of a radical change in the British public health system. It is clear that new and enlarged spheres of work are unfolding and we must be prepared to grasp and develop them. One general principle which emerges from my presentation of the new scheme is to emphasize that under it the treatment of disease either by specialists or by general practitioners is to be outside the purview and responsibility of the health officer. It is argued by many that this is sound and that better preventive work will be done if the health officer concentrates all his energies on prevention. This may be so, but prevention of serious disease often means looking for the early case and get-

ting it treated in hospital or otherwise. The new conception of social medicine means instilling the idea of prevention of future breakdowns in health into the hospital staffs and general practitioners, and making them conscious of the importance of domestic, economic, industrial, and environmental factors. Are they more or less likely to absorb these ideas if the preventive side is under a separate authority? Time alone will show. It is perfectly certain, however, that with the relatively high cash benefits to be given under the new insurance scheme and with the ever rising costs of hospital treatment every effort will have to be made to prevent ill-health, and there is no doubt that the importance of the health officer will be increasingly recognized.

The scheme is a courageous attempt to provide a really comprehensive health and treatment service freely available to all. No doubt modifications and changes

will be needed as the result of experience. Medical officers of health have been critical of the scheme and some only of their criticisms have been met, but I can assure you that they will play their part ungrudgingly in what is both a conception on the grand scale and a great experiment. They believe that they have sufficient power and influence to insure that the preventive idea will eventually permeate the whole of the medical services of the country and that the triumphs of the past will be repeated in the future.

I have set out these various points because in every country there is a movement to provide, at varying speeds, a better public medical service, and the problems which in Britain confront us today may equally be yours in a few years' time. By then, we in Britain can tell you how our scheme has worked, what are its weaknesses and what is its strength.

Training of Sanitary Inspectors

The New York State-Rensselaer County Public Health Training Center at Troy is conducting a 12 week course for sanitary inspectors in coöperation with the U. S. Public Health Service. The course is designed as practical instruction for apprentice sanitary inspectors and as a refresher for qualified personnel. There are no tuition fees and the local health departments whose workers are being trained are expected to furnish transportation and maintenance for their workers in addition to

regular salaries. The course is limited to 12 workers from New York State local health departments.

Additional courses of about 15 persons are planned for May and September. For these courses about one-third of the students will be accepted from other states. For application forms and details apply to New York State-Rensselaer County Public Health Training Center, Rensselaer County Health Department, 7th Avenue and State St., Troy, N. Y.

The Coördination and Integration of the Public Health Program*

HENRY F. VAUGHAN, DR.P.H., F.A.P.H.A.

Dcan, School of Public Health, University of Michigan, Ann Arbor, Mich.

THE success of a public health program is largely dependent upon good team work engendered by all who participate in the promotion of personal health and the integration of the individual's well-being into the collective entity which we call public health. Many are the facets in the training and experience of the members of this public health team. We are not limited to representation from the official health agency but we serve the voluntary associations, the cultural and educational organizations, the physicians, dentists, and veterinarians in private practice, and, indeed, we represent large segments of the very public which we aim to serve. In spite of this diversification in our professional background which one finds reflected in opinions, attitudes, and patterns of approach to health matters, there is a common thread which binds together our interests in the field of public health. This bond which unites the members of the health department staff and impinges smartly on the responsibilities and functions of the medical health officer, the public health nurse, the health education specialist, the public health engineer, and veterinarian, is health education. Through health education, personal health becomes integrated into public health and the latent interest of the individual becomes the

effective participation of the masses.

Health is a living entity influencing the behavior and habits of those who must participate in its attainments if we are to enjoy maximum freedom from disease and accident. Society demands security against the unnecessary illnesses and accidents which impose physical and mental impediments upon people at every age and of every social and economic level, depriving them of the normal, useful, and gainful lives to which a free and democratic nation is entitled. Health is definitely a purchasable commodity, as essential to man's well-being as food, fuel, shelter and clothing. But health education is only a catalyzer which provokes and encourages personal and public participation.

Fundamentally, we must begin with a philosophy for our public health program and include in its structure those elements which make it a complete entity. Before we can coördinate and integrate the program, we must have sound basic data and factual information to serve as a foundation. Identification of such data for community health planning is provided by (1) morbidity and accident statistics, (2) mortality statistics, (3) birth, marriage, and population records, (4) special surveys, and (5) the official records of the health departments, visiting nurse associations, voluntary health agencies, the schools and other organizations. Accuracy in such statistical data provides a reliable and nutritious medium upon which to implant the careful analyses of our bio-

* Presented at a Joint Session of the Public Health Veterinarians and the Health Officers, Public Health Nursing, and Public Health Education Sections, of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 6, 1947.

statisticians from which we harvest plans which direct our programs in public health administration and health education. To operate such plans successfully and efficiently, we require health facilities which are available and within the financial reach of all people. Thus, we complete the fabric of our health program by including (1) basic data, (2) facilities, and (3) economic considerations, and by binding these together with (4) health education.

Let us examine for a moment some of the needed facilities. In order to provide full expression for the sanitary and medical programs and thus profit by the art of public health practice, there is needed for each local area within the United States a city, county, or district health department, organized on a whole-time basis and providing as a minimum the six basic health functions emphasized by Emerson¹—(1) vital statistics, (2) control of communicable disease, (3) environmental sanitation, (4) public health laboratory service, (5) infant and child health services, and (6) health education for the general public. Support for such a local health department will continue only if the health director develops a sound public appreciation of what the department is doing for its constituents. This confidence must be built around the department, upon all of the employees and their services, and not focused on the personal ambitions of the director or any other single member of the staff. When inquiry was made of a distinguished state health commissioner as to what he ascribed his long tenure of office, he replied promptly that it was due to his policy of developing a public appreciation of the work of his staff and coworkers that he had become recognized as the head of a state department which was giving adequate professional service to the people of his commonwealth.

Because of its professional character,

the health department like the department of education becomes one of the most expensive services of local government. The health director and the members of his staff should be among the best paid public officials. Unlike the usual run of political office seekers, these are highly trained and skilled professional men and women who have devoted years to specialized training and who undertake their responsibilities on a career basis. The health department needs should be expressed in the basic budget provided through the tax resources of the city, county, or district. To this basic budget there may be entered as a credit allotment from state and federal sources. However, a securely established local budget as a nucleus for the maintenance of the health department with promise of continued public support becomes the *sine qua non* of a good department. Return must be made on money that the public invests in the health service, returns in service, illness and accidents prevented, deaths postponed, health knowledge and understanding extended. Failure on the part of the health director to report appreciable service and results invariably means a shrinkage in appropriation and ultimately the disappearance of the health department itself. Team work in the dissemination of health knowledge by all professional members of the health department staff is the key to good service and adequacy in the health program. The physician, dentist, engineer, nurse, and health education specialist must work together on a coordinated program omitting no opportunity to stimulate public understanding and participation.

The Emerson report¹ recommends that "for a community of 50,000 persons there will be needed one full-time professionally trained and experienced medical officer of health, a full-time public health or sanitary engineer, and a sanitarian of non-professional grade,

ten public health nurses, one of whom would be of supervisory grade, and three persons for clerical work." It is further expected that part-time medical and dental assistance will be sought and that the state health department will provide certain consultant and advisory services in health education and other fields. For populations of larger size, proportionate increases in personnel will be required, with provision for other specialists in the medical, laboratory, dental, nutrition, and health education fields. These suggestions are intended to serve only as a guide for the average community and represent the bare minimum for acceptable practice.

In providing the staff for a local health department, one must give consideration to both quantity and quality of personnel. The various *Appraisal Forms* developed by the Committee on Administrative Practice of the American Public Health Association have emphasized quantity although quality has not been altogether overlooked. In the newer *Evaluation Schedule* an attempt has been made to emphasize both. They seem interdependent. The quantity of service is dependent upon (1) the extent and character of the problem, (2) the unit of time for the service, and (3) the frequency of service. Generally, only a complete local survey of the community can provide the answer regarding the extent of the problem. In this connection the *Evaluation Schedule* has been most helpful, and provides a standard for comparisons between communities and within the same area in point of time. The quality of service can be safeguarded by the establishment of standards for education and experience by the employing agencies. Standards suggested by the Committee on Professional Education of the American Public Health Association are increasingly used by civil service and other merit systems, and may well be made a condition of grants to local health units by

state health departments and the federal government.

In the health department there is no conflict between the interests of the health education specialist and the public health nurse. The former deals in broad community relationships and serves as staff adviser to the latter. The specialist, who should be basically trained in the biological sciences and education is (1) a member of a team working with the staff, (2) planning health education programs for all divisions of the department, (3) sharing skills and techniques, (4) assisting in staff education, (5) employing in her community program such tools as meetings, groups, radio, visual aids, newspapers, bulletins, etc., (6) integrating health education into programs of community agencies, (7) cooperating with physicians, dentists, veterinarians, and other professional groups, (8) cooperating with the schools, and (9) helping people in the community assume their responsibility in health matters. The principal tools are (a) the printed word, (b) the spoken word, and (c) visual education. The public health nurse carries the educational program more intimately into the household and by performance, aid, and demonstration activates the participation of those whose behavior it is intended to influence. And why limit this educational function to these two groups? It is the function of the health director himself, the specialist in environmental health, the clerk in the office, the telephone operator, and information clerk. And why limit ourselves to the health department personnel? Widen our facilities to include the representatives of the voluntary agencies, the physicians and dentists in private practice, the school teachers and, in fact, all groups which admit an interest in the furtherance of personal health and the conservation of public health.

Illnesses and accidents, hindrances to positive and wholesome health, con-

stitute a people's plague, and coöperation and participation of all is essential to the fulfillment of our health program. Coördination and integration must become embedded in the philosophy and actions of the public health team extending from the commissioner's office to every office and service in the de-

partment and reaching out to coöpt the latent resources of other groups, agencies, and individuals which can be harnessed to the goal of better health.

REFERENCE

1. Emerson, Haven, *Local Health Units for the Nation*, The Commonwealth Fund, 1945.

Training Resolution of the Association of State and Territorial Health Officers

The following resolution was adopted by the Association of State and Territorial Health Officers at its annual meeting in Washington in December:

WHEREAS, the Committee on Professional Education of the American Public Health Association, after considerable study, has set standards for certain technical and professional public health personnel, and whereas this committee plans to set standards for as many categories of public health positions as is practical, and

WHEREAS, schools of public health and other organizations are presently training a number of technical and professional public health personnel, and

WHEREAS, there is need for raising personnel standards in various health departments of the nation, be it

RESOLVED that the Association of State and Territorial Health Officers recognize the desirability of adherence to the standards for technical and professional public health personnel recommended by the Committee on Professional Education of the American Public Health Association by organizations employing public health personnel and the desirability that schools of public health and other organizations offering training in the field of public health aim their training programs towards these standards.

Graduate Training of Engineers in Public Health *

JOHN M. HENDERSON, C.E., F.A.P.H.A.

*Professor of Sanitary Science, Columbia University School of Public Health,
New York, N. Y.*

DURING the first third of this century, several diseases of insanitation were so prevalent in this country that the activities of health departments in environmental sanitation were confined largely to their control. Measured by sheer incidence, these may be considered as: the environmental enteric infections, malaria, and hookworm disease. The scope of control activities was narrowed still further by other forces. The enteric diseases were national in extent and thus received more attention than the regional problems even though at times these—malaria, hookworm, etc.—might have been greater. The attack against the enteric infections was further concentrated against those modes of transmission which were most amenable to control. The epidemic situation attracted more attention than the endemic, although the latter often was greater. The sanitation of cities took precedence over that of rural areas. The resultant effect was to give greatest prominence to the fields of municipal water and sewage, including their treatment aspects.

Another characteristic of past practice was the concentration of public health engineering services in state, rather than local, health departments. This still further encouraged the narrowing of

interest in sanitary matters and clinched the case for the water supply and sewerage fields. The scope of state services was confined largely not only to urban problems, but more particularly to those municipal utilities for which local managerial services were available. Moreover, the pattern of state office service encouraged specialization by the individual within these limited fields.

The character and scope of graduate training available to public health engineers during that period largely reflected these conditions. Since there was little distinction at first between the work of the engineer in the embryonic bureau of sanitation of the state health department and that of his colleague in private practice, training for public health engineering was accomplished by admitting the student to existing courses which had been designed for those preparing for private practice or research.

The nation-wide incidence of the environmental diseases cited has now fallen to a comparatively negligible level, due to the influence of sanitary and other public health activities, and economic, biologic, and sociologic change in various complex combinations. This near-disappearance of old enemies has been accompanied by the acquisition of new knowledge in the control of what were viewed formerly as lesser disease problems, by rising standards of living, and by increased public demand for governmental services in public health, including those leading toward the better-

* Presented before the Engineering Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 10, 1947.

ment of health and freedom from obnoxious nuisances. These and other factors have given impetus to expansion in local health service, both in geographic extent and in adequacy of service rendered.

The resultant effect on public health engineering has been twofold. First, present indications are that the majority of future openings for public health engineers will be in local health services—with cities, counties, and small districts. Second, the scope of public health engineering is broadening. The engineer in local health service is faced with problems in many fields, all possessing a nearly-equal level of significance. Many of these men also must possess ability in executive direction, planning, and administration.

In terms of graduate training, the need for more comprehensive instruction has been recognized in some quarters. One manifestation has been an expanded interest in field training for engineers as a supplement to graduate academic instruction. Recent steps by the U. S. Public Health Service toward the development of a number of regional field training centers are commendable. It is hoped that full advantage will be taken of these and other competently managed field facilities by engineers upon completion of their graduate academic studies.

In graduate academic training, the pattern of courses described in the recent report of the Committee on Professional Education (*A.J.P.H.*)¹ represents in outline the curriculum offered by those schools which recognize the need for comprehensive programs of study. In some, the indicated coverage of principles of public health, principles of sanitary science, and of applied engineering sciences, has been resolved into a curriculum which devotes half of one academic year to required subjects in sanitary science and public health, and the remaining half to a wide choice

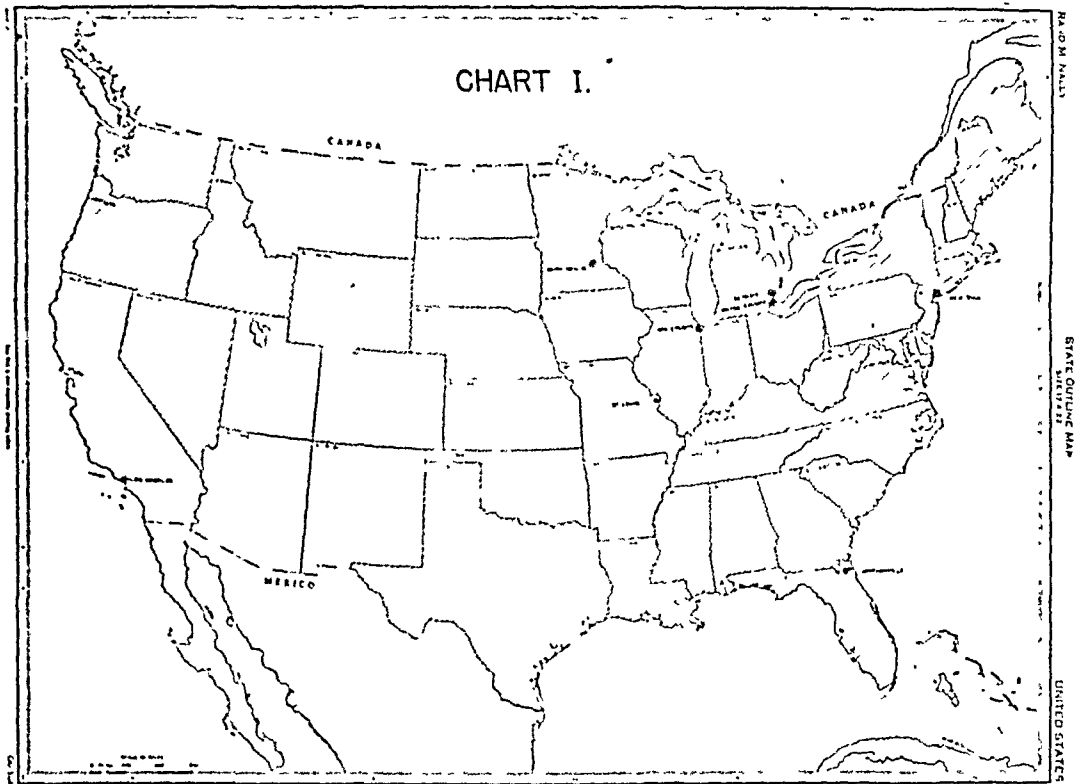
of advanced electives in sanitary fields.

In the design of such a curriculum, the opinions of supervising public health engineers attain special significance. These individuals, from experience acquired, should be qualified to indicate many of the graduate educational needs of subordinate personnel, and to evaluate the quality of such training by observation of the finished product. The opinions of members of this group may well be the most significant single consideration among the many which enter into curriculum design. This applies most particularly to optional programs of advanced study in the second half of the year.

In the fall of 1946, a request for opinion as to the importance of specified subjects was mailed by the author to the state health department directors of engineering bureaus or divisions of sanitation, and to the engineer-directors of 14 principal city or city-county health departments. The limited number of directors with local health departments who were circularized was due to decision to restrict the poll to those engineers who were known to be supervising other engineers and thus were in a position to make a more objective, and perhaps more complete, appraisal than personal experience alone might permit.

Replies were received from 23 state health departments and 8 local health departments. Submissions from many states represented the joint opinions of several senior members of the bureau or division. A majority had narrative comments appended; these were as significant as the completed forms. As will be seen from Chart I, a representative geographic distribution was obtained.

In order to collect more revealing data, many fields of sanitation and other subjects were subdivided into components; thus Milk Sanitation consisted of 8 line items, but it was explained that these would not constitute separate



subjects in the curriculum. In general, subjects of oldest standing in academic curricula were not subdivided to the same degree as were newer ones, since the former were more simply classifiable into commonly recognized elements. This procedure resulted in 89 line items, grouped into 16 sections. A sample of the form is shown in Chart II.

Aside from the minimum requirement of a B.S. degree in engineering, no other eligibility standards were set forth for the student for whom the course was to be designed. Additional specifications were deliberately omitted in view of the diversity of educational qualifications and experience possessed by students accepted for graduate training by different schools. The primary categories include the baccalaureate degree holder in engineering without public health experience, those with at least 3 years of experience as well, and those who also possess a previous graduate degree, with or without experience.

The replies received were summarized by several statistical procedures, and the remainder of this article is devoted to the presentation and discussion of results obtained under the main column heading *Importance in Curriculum* (see Chart II).

The popularity of line items was first measured by recording only votes posted in the sub-column *Essential*. Votes under the 4 sub-headings *Essential*, *Important*, *Desirable* and *Unimportant* were then weighted in the order 5, 3, 1, and 0, and the results for each line item were consolidated into a single score. Further weighting of these last results was then made for size of organization represented by the respondent, with weights of unity and 2 assigned respectively to organizations with under 10, and with 10 and over, engineers. Accordingly, 3 sets of results were obtained. When these were compared, a few minor differences in the popularity position of some line items were noted but, in gen-

CHART II

REQUEST FOR OPINION
ON
GRADUATE ACADEMIC TRAINING
OR
PUBLIC HEALTH ENGINEERS

Subject	Importance in Curriculum				Intensity of Instruction		
	Ess	Imp	Des	Unimp	Thor	Sup	None
General							
General Subjects							
Applied Public Health Education							
Elementary Bacteriology							
Elementary Biology							
Elementary Biostatistics							
Elementary Parasitology							
General Epidemiology							
Municipal Gov't & Finance							
Organic Chemistry							
.....

Explanation of Abbreviations: Ess = Essential Des = Desirable
Imp = Important Unimp = Unimportant

eral, close agreement existed between the 3 sets of results. For this reason, data from only the middle procedure—*Weighting According to Degree of Essentiality*, are presented in the remainder of this article. These have been converted to a percentage scale, with 100 representing the highest possible score.

COMPARISON BETWEEN BASIC SCIENCE, APPLIED THEORETICAL, AND APPLIED TECHNICAL SUBJECTS

For simplification, this comparison

ignores several other classes of subjects.

In general, the trend of responses was away from applied theory, i.e., intermediate subjects, toward the poles of basic science and practice.

This can be illustrated by comparing the most popular basic science course (bacteriology) with certain water supply subjects, since this was the most popular field of sanitation. The basic science subject of *Elementary Bacteriology* and the applied technico-administrative subject of *Public Health Super-*

vision and Inspection of Water Supply Systems were tied for first place, with a score of 96 per cent. By contrast, the intermediate subjects of *Review of Water Treatment Plant Design* and of *Water Laboratory in Sanitary Chemistry* were in 6th and 9th places, with scores of 79 per cent and 73 per cent.

The total number of 89 line items reduced themselves to 49 positions of rank, due to numerous tied scores, with the median position of 25 having a score of 55 per cent. While *Elementary Bacteriology* had a higher position than any other so-called basic science course, others ranked favorably. *General Epidemiology*, which many consider a basic science in the applied profession of public health, was in 13th place, with a score of 70 per cent. *Applied Epidemiology of Milk-borne Diseases* was 17th, with a score of 63 per cent. *Elementary Biology*, *Applied Elementary Entomology of Disease Transmitting Insects* and *Epidemiology of Murine Typhus* were at or slightly above the median, as was also *Hydrology*. *Elementary Parasitology* was slightly below the median. Although several of these subjects are

applied in character, they possess a basic science significance when considered in a curriculum for public health engineers.

COMPARISON BETWEEN FIELDS OF SANITATION

The order of popularity of 17 fields of sanitation is shown in Table 1. This was determined by selecting the most popular line item subject in each field and assigning its position of rank to the field in which it belonged. The number of fields of sanitation as conventionally recognized is expanded; in part because the subjects Rural Sanitation and Plumbing were given separate status due to difficulty of placement.

MOST POPULAR SUBJECTS

In Table 2 are listed the 20 most popular subjects in order of position. As mentioned previously, some of these are elements rather than course entities.

COMPARISON BETWEEN STATE AND LOCAL RESPONSES

Due to the small size of the "Local Health Department" sample (8 replies),

TABLE 1
Comparison Between Fields of Sanitation

Field	Rank	Score, Per cent	Field	Rank	Score, Per cent
Water,	1	96	Food (other than Milk and Shellfish)	9	71
Rural Sanitation	2	87	Excreta Sanitation	10	66
Sewerage and Sewage Treatment	3	84	Garbage and Refuse	11	61
Rodent Control	4	83	General Insect Control	12	59
Milk	5	74	Industrial Hygiene	13	55
Plumbing	6	73	Mosquito Control	14	53
Swimming Pools and Bathing Places	7	72	Air Sanitation	15	51
Stream Pollution	8	72	Housing	16	33
			Shellfish	17	33

TABLE 2
Twenty Most Popular Subjects by Order of Rank

- | | |
|--|---|
| 1. Elementary Bacteriology | 9. Plumbing |
| 1. Water Supply Systems — P. H. Supervision of | 9. Water Lab. — San. Chem. |
| 2. Rural Sanitation | 10. Industrial Wastes — Prin. of Disposal and Treatment |
| 3. Sewage — Review of Treat. and Disp. Practices | 10. Swimming Pools — Stds., Practices and Epid. |
| 4. Rat Proofing — Princ. and Prac. | 10. Pasteurization — Op. Prac. |
| 5. Sewage Treat. — Op. Prac. | 11. Insp. Food Handling Estab. |
| 6. Sewage Treat. — Review of Design | 12. Stream Pollution Surveys — Procedures and Eval. |
| 6. Water Treat. — Review of Design | 13. Insp. Food Producing Estab. |
| 7. Water Treat. — Op. Practices | 14. Excreta-borne Disease Control — Special San. Measures for D. and E. |
| 8. Milk Plant San. — Princ. and Prac. | |
| 8. Sewage Lab. | |

TABLE 3

Comparison of Responses by States and Cities

States		Cities	
Subject	Score, Per cent	Subject	Score, Per cent
1. P. H. Super. and Insp. Water	94	1. P. H. Super. and Insp. Water	100
2. Element. Bacteriology	90	2. Element. Bacteriology	90
3. Oper. Prob. — Sewage Treatment Plants	88	3. Rural Sanitation	90
4. Rat Stoppage	88	4. Swim. Pool San. — Disease Transmission	84
5. Water Treat. — Review of Design	88	5. Food Handling Estab.	80
6. Sewage Treat. — Review of Design	86	6. P. H. Administration	80
7. Sewage Treat. — Op. Prac.	86	7. General Epidemiology	78
8. Rural Sanitation	86	8. App. Epid. Food-borne Diseases	76
9. Water Treat. — Op. Practices	86	9. Food Producing Estab.	76
10. Sewage Lab.	82	10. Plumbing	76
11. Water Lab.	82	11. Princ. Prac. Milk Pl. San.	76
12. Princ. Prac. Milk Pl. San.	76	12. Munic. Gov't and Finance	74
13. Industrial Waste Treat.	76	13. Adm. Asp. Milk Shed San.	72
14. Stream Poll'n Surveys	76	14. Past. Plants — Op. Prac.	72
15. Water Bact. Lab'y	76	15. Diarrhea and Enteritis	70
16. Plumbing	72	16. Rat Stoppage	70
17. Past. Plants — Op. Prac.	72	17. Rev. Sewage Treat. Prac.	70
18. Water Supply Systems	70	18. Swimming Pool Des.	70
19. General Epidemiology	68	19. App. Epid. Murine Typhus	68
20. Insp. Food Handl. Estab.	68	20. Elementary Biology	66
21. Stream Poll'n Lab'y	68	21. Pres. Tech. Subjects	66
22. Swim. Pool Epi.	68	22. Adm. Asp. Gen. Insect Con.	64

results may not be fully significant. Furthermore, rural areas were not represented; the responding units consisting of large cities or city-county departments in congested metropolitan areas. Table 3 lists the 20 most popular subjects, tabulated separately for state and local responses. (Twenty-two are listed, because 3 subjects are tied for 20th place).

The outstanding differences between the two lists are the greater spread of subject content, and the greater interest in administrative and so-called "public health" subjects, demonstrated by the local respondents. Considering the upper half of Table 3 first, *i.e.*, the first 11 subjects, 8 subjects in the *State* list are in the fields of water and sewerage. Four of these are in design and laboratory phases. Only 4 general classifications are represented—*water, sewerage, basic science, and rodent control*—as compared with 6 in the *Local* list—*basic science, water, bathing, food, milk, and basic public health*.

The number of *water* and *sewer-*

age courses is reduced from 8 to 1 in the *Local* list. Three so-called public health courses are in the *Local* list, but none in the *State* list. These are: *General Epidemiology, Epidemiology of Food-borne Diseases* and *Public Health Administration*. The most popular field of sanitation in the *Local* list is *Food Sanitation*, which placed 3 subject elements in the first 11 items.

The differences cited above do not change appreciably when the entire 22 items are compared. The *Local* list is more comprehensive, more concerned with administration, epidemiologic principles, basic science and operating practices and less concerned with design and laboratory courses, even where these are of a review character.

Superficially, the marked differences in the two lists is surprising, since a letter accompanying the form requested its completion on a basis of training needs for all public health engineers supervised by the reporting office. Hence, state office reports presumably included the needs of many local engineers and

of district engineers engaged in local types of service. The principal explanation appears to be that many states even today do not yet have a fully developed program of local health service, while local populations in some others are too small to warrant establishing local engineering positions in significant numbers.

Which of the two lists offers the more fundamental training rests on the personal opinion, and in some cases prejudices, of the individual. It is apparent however, that state opinion tends toward the technician and the specialist, while local opinion favors training engineers to be technical administrators. That this division of opinion is far from being clear-cut however, may be illustrated by the following comment from

one respondent who has directed a state bureau of engineering for the past 25 years:

"I think the right track is to endeavor to develop a course more suitable for the rank and file of public health engineers. I believe these men should have a broader training in general public health activities rather than too much specialization in a few phases of the profession. It has been my observation that certain men should have specialized training who will be on specialized phases of activities, but that the majority of the men in the average health department will be required to cover more than one field of activity. Particularly is this true of those men who will go into local health services."

REFERENCE

1. Proposed Report on the Educational Qualifications of Public Health Engineers, Committee on Professional Education. *A J P H.*, 37, 134-40 (Jan.), 1947. (Adopted by Governing Council, March 1, 1947)

Cutter Lecture at Harvard

The Harvard School of Public Health announces that William N. Pickles, M.D., Medical Officer of Health, Aysgarth Rural District, Yorkshire, England, will deliver the Cutter Lecture on Preventive Medicine. April 12, 1948, 5 p.m. in Amphitheatre D of the Harvard Medical School. His subject will be "Epidemiology in Country Practice."

The Cutter Lectures have been held since 1912, according to the terms of the will of Dr. John Clarence Cutter, of the class of 1877, which directed that they should be "free to the medical profession and to the press." In addition, medical and public health students and others interested are cordially invited to attend.

Bacteriological Studies of the Fort Loudoun Reservoir*

ROBERT N. CLARK, F.A.P.H.A., AND
F. W. KITTRELL, F.A.P.H.A.

Tennessee Valley Authority, Chattanooga, Tenn.

FORT Loudoun Reservoir is one of the nine TVA reservoirs in the main channel of the Tennessee River. It extends from Fort Loudoun Dam at river mile 602.3 to a point above Knoxville, the limits of which extend from mile 641 to 651. The accessibility of the reservoir to a large population center emphasizes its potentialities as a recreation area, so when a general study was made of the quality of the water in the reservoir, particular attention was given to bacteriological investigations. The present discussion deals almost solely with an analysis of the factors which influence the density of coliform organisms, and consequently which affect the suitability of water in different parts of the reservoir for bathing.

It is important to understand that the Tennessee River is formed by the confluence of the Holston and French Broad Rivers, immediately above Knoxville, and that there is a deep storage reservoir on each of these two tributaries impounded by Cherokee Dam 52 miles above the mouth of the Holston, and Douglas Dam 32 miles above the mouth of the French Broad. During the bathing season the water passing both of these dams is drawn from the bottoms of the reservoirs through the turbines and is consequently very cold.

Cherokee and Douglas Reservoirs provide storage capacity enough to protect the streams below the dams from the effects of upstream pollution. Below Cherokee Dam, the Holston River receives septic tank effluent from a sewered population of 2,500 at Mascot, Tenn., and raw sewage from the Burlington section of Knoxville, with a sewered population of 5,300. Below Douglas Dam, the French Broad River receives raw sewage through the Little Pigeon River from Sevierville, Tenn., with a sewered population of 460. At Knoxville, raw sewage is discharged into the reservoir from a population, exclusive of the Burlington section, of 86,800. The effluent of a primary sewage treatment plant from Maryville, with a sewered population of 5,800, and the effluent from a secondary treatment plant at Alcoa with a sewered population of 4,600, enter the reservoir through Pistol Creek and Little River. All sewered population data are of 1940, and the loads were doubtless greater in 1944 when the reservoir study was made.

Sampling stations were chosen with two purposes in mind, first to reveal the quality of water adjacent to potential swimming areas, second to show the course of bacterial pollution in the main channel of the reservoir. Accordingly, 21 stations were chosen along the shoreline, some on the main reservoir and some on embayments, and 14 stations were established in the main channel. Three of the latter were above Knox-

* Presented at a Joint Session of the Conference of Municipal Public Health Engineers and the Engineering Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 6, 1947.

ville, 2 were within the city limits, and the remaining 9 were spaced at intervals of about 5 miles downstream to Fort Loudoun Dam. Sample collections were made by boat. The swimming area samples were all collected from a single point at the surface. Main channel samples were collected at 3 points equally spaced across the reservoir. From June 28 to July 19, all channel samples were taken from the surface, and from then until October 2 all channel stations were sampled at mid-depth. Surface samples were collected in sterile bottles at a depth of 4 to 6 inches below the surface, with a forward scooping motion. Depth samples were collected in a device that permitted opening and closing the sample bottle at any desired depth. All samples were iced from the time of collection until delivery to the laboratory. The maximum time between sample collection and the start of bacteriological examination rarely exceeded 6 hours.

Laboratory examinations were made in accordance with *Standard Methods for the Examination of Water and Sewage*. Four tubes of each of at least 4 dilutions were inoculated in lactose broth. The presumptive tests were confirmed by transfer to brilliant green bile tubes from all 4 lactose tubes of the highest dilution in which all tubes showed gas, plus any tubes in higher dilutions showing gas. The three samples from the quarter points of each channel station were composited in equal portions in the laboratory, and examination was made of the composite sample.

An essential part of the study was the correlation of hydraulic data with the sampling schedules. Times of water travel between stations were computed from observations of stream discharge and channel measurements, with due consideration of stratification, temperature, and reservoir operation, as well as the effect of other natural phenomena, and the times were field-checked by

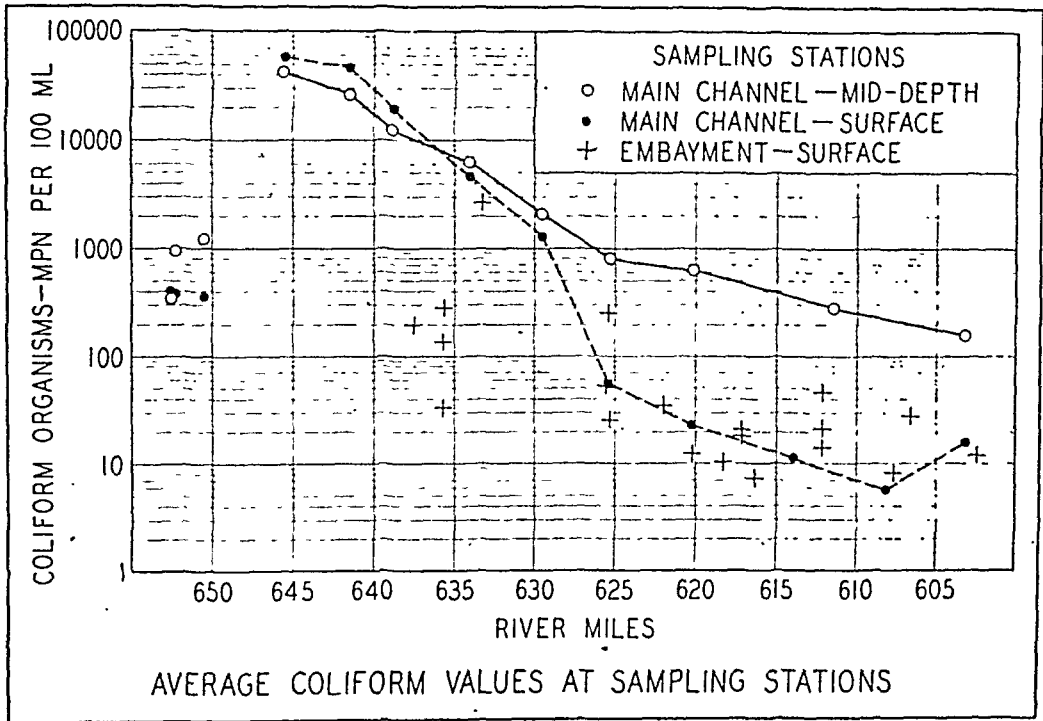
chemical methods. Stream discharge data and reservoir elevations were secured from records of the TVA and Water Resources Branch of the Geological Survey.

Valuable information on raw water temperatures and the densities of coliform organisms in the water above Knoxville, compiled daily and extending over a period of two years, was secured from the operation reports of the Williams Creek Filtration Plant of the Knoxville Electric Power and Water Board. Records prior to 1943 were not used, since impoundage of Douglas Reservoir in February and March, 1943, caused a marked reduction in the numbers of coliform organisms contributed by the French Broad River.

The principal factors to be considered in an analysis of coliform densities at various points in a river are the total number of organisms reaching the stream, the rate at which such organisms are reduced, and the time of water travel between the points in question. Other elements to be considered in Fort Loudoun Reservoir are variations at different points in a single cross-section, effects of side pollution, rainfall, wave action, density currents, and diffusion in embayments, and stratification.

The concentration of coliform organisms at river mile 645.5, which is about 1.7 miles below the center of gravity of sewage discharge from Knoxville, depends upon the number of organisms in the water above Knoxville, the number of organisms contributed by Knoxville sewage, and the dilution afforded by the river discharge. Records of the water plant were investigated for the May through September periods of 1943 and 1944, and the data obtained were correlated with stream discharge data. It was found that the total number of organisms carried past the water works intake each day was almost constant. Assuming a constant daily contribution from Knoxville sewage, this means that

FIGURE 1—Average Coliform Values at Sampling Stations



for practical purposes the total number of coliforms passing mile 645.5 may be considered constant, and the coliform density may be considered inversely proportional to the river discharge. It was found that the average number of coliforms in the river above Knoxville was 0.228×10^{15} , and at mile 645.5 it was 7.563×10^{15} .

A comparison was made of observed data on coliform densities in main channel samples between those collected at the surface and those at mid-depth, also with surface samples collected along the shore and in embayments. This comparison is shown in Figure 1. Sampling points in embayments are plotted against the river mile at the mouth of the embayment. On this figure, the coliform values obtained on samples other than from the river channel indicate consistently low concentrations. In only one case the MPN per 100 ml. exceed 300, and that was a point

at mile 633.3 on the exposed right bank of the main river.

An analysis of the two curves plotted for surface samples and for mid-depth samples from the channel stations reveals an important relationship. From Knoxville downstream to about mile 630, the coliform densities at the surface and at mid-depth are in quite close agreement. Below this point, however, there occurs a sudden and wide divergence with a much lower density of organisms at the surface than at mid-depth. This is explained by stratification in the reservoir. An idealized diagram of this condition is shown in Figure 2. It has been noted previously that releases from Cherokee and Douglas Reservoirs are at very low temperatures, and during the summer when surface temperatures in Fort Loudoun Reservoir are comparatively high, the denser cold water flows along the bottom, leaving the surface stratum relatively undis-

turbed. During the period from May through July, the temperature difference between the epilimnion and the hypolimnion remained fairly constant at about 8°C . In August, the difference dropped to about 5°C . and in September to about 2°C . There was a definite tendency in the stratified section for coliform densities at the surface to exceed average values during the latter part of August and in September. This may have been due in part to wind action, since available records indicate more wind movement during this period. It is believed that the lower temperature differentials, which reduce the sharpness of stratifications, were responsible for most of the observed tendency.

Numerous field observations revealed that during the summer the cold water from upstream occupies the entire cross-section of the reservoir at Knoxville and for a variable distance downstream. Under various combinations of density and discharge, the flowing water does not require the entire cross-section of the

channel near the lower end of the reservoir, and leaves the surface stratum undisturbed. Increased discharge rates cause the flowing water to occupy correspondingly larger portions of the cross-section and, in effect, force the upper end of the zone of stratification downstream. A decrease in the temperature differential between the surface and bottom has an equivalent effect. As these factors vary, the quiescent, and relatively unpolluted epilimnion may expand, contract, or disappear altogether. It is estimated that with the temperature differentials prevailing during the summer, the epilimnion will be completely eliminated by discharges in May through July of 28,000 cubic feet per second (c.f.s.), in August of 24,000 c.f.s., and in September of 17,000 c.f.s.

By similar analysis, the location of the upper end of the stratified section can be estimated for any condition of discharge and temperature. It may be expected that the coliform densities in surface samples collected upstream from

FIGURE 2—Diagram of Stratification

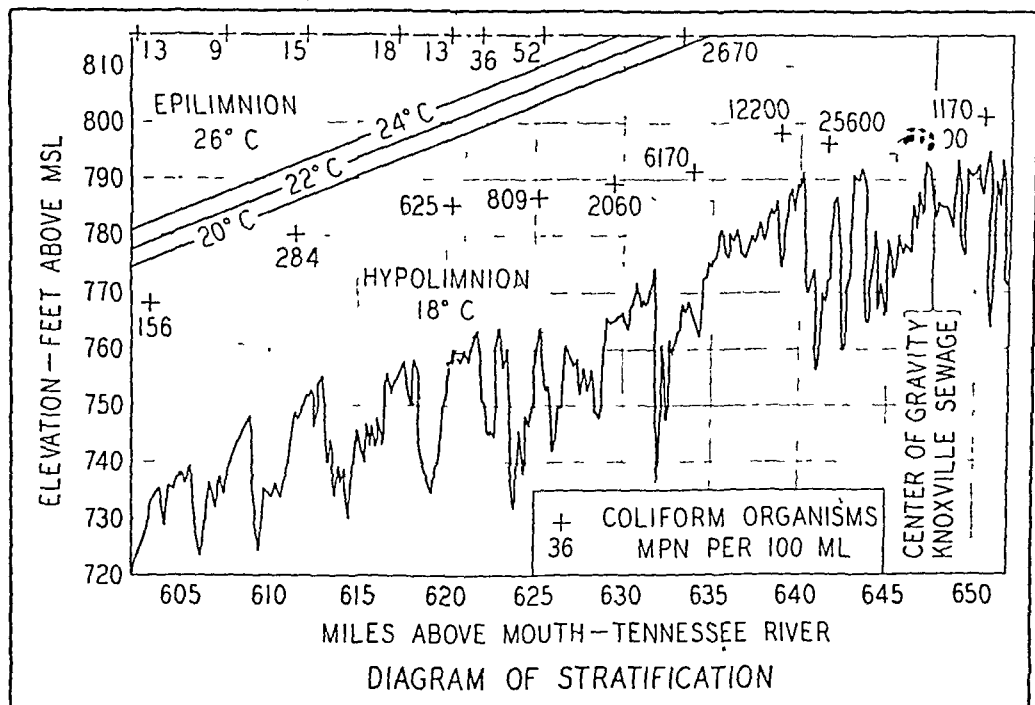
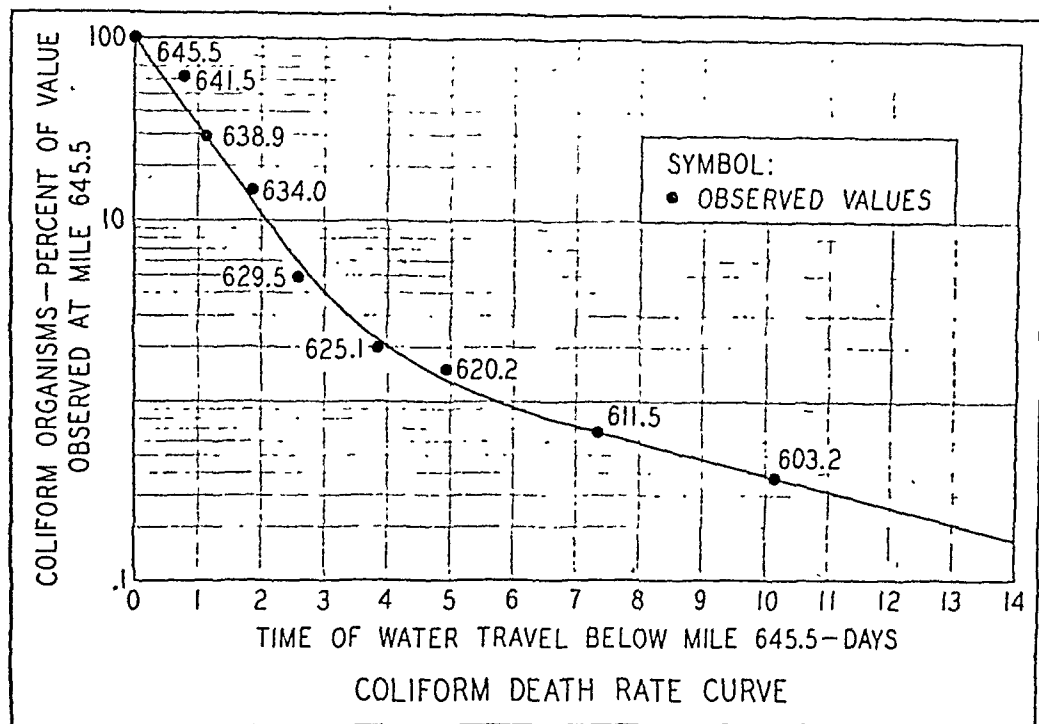


FIGURE 3—Coliform Organism Death Rate Curve



the stratified zone will be of the same order as samples collected at mid-depth, but that surface samples collected from points downstream from the upper limit of the stratified zone will be from the epilimnion, and will be less polluted than mid-depth samples.

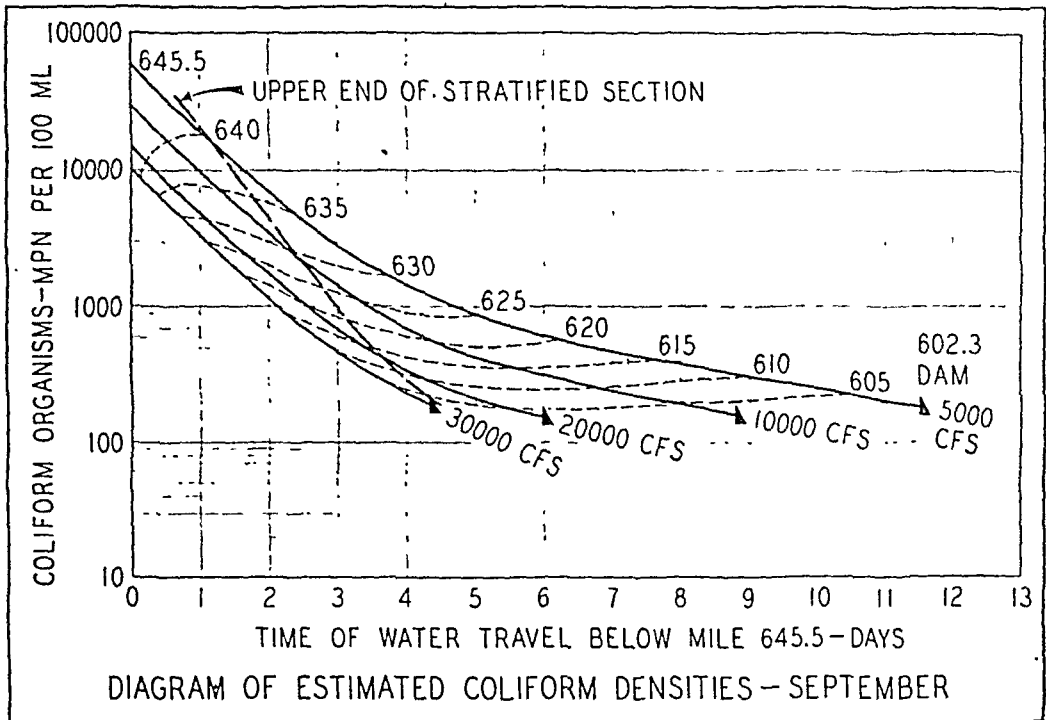
An investigation was made of the death rates of coliform organisms using the method described by Frost and Streeter¹ applied to the data obtained on mid-depth samples. The times of water travel were computed for each sampling date and each sampling station by the Hydraulic Data Division of the TVA, and are believed to be unusually accurate for a study of this kind. Data on average coliform densities were reduced to percentages of the value at mile 645.5, and these percentages were plotted against time as indicated in Figure 3. The theoretical formula was computed as $y = 96.8 (10^{-0.5158x}) + 3.20 (10^{-0.0912x})$. Using the derived formula, the expected coliform density after

any given period can be computed as water travels downstream from Knoxville.

An evaluation of these factors, namely, total coliform load, time of water travel, discharge, and position of the upstream limit of the stratified section, is shown in Figure 4, in which coliform densities, estimated from death rate formulae, are plotted against time of water travel for several river discharge rates. Also plotted, in dotted lines, are the river miles corresponding to given time of water travel for each discharge rate below mile 645.5. Finally, the location of the upper end of the stratified section is plotted for each rate of stream discharge. From this and similar charts prepared for other months, it is possible to estimate the probable coliform density at any point in the moving water in the main river channel for various discharges and temperature differentials.

Some study was made of observations

FIGURE 4—Diagram of Estimated Coliform Densities, September



on embayment stations to determine what correlations might exist between coliform numbers and distances away from the main river channel. It was found that above the limits of the stratified zone, all embayment samples showed significantly lower coliform numbers than were found in the channel. In the stratified zone, the coliform densities at the surface were about the same in the epilimnion and in the embayment, with a definite trend toward higher numbers at stations more distant from the channel. This may be due to the increasing effect of shore pollution as the cross-section of the embayment decreases toward its head, or it is more likely due to the effect of density currents. Such currents were not measured during this study, but have been observed under similar conditions to flow up an embayment on the bottom and down the embayment in a surface counter-current. The phenomenon is

due to surface warming, with consequent changes in water density.

The effect of rainfall and surface wash was also examined by grouping data by ranges in rainfall of 0.1 to 0.30, 0.31 to 0.60, and over 0.60 inch, and also by the number of days the sampling dates followed rainfall. No effect was observed from rainstorms of 0.60 or less; but, following higher rainfalls, the coliform values exceeded the average on the day of precipitation and for one day following. These conclusions are based on a summary of data from all stations, since the data available from a single station were not adequate to justify a correlation. One storm of unusual magnitude occurred at the end of September throughout the reservoir drainage area. Seven rain-gage stations in the vicinity of the reservoir reported total rainfalls for the two day storm ranging from 5.14 to 8.80 inches, with an average for the seven stations of 6.56

inches. On October 2, two days after the storm, samples were collected from several stations, and the coliform densities are shown in Figure 5 where the results of this one sampling are plotted, with the average of samples collected on all other days. All of the results shown in this figure are on samples collected from embayment stations. The possibility was investigated that factors other than run-off, such as disturbance of stratification, may have exerted an influence on these results, but it was concluded that the abnormal run-off was the principal cause of the excessively high values. This incident is recognized as an example of the degree of pollution to which even the best of surface waters occasionally may be subjected.

One of the reasons for undertaking the bacteriological study of Fort Loudoun Reservoir was to assess the effect of Knoxville sewage on potential bathing areas. Since the pollution is clearly of sewage origin, the Tennessee Department of Public Health will not approve

the development of public bathing facilities in the reservoir unless the most probable number (MPN) of coliform organisms per 100 ml. is 50 or less, in keeping with the definition of Class A bathing waters accepted by the seven Tennessee Valley states. A study of the probability of river discharges of certain magnitudes reveals that MPN's greater than the allowed maximum will occur frequently during the season from May through September; and, consequently, the Class A standard cannot be met with certainty at any point in the reservoir during the bathing season. Under existing conditions, therefore, no public bathing developments can be permitted or approved.

Aside from the recreational aspect, the Fort Loudoun study provides an interesting evaluation of the self-purification capacity of a large reservoir as it affects the bacteriological quality of the water. Such data are useful in estimating the effect of treatment or, conversely, the degree of sewage treatment required

FIGURE 5—Effect of Severe Rainstorm on Coliform Numbers

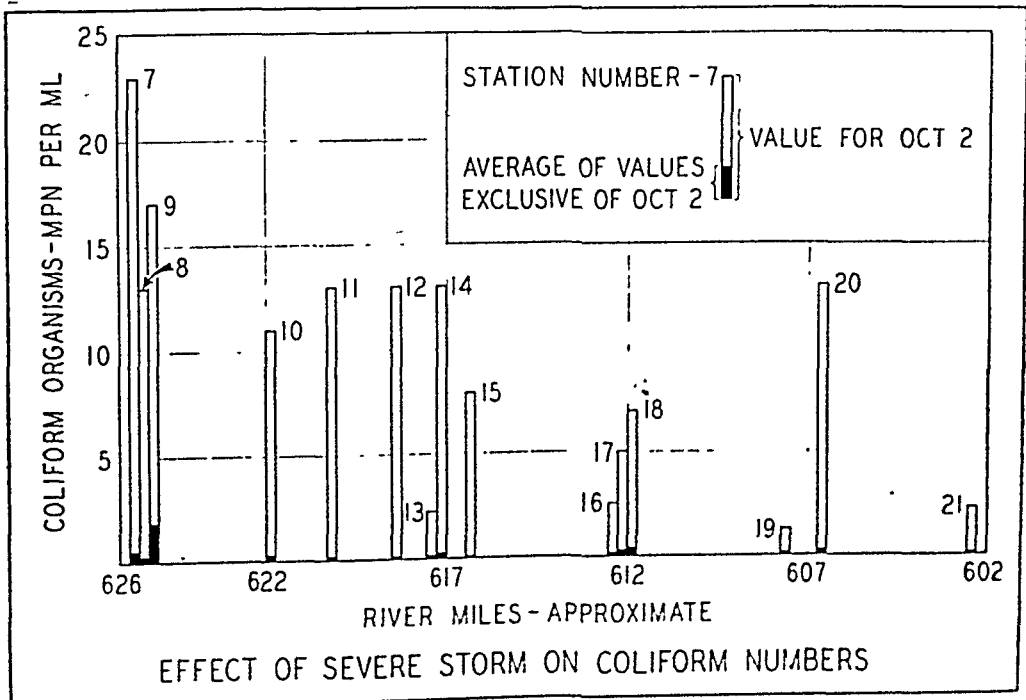
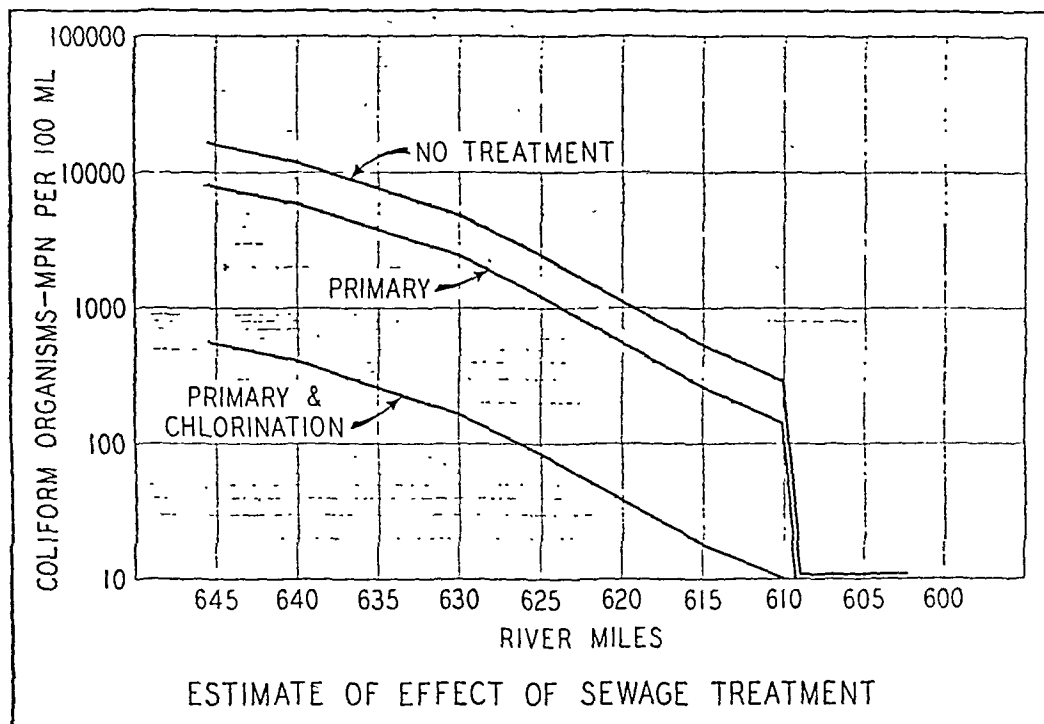


FIGURE 6—Estimate of Effect of Sewage Treatment



under a given set of conditions. At the present time, the City of Knoxville is planning sewage treatment works and has engaged consulting engineers to design the necessary facilities. An estimate of the possible effect of treatment on the bacterial quality of the water below Knoxville is shown in Figure 6. In order to present the conditions which would obtain for a large share of the time, the chart has been prepared for flows which probably will not be exceeded more than 5 per cent of the time during the month of August. This month has been chosen, since the stream flow conditions and the probability of high flows during August are generally typical of the conditions throughout the summer. The estimated effect of treatment is based on a reduction in coliform organisms of 50 per cent for primary treatment, and 98 per cent for primary treatment and chlorination.

Several possible effects have not been

included in the computations for this chart. Although the calculated reductions due to treatment have allowed for the organisms in the stream passing the water works intake, they do not include the consideration that some sewage from Knoxville discharged above that point may be treated. Neither do they allow for sewage entering the river below mile 645.5, which may likewise be treated. Another factor to consider is that the computations have been based on a center of gravity of sewage discharge at mile 647.2, while the present plans contemplate a treatment plant and outfall some distance below this point. This chart should be considered, therefore, as being only an indication of the anticipated effect of treatment.

The basic information in this paper is taken from a report² by the Stream Sanitation Staff of the Tennessee Valley Authority, prepared under the direction of G. R. Scott. The field and laboratory

work incident to the study and the major share of preparing the report were carried out under the immediate supervision of F. W. Kittrell, now in charge of stream sanitation work of the TVA.

REFERENCES

1. A Study of the Pollution and Natural Purification of the Ohio River, II. Report on Surveys and Laboratory Studies. *Pub. Health Bull.* 143, July, 1924.
2. Kittrell, F. W. Results of Bacteriological Studies of Potential Swimming Areas, Fort Loudoun Reservoir, 1944. Health and Safety Department, TVA.

Fellowships in Public Health Education

The National Foundation for Infantile Paralysis is providing for 1 year graduate training fellowships in public health education leading to a Master's degree to fill vacancies in state and local health departments. Men and women between the ages of 22 and 40 inclusive, who are not now employees of such departments, will be accepted.

Candidates must have a Bachelor's degree, plus 3 years of professional experience or its equivalent, and must agree to complete satisfactorily a year's academic work and 3 months of field training, and must agree to accept employment in the field of public health education in the United States for at least two years. Fellowships will be given for training only in schools of public health which have curricula in health education and which are accredited by the American Public Health Association.

Applications should be made to the Credential Secretary of the National Foundation for Infantile Paralysis (120 Broadway, New York 5). When all credentials are complete and the candidate has been accepted by a school, the application will be submitted to the Public Health Fellowship Awards Committee, an advisory subcommittee of the Public Health Service Committee on Training of Public Health Personnel. This Committee is made up of representatives of the U. S. Public Health Service, U. S. Office of Education, and professional public health educators. Its decision on applicants will be accepted as final by the Foundation.

Beginning in March, the Committee is meeting at approximately monthly intervals until the schools open in the fall or until all the fellowships have been awarded. Applications should therefore be made as early as possible.

Specific Complement-Fixing Diagnostic Antigens for Viral and Rickettsial Diseases*

HERALD R. COX, Sc.D.

*Section of Viral and Rickettsial Research,
Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.*

IT is now generally accepted that the complement-fixation test is a highly useful method of carrying out diagnostic tests for various viral and rickettsial infections. The antigens for diagnosis of viral infections described by Frobisher,¹ Howitt,^{2,3} Casals and Palacios,⁴ Casals,⁵⁻⁸ Lennette and Perlowagora,⁹ and Havens and his associates¹⁰ were prepared almost entirely from infected brain tissues, whereas those reported by Mohler¹¹ and Brown¹² were prepared from infected chick embryo tissues.

Various procedures, such as ether extraction,³ repeated freezing and thawing followed by centrifugation,⁴ and fractional centrifugation at speeds as high as 12,400 r.p.m. for one hour¹⁰ were used in attempts to eliminate the anti-complementary and nonspecific properties of the preparations. Such measures were not too satisfactory, however, and this was found to be especially true when the antigens were tested in the presence of strongly positive syphilitic human sera,^{4,9,13,14} in which case markedly false positive reactions occurred. Similar observations were reported by Wertman¹⁵ who found crude rickettsial antigens prepared by methods suggested by Bengtson^{16,17} and Reynolds and Pol-

lard¹⁸ to give markedly nonspecific fixation of complement with syphilitic sera. To overcome these difficulties with neurotropic viral antigens prepared from infected brain tissues, Casals and Palacios⁴ recommended that Wassermann-negative human sera be inactivated at 60° C. for 20 minutes, whereas Wassermann-positive sera should be inactivated at 65° C. for 20 minutes. Similarly, Brown¹⁹ has recently suggested that sera to be used with chick-embryo eastern and western equine encephalomyelitis antigens should be inactivated at 60° C. for 15 minutes in order to eliminate nonspecific reactions. Wertman¹⁵ overcame the difficulty by using washed rickettsial or elementary body antigens for the diagnosis of rickettsial or psittacosis-lymphogranuloma-venereum infections. These latter antigens were found not to give rise to false positive reactions even when the more sensitive technique of 18 hours of fixation in the cold was used.

Inasmuch as in recent years antigens derived from infected chick embryo and mouse brain have been used on an ever increasing scale in the diagnosis of viral and rickettsial diseases, it was deemed worth while to reinvestigate these preparations for their specificity, especially with syphilitic and malarial sera. The investigations were purposely directed at the mode of preparation of the antigens themselves, because it was felt that

* Presented at a Joint Session of the Conference of State and Provincial Public Health Laboratory Directors and the Laboratory Section of the A.P.H.A. at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 10, 1947.

TABLE 2
Complement-Fixation Tests
Mouse Brain Antigens—Unextracted

Syphilitic Human Serum												
Antigen Serum Dilution	No. 1						No. 2					
	Eastern E.E.	Western E.E.	St. Louis E.	Japanese B.	Normal Mouse	Kolmer	Eastern E.E.	Western E.E.	St. Louis E.	Japanese B.	Normal Mouse	Kolmer
1:4	4	4	4	4	4	4	4	4	4	4	4	4
1:8	3	3	2	3	3	4	4	4	3	4	4	4
1:16	1	2		1		4	2	4	1	3	3	4
1:32						+		3			±	4
1:64						1						3
1:128												
1:256												
Controls												
Serum 1:4					—						—	
1:8					—						—	
1:16					—						—	
Antigen					—						—	
Red Blood Cell					4						—	
Hemolytic System					—						—	

a dependable and practical procedure for the preparation of truly specific antigens would be a worth while contribution in itself, and that, furthermore, additional information might well be gained concerning the essential properties of the various infectious agents involved. For the sake of clarity, the data pertaining to the viral and rickettsial antigens will be dealt with separately.

VIRAL ANTIGENS

In preliminary experiments carried out by DeBoer and Cox¹⁴ with antigens prepared essentially by the method of Casals and Palacios,⁴ it was found that when chick embryo antigens were tested against homologous immune guinea pig sera or when mouse brain antigens were tested against homologous immune mouse sera, no cross-reactions occurred. However, both types of antigens were found to be not truly specific because they fixed complement with known positive human syphilitic sera, when the latter were inactivated at 56° C. for 30 minutes.

Table 1 shows the results obtained with chick embryo antigens of the above mentioned type. Notice the lack of specificity of these antigens in the presence of a positive syphilitic serum.

Table 2 shows the lack of specificity of similarly prepared mouse brain antigens when they were tested against 2 syphilitic sera.

The suggestion of Casals and Palacios,⁴ namely, to heat the sera under test at a higher temperature in order to

eliminate or minimize the nonspecific reactions, was next investigated. However, it was found that higher temperatures, though they did not greatly reduce the titer for western equine encephalomyelitis antibodies in immune sera, did almost invariably reduce them for rabies, Colorado tick fever, and St. Louis encephalitis viruses to a very significant degree. The same was found by Hughes²⁰ to be true for the antibodies against yellow fever virus, since they too are particularly heatable. In many sera where the antibody titers initially are quite low, such as have been encountered particularly with rabies and Colorado tick fever antisera, it is not possible to inactivate these sera at temperatures in excess of 56° C. without rendering them unfit for testing.

Tables 3 and 4 show the effects of the inactivation temperature on the complement-fixation titers of human sera following Colorado tick fever infection and antirabic vaccination, respectively. In both instances, at least a twofold loss in titer occurred when the sera were inactivated at 60° C. for 15 minutes, as was suggested by Brown.¹⁰ In fact, the antibody titers of antirabic vaccination sera are so low that it is difficult to demonstrate antibodies even though the tests are carried out under the most favorable conditions, that is, inactivation of the sera at 56° C. for 30 minutes and using 1½ units of complement instead of 2.

Influenced by these findings and encouraged by the results obtained by

TABLE 3

Effect of Inactivation Temperature on Complement-Fixation Titer of Human Convalescent Colorado Tick Fever Sera. Two Units of Complement

Serum Number	Inactivated 56°C—30 Minutes					Inactivated 60°C—15 Minutes				
	Serum Dilution					Serum Dilution				
	1:2	1:4	1:8	1:16	1:32	1:2	1:4	1:8	1:16	1:32
1	1+	1+	0	0	0	1+	0	0	0	0
2	4	4	4	2	±	4	4	1	0	0
3	4	4	3	0	0	4	4	±	0	0

TABLE 4

Effect of Inactivation Temperature on Complement-Fixation Titer of Human Sera Following Rabies Vaccination

Post-Vaccination Interval	Number of Doses Received	Units of Complement	Inactivated 56° C — 30 Minutes					Inactivated 60° C — 15 Minutes				
			Serum Dilution					Serum Dilution				
			1:2	1:4	1:8	1:16	1:32	1:2	1:4	1:8	1:16	1:32
7 days	14 1 series	1.5	3—	2—	1	±	±	2—	1—	±	±	0
		2.0	3—	1+	±	±	0	1	±	±	0	0
10 weeks	21 1 series	1.5	4	1	0	0	0	1	0	0	0	0
		2.0	2	±	0	0	0	0	0	0	0	0
10 months	28 2 series	1.5	3—	2—	1	±	±	2—	1—	±	±	0
		2.0	3—	1+	+	+	0	1	+	+	0	0

Wolfe, van der Scheer, Clancy, and Cox²¹ with rickettsial antigens, using a procedure similar to that of Cragie and Tulloch,²² and Howitt,^{2, 3} it was decided to test antigens that were prepared by extracting them in the lyophilized state with various solvents. It was found that antigens for eastern and western equine viruses prepared from infected embryos and for eastern equine, western equine, St. Louis, and Jap B viruses, prepared from infected mouse brains, are rendered specific without appreciable loss in antigenicity, by extraction in the lyophilized state with benzene, toluene, or ethylene-dichloride.¹⁴ At this point it may be worth while to note that tests made with antigens of chick embryo origin for St. Louis and Jap B were not too satisfactory in spite of the fact that infective titers of 10⁻⁷ and 10^{-6.6} or higher, were achieved for these viruses respectively. The antigens were specific inasmuch as they fixed complement only in the presence of their homologous immune sera and did not produce false positive reactions with human syphilitic or malarial sera when the method of Kolmer and Boerner²³ was employed. The antigens so prepared were also quite stable and noninfectious.

Table 5 summarizes some of the results obtained with lyophilized and benzene-extracted chick embryo antigens of

eastern and western equine encephalomyelitis, as well as a normal chick embryo preparation similarly processed and tested against eastern equine, western equine, and normal guinea pig sera, and a syphilitic human serum. It is seen that the viral antigens showed positive fixation only in the presence of their homologous antisera.

Table 6 shows the results obtained with lyophilized and benzene-extracted mouse brain antigens of eastern equine, western equine, St. Louis, and Jap B viruses when tested against two known highly positive syphilitic sera. A control antigen prepared from normal noninfected mouse brains is also included. It is noted that none of the mouse brain preparations showed a positive fixation in the presence of the syphilitic sera.

Table 7 shows the results of complement-fixation tests with lyophilized and benzene-extracted mouse brain antigens against normal and immune mouse sera.

The results indicate complete specificity of both the eastern equine and western equine antigens against all sera tested, while the St. Louis and Jap B antigens showed slight cross-reactions against each other only. These observations are in accord with the findings of Casals and Palacios.⁴

In a subsequent report by DeBoer

TABLE 6
Complement-Fixation Tests
Mouse Brain Antigens Lyophilized and Benzene Extracted

Antigen Serum Dilution	No. 1						No. 2					
	Eastern E.E.	Western E.E.	St. Louis E.	Japanese B.	Normal Mouse	Kolmer	Eastern E.E.	Western E.E.	St. Louis E.	Japanese B.	Normal Mouse	Kolmer
1:4	—	—	—	—	—	4	—	—	—	—	—	4
1:8	—	—	—	—	—	4	—	—	—	—	—	4
1:16	—	—	—	—	—	4	—	—	—	—	—	4
1:32	—	—	—	—	—	4	—	—	—	—	—	3
1:64	—	—	—	—	—	1	—	—	—	—	—	1
1:128	—	—	—	—	—	—	—	—	—	—	—	—
1:256	—	—	—	—	—	—	—	—	—	—	—	—
Controls												
Serum 1:4						—						—
1:8						—						—
1:16						—						—
Antigen						—						—
Red Blood Cell						4						4
Hemolytic System						—						—

TABLE 7
Complement-Fixation Tests
Lyophilized Mouse Brain Antigens—Benzene Extracted

Mouse Serum →	Eastern E.E.				Western E.E.				St. Louis				Japanese B				Normal			
Antigen	Eastern E.E.	Western E.E.	St. Louis	Japanese B.	Normal Mouse	Eastern E.E.	Western E.E.	St. Louis	Japanese B.	Normal Mouse	Eastern E.E.	Western E.E.	St. Louis	Japanese B.	Normal Mouse	Eastern E.E.	Western E.E.	St. Louis	Japanese B.	Normal Mouse
Serum Dilution																				
1:4	4	—	—	—	—	4	—	—	—	—	4	4	—	—	—	4	4	—	—	—
1:8	4	—	—	—	—	4	—	—	—	—	4	1	—	—	—	1	4	—	—	—
1:16	4	—	—	—	—	4	—	—	—	—	4	—	—	—	—	4	—	—	—	—
1:32	4	—	—	—	—	3	—	—	—	—	4	—	—	—	—	4	—	—	—	—
1:64	4	—	—	—	—	1+	—	—	—	—	4	—	—	—	—	4	—	—	—	—
1:128	1+	—	—	—	—	—	—	—	—	—	1+	—	—	—	—	—	—	—	—	—
1:256	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Controls																				
Serum 1:4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1:8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1:16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Antigen	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Red Blood Cell	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Hemolytic System	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

and colleagues,²⁴ it was shown that specific diagnostic antigens for Colorado tick fever could be prepared similarly by benzene extraction of desiccated mouse brains infected with this virus. Cross-fixation tests between Colorado tick fever immune sera and various heterologous antigens of viral and rickettsial origin indicated that Colorado tick fever is a distinct entity and not related to any of the other infectious agents tested. Close correlation was obtained in the complement-fixation and mouse neutralization tests with human convalescent sera. The complement-fixing and neutralizing antibodies appeared in the blood of human patients at about the 9th to 14th day after onset of illness and remained demonstrable for as long as 34 months.

At the same time that DeBoer and Cox¹⁴ reported their work on benzene-extracted antigens, a comparable study along the same lines was published by Perlowagora and Hughes.¹³ These workers prepared specific complement-fixing

antigens for yellow fever virus by extracting desiccated infected mouse brains with ethyl ether in a Soxhlet apparatus until they were lipid free. The anhydrous and lipid-free tissues were then resuspended in 0.9 per cent sodium chloride solution and the globulin fraction precipitated by one-half saturated ammonium sulfate solution. The washed and purified globulin fraction used as antigen was found to be highly sensitive and specific.

RICKETTSIAL ANTIGENS

As mentioned above, Wertman¹⁵ used washed and "purified" rickettsial body antigens, prepared by the method of Plotz²⁵ and his colleagues²⁶⁻²⁸ to overcome the nonspecific fixation results encountered in using the cruder preparations. However, the preparation of washed rickettsial body antigens is a rather laborious and costly procedure and especially difficult in the case of rickettsiae of the spotted fever group, since they do not grow as profusely as

TABLE 8
Complement-Fixation Tests on Human Syphilitic Sera

Human syphilitic Sera	Kolmer Antigen										RMSF Antigen No. 1 Purified and Concentrated with Sodium Sulfate										RMSF Antigen No. 2 Benzene-Extracted and Purified with Sodium Sulfate									
	Serum Dilutions					Serum Dilutions					Serum Dilutions					Serum Dilutions					Serum Dilutions					Serum Dilutions				
	1:4	1:8	1:16	1:32	1:64	1:128	1:4	1:8	1:16	1:32	1:64	1:128	1:256	1:512	1:4	1:8	1:16	1:32	1:64	1:128	1:256	1:512	1:4	1:8	1:16	1:32	1:64	1:128	1:256	1:512
1	+	+	+	+	2	2	+	3	0	0					3	2	0	0												
2	+	+	+	+	+	3	+	3	1	1					2	0	0	0												
3	+	+	+	+	+	+	+	3	1	0					1	0	0	0												
4	+	+	+	+	+	+	+	3	0	0					3	1	0	0												
5	+	+	+	+	3	0	0			0					2	1	0	0												
Control Sera *							+	+	+	+	+	+	+	2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	3

* Rocky Mountain Spotted Fever Convalescent Guinea Pig Serum.

do the rickettsiae of the typhus, scrub typhus, and Q fever groups.

In a recent publication van der Scheer, Bohnel, and Cox²⁰ confirmed the findings of Wertman¹⁵ that epidemic typhus, murine typhus, and Rocky Mountain spotted fever vaccines, prepared from infected yolk sacs by ether-extraction in the fluid state and used as antigens, give nonspecific reactions in complement-fixation tests with positive syphilitic sera—especially if the technic of fixation for 18 hours in the cold is used. However, they showed that purified and concentrated *soluble antigens* could be prepared from epidemic typhus, murine typhus, and Rocky Mountain spotted fever vaccines by further treating the ether-extracted preparations with benzene followed by precipitation with sodium sulfate. The resulting purified *soluble antigens* gave little or no reaction with highly positive syphilitic sera using fixation of complement at icebox temperature for 18 hours. Tests carried out with the concentrated and purified *soluble antigens* clearly differentiate cases of epidemic and murine typhus from Rocky Mountain spotted fever and will often, but not always, distinguish between epidemic and murine typhus cases. Strong cross-reactions were also observed in tests made with epidemic and murine typhus human sera and corresponding purified and washed rickettsial body suspensions prepared by the method of Plotz and colleagues,²⁸ but in these cases the titer obtained was always higher with the homologous than with the heterologous rickettsial antigens.

Table 8 shows the results of complement-fixation tests by the method of Kolmer and Boerner with human syphilitic sera and Rocky Mountain spotted fever *soluble antigens* Nos. 1 and 2, prepared by sodium-sulfate precipitation of vaccine with and without previous extraction with benzene. It is seen

that four of the sera gave a 4+ reaction in the 1:4 dilution with the non-benzene-extracted antigen, but that the same sera gave reactions of only 1+, 2+ and 3+ in the 1:4 dilution with the benzene extracted antigen.

CONCLUSION

In conclusion, it is seen that methods are now available for the preparation of highly sensitive and specific complement-fixing antigens in an ever increasing number for the diagnosis of viral and rickettsial diseases. Specific diagnostic antigens that have been prepared in our laboratory up to the present are: *Viral antigens*: eastern equine, western equine, St. Louis encephalitis, rabies, Colorado tick fever, influenza types A and B, mumps, and psittacosis; *Rickettsial antigens*: epidemic typhus, murine typhus, scrub typhus or tsutsugamushi disease, Rocky Mountain spotted fever, Q fever, and rickettsialpox.

REFERENCES

1. Frobisher, M. A Comparison of Certain Properties of the Neurotropic Virus of Yellow Fever with Those of the Corresponding Viscerotropic Virus. *Am. J. Hyg.* 17-18:354-374, 1933.
2. Howitt, B. F. Complement-fixation Test Differentiating 3 Strains of Equine Encephalomyelitis Virus and the Virus of Lymphocytic Choriomeningitis. *Proc. Soc. Exper. Biol. & Med.*, 35:526-528, 1937.
3. Howitt, B. F. The Complement Fixation Reaction in Experimental Equine Encephalomyelitis, Lymphocytic Choriomeningitis and the St. Louis type of Encephalitis. *J. Immunol.*, 32-33:235-250, 1937.
4. Casals, J., and Palacios, R. The Complement Fixation Test in the Diagnosis of Virus Infections of the Central Nervous System. *J. Exper. Med.*, 74:409-426, 1941.
5. Casals, J. Ultraviolet Light-inactivated Antigens for Complement-Fixation Tests with Central Nervous System Virus Infections. *Proc. Soc. Exper. Biol. & Med.*, 49:501-504, 1942.
6. Casals, J. Heated, Avirulent Antigens for Complement-Fixation Tests with Certain Encephalitis Viruses. *Science*, 102:618-619, 1945.
7. Casals, J. The Technique and Practical Applications of the Complement-fixation Test for Diagnosis of Infection with Encephalitis Viruses. *J. Bact.*, 50:1-5, 1945.
8. Casals, J. Complement-fixation Test for Diagnosis of Human Viral Encephalitis. *J. Immunol.*, 56:337-341, 1947.
9. Lennette, E. H., and Perlowagora, A. The Complement Fixation Test in the Diagnosis of Yellow Fever. Use of Infectious Mouse Brain as Antigen. *Am. J. Trop. Med.*, 23:481-504, 1943.
10. Havens, W. P., Jr., Watson, D. W., Green, R. H., Lavin, G. I., and Smadel, J. E. Complement-fixation with the Neurotropic Viruses. *J. Exper. Med.*, 77:139-153, 1943.
11. Mohler, W. Complement-fixation with Chick Embryo Antigens in Equine Encephalomyelitis. *J. Am. Vet. M. A.*, 94:39-43, 1939.
12. Brown, G. C. Embryonic Chick Antigens for Complement Fixation with Viruses of Eastern and Western Equine Encephalomyelitis. *Proc. Soc. Exper. Biol. & Med.*, 56:91-93, 1944.
13. Perlowagora, A., and Hughes, T. P. The Complement-Fixation Test in Yellow Fever Epidemiology. The Use of Globulin Antigen in Immunity Surveys. *J. Immunol.*, 55:103-120, 1947.
14. DeBoer, C. J., and Cox, H. R. Specific Complement-fixing Diagnostic Antigens for Neurotropic Viral Diseases. *J. Immunol.*, 55:193-204, 1947.
15. Wertman, K. Nonspecific Complement-fixing Antigen in Embryonic Egg Tissues. *J. Lab. & Clin. Med.*, 30:112-118, 1945.
16. Bengtson, I. A. Complement Fixation in Epidemic Typhus Fever. *Pub. Health Rep.*, 56:649-653, 1941.
17. Bengtson, I. A. Complement Fixation in "Q" Fever. *Proc. Soc. Exper. Biol. & Med.*, 46:665-668, 1941.
18. Reynolds, F. H. K., and Pollard, M. Employment of Rickettsial Vaccine for Antigen in Diagnostic Complement Fixation Test. *Am. J. Trop. Med.*, 23:433-435, 1943.
19. Brown, G. C. Elimination of the False Positive Reaction with Human Sera in Complement Fixation test. *Science*, 106:43, 1947.
20. Hughes, T. P. Personal communication.
21. Wolfe, D. M., van der Scheer, J., Clancy, C. F., and Cox, H. R. A Method for the Preparation of Complement-fixing Antigens in a Study of Experimental Tsutsugamushi Disease (Scrub Typhus). *J. Bact.*, 51:247-255, 1946.
22. Craigie, J., and Tulloch, W. J. Farther Investigations on the Variola-vaccinia Flocculation Reaction. *Med. Res. Coun. Spec. Report Series*, No. 156, London, 1931.
23. Kolmer, J. A., and Boerner, F. *Approved Laboratory Technic*. Ch. 29. 3rd ed., New York. Appleton Century Co., 1941.
24. DeBoer, C. J., Kunz, L. J., Koprowski, H., and Cox, H. R. Specific Complement Fixing Diagnostic Antigens for Colorado Tick Fever. *Proc. Soc. Exper. Biol. & Med.*, 64:202-208, 1947.
25. Plotz, H. Complement-fixation in Rickettsial Diseases. *Science*, 97:20-21, 1943.
26. Plotz, H., Reagan, R. L., and Wertman, K. Differentiation between Fievre Boutonneuse and Rocky Mountain Spotted Fever by Means of Complement-fixation. *Proc. Soc. Exper. Biol. & Med.*, 55:173-176, 1944.
27. Plotz, H., Wertman, K., and Reagan, R. L. Laboratory Aids in Diagnosis of Rocky Mountain Spotted Fever. *Bull. U. S. Army Med. Dept.*, No. 79: 40-44, 1944.
28. Plotz, H., Wertman, K., and Bennett, B. L. The Serological Pattern in Epidemic Typhus Fever. I. The Development of Complement-fixing Antibodies. *Confidential Report from Army Medical School, Army Medical Center, Washington, D. C.*, Feb. 17, 1944.
29. van der Scheer, J., Bohnel, E., and Cox, H. R. Diagnostic Antigens for Epidemic Typhus, Murine Typhus and Rocky Mountain Spotted Fever. *J. Immunol.*, 56:365-375, 1947.

Experience in Appraising Nutritional Status in the U. S. Public Health Service*

HAROLD R. SANDSTEAD, M.D., F.A.P.H.A., AND
ELTON S. OSBORNE, JR., M.D.

*Chief, Nutrition Section, States Relations Division, U. S. Public Health Service,
Washington, D. C.; and Medical Officer in Charge of Nutrition Field Unit,
Grand Haven, Mich.*

FOR a number of years, various official and voluntary agencies have been working toward improving the nutritional status of the population. In 1945, the Conference of State and Territorial Health Officers requested that the Service further assist the states in developing nutritional programs. As a result of this Conference, a Nutrition Section in the States Relations Division of the Bureau of State Services was organized.

Since its inception, the basic purpose of this Service program has been to conduct field studies in the prevalence of nutritional deficiency disease to develop methods for assessing human nutrition that can be adopted by health departments, and to provide a pattern which can be utilized by state and local health departments to increase the efficiency of their public health nutrition programs.

The interest of the states in nutrition work has been demonstrated by the fact that within the past two years, 32 state and territorial health departments have requested the services of field units of the U. S. Public Health Serv-

ice. One goal of this program is the active participation of all the state health departments in improving the general health of their populations by promoting better nutrition. Basic programs of this type, organized now, would prove to be of inestimable value in the event of national emergency.

In the opinion of those who organized the Public Health Service Nutrition Section, a prerequisite for an effective program was the obtaining of accurate information on the prevalence of nutritional deficiency disease. Standard methods of procedure for conducting various types of population studies in several sections of the country were thought to be highly desirable in a program of this type. Consequently, mobile field units were created and have been located in four geographic areas in the country—New England, North Central, Mid-Atlantic, and Southeast. To date, thirteen field studies have been completed. These studies were conducted in five states, Florida, Georgia, Maryland, Michigan, and Vermont.

In general, the staff of a nutrition field unit consists of a medical officer in charge, a public health nurse, a nutritionist, a biochemist, a laboratory technician, and a clerk. The personnel of the field unit, however, is occasionally changed to conform with local needs.

* Presented before the Food and Nutrition Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 9, 1947.

The existing units have been assigned to work with state health departments on invitation from state health officers after due consideration has been given to the geographic location of the state. These field units, working as a part of the state and local health departments, have carried on the functional part of the program.

As yet, the program has been limited to the investigation and demonstration of nutritional survey techniques. Methods for determining the food patterns of populations and groups within the population have been explored. Evaluation and adaptations of laboratory methods for public health use have been progressing. A large number of persons, approximately 25,000, have been inspected for physical signs of nutritional deficiency, and some therapeutic testing both on individuals and large groups has been conducted.

The Central Office of the Nutrition Section, in addition to its functions of general supervision and coordination of the field units, is developing a program of aid and consultation to state health departments and other agencies interested in nutrition.

Wherever possible, studies have been conducted with the nutrition field unit functioning as a part of a well organized local health department. This arrangement has resulted in the utilization of the local public health nursing staff to contact and invite persons to the survey clinics. Such participation on the part of the local health department develops the interest of its personnel in nutrition and has usually resulted in clinic attendance by the persons invited. When it was not possible to work with a local health department group, it has sometimes been necessary to have the persons to be inspected contacted by a public health nurse or by a nutritionist attached to the nutrition field unit.

All the field studies have followed

the same general plan of operation. The three usual approaches to a nutritional assessment have been used: dietary records, laboratory determinations, and physical inspections.

In the nutrition clinic, consideration for the patient and organizational efficiency are both stressed. Although there are minor variations in procedure among the field units, the following general outline is usually followed: The person attending the clinic is greeted by a receptionist who obtains identifying data, height and weight. A nurse is made responsible for the smooth progression of the patients through the clinic. She routes patients first to the nutritionist, second to the laboratory technician, and finally to the physician. Before the patient departs from the clinic she discusses with him any health problems which have been discovered, with emphasis on arrangements for correction through referral to family physician or health department.

The nutritionist evaluates the diet record and advises the patient about his food habits. The evaluation of diet is based on a system of coding by which the servings of each food group on the diet record can be compared with the National Research Council's¹ recommendations. For the diet record, the patient keeps a complete record of all food taken during a 24 hour period.

In the earlier studies capillary blood from a finger tip puncture was used for the following determinations: hemoglobin, hematocrit, and plasma protein. In more recent appraisals, additional capillary blood has been obtained to use in determining: serum vitamin A, serum carotene, and serum ascorbic acid by the micro-methods of Bessey and Lowry.

On individuals under 16 years of age, blood serum phosphatase is done, and on individuals 40 years or more a blood glucose determination is made, also on capillary blood. The hemo-

globin, hematocrit and plasma protein determinations are usually completed by the technician at the clinic.

The inspection is directed toward the body areas in which signs suggestive of nutritional deficiency are most likely to appear. Such inspections are greatly facilitated by the fact that the signs appear for the most part on exposed areas of the body. After completion of the inspection the medical officer reviews the reports from the nutritionist and the technician; he correlates these data with those obtained in the physical inspection and advises the patient of any obvious health problems which may be evident.

A complete report of the findings on each person is prepared for the local health officer, who usually refers the positive findings to the individual's family physician. In most areas such cases are followed up by the public health nurses until corrections are made. These positive findings are not limited to nutritional deficiency conditions but include any condition needing medical attention which might be discovered during the inspection in the nutrition clinic.

We wish to stress the importance of integrating the nutrition services with the services of other departments. Our experience in the field clinics illustrates this point. During the course of the examination for signs of nutritional deficiencies, numerous physical defects and disabilities other than nutritional are observed. We believe that interest in general health, and not interest in nutrition alone is an important factor in attracting adults to the nutrition clinics. For example, in one study of families, comprising 1,434 individuals, 463 were found to have physical conditions indicating referral for medical consultation. The majority of these individuals were not under the care of physicians and in most instances were unaware of their condition.

As might be expected, many medical problems of interest are revealed at the clinic. For example, in a family study in a mining village 55 per cent of the persons 45 years of age and older had either a systolic blood pressure over 150 mm. Hg. or a diastolic blood pressure over 100.

At this point it should be reemphasized that nutrition is a part of general medicine and in assessing the nutritional status of an individual, influencing factors such as infection, physiological stresses, and disease must be taken into consideration in nutrition evaluation.

The studies which have provided the most complete information regarding the nutritional status of a community, have been of the family type. These surveys have been planned to provide a random sample of an entire population.

In this type of survey, the family, including all members of the same household who eat an average of two meals daily at the same table, is the basic unit. This assures a wide age distribution. The families to be inspected have been selected on a pattern that provides a true random sample of the population.

Usually it has been found advisable to delay the beginning of the family type survey for some time after the field unit moves into a new community. In order to gain the coöperation of the families selected for the survey, some preliminary publicity and other work have been necessary. Consequently, the field unit has frequently first conducted studies of certain special groups, such as school children and industrial workers.

There is no doubt that it is very difficult to impart nutrition education in one clinic visit, but we feel that this one visit is more effective in teaching good nutrition than the usual nutrition propaganda to which we are all subjected.

PREVALENCE OF PHYSICAL SIGNS ASSOCIATED WITH DEFICIENCY DISEASE

In presenting data on the prevalence of physical signs which have been found in these studies, it is recognized that, as in any medical examination, diagnosis on the basis of a single physical sign is hazardous, and that many of these so-called signs are based on too little evidence. One of the greatest needs in nutritional appraisals is a better understanding of the signs and symptoms which have been listed as evidence of deficiency disease. Particularly is this true of the diagnosis of vitamin A deficiency.

For purposes of this report the classifications of signs and symptoms of vitamin deficiencies listed by the Council on Food and Nutrition of the American Medical Association² is followed. Among the conditions that are believed to be associated with nutritional deficiencies are the following: vitamin A deficiencies (folliculosis of the palpebral conjunctiva, thickening of the bulbar conjunctiva and spots, xerosis and follicular hyperkeratosis); vitamin B-complex deficiencies (outer canthi lesions, nasolabial seborrhea, follicular plugs, stomatitis, and glossitis); vitamin C deficiencies (gingivitis, perifollicular petechiae, and purpura). Abnormal response to tests for knee jerks, ankle jerks, and vibratory sense, and calf tenderness may be indicative of neurological changes also due to a deficiency of B-complex.

To allow for all possible inclusions, the Nutrition Appraisal Record used by the field units provides for more than the findings enumerated above. Some of these may be of questionable dietary significance and, when more specific knowledge is acquired, they may eventually be dropped from the list. Others are of infrequent occurrence but highly significant when they do occur.

The Nutrition Appraisal Record has been in use since January, 1946. This

record form pools all the information for one individual (physical inspection in detail, dietary and laboratory data). It is thus now possible to compare the results of one group of school children with another, and one family study with another. The data are fairly comparable because all personnel engaged in the field spend a period of training in one of the units and assist in making a study, before being assigned to work independently.

SCHOOL STUDIES

Slightly more than 1,800 white school children have been examined by the units in the North Central and Mid-Atlantic regions. The school children consisted of those attending (1) grades 4 through 8 in three Maryland schools, (2) the first through the 8th grade in two Maryland schools and one school in Michigan, and (3) high school students in one community in Michigan. There is considerable variation between schools in the same area as well as in different regions. In May, 1946, grade school children were examined in three schools in Maryland and one school in Michigan with a consistently higher prevalence of certain physical findings in Michigan. In the fall of 1946, children were studied in two grade schools in Maryland, and during the winter in a high school in Michigan.

For the more important diagnostic findings, the prevalence in the five school groups was as follows: Forty-seven per cent of the children in the 1st through the 8th grades in the Michigan school and 46 per cent of the high school students had conjunctival folliculosis. Only 2 per cent of children in the combined Maryland Schools study suffered from this condition. In the remaining two Maryland schools the prevalence was 28 per cent and 23 per cent.

Xerosis and follicular hyperkeratosis of the skin were present in 39 per cent

of the children in the 8 grades that constituted the grade school study in Michigan, and 28 per cent of the high school students. In Maryland, the highest prevalence noted in any of the schools studied was 5 per cent for this sign.

One or more tongue conditions were recorded in 12 per cent of the children inspected in one of the school groups in Maryland, 7 per cent in another, and in 8 per cent of the children in the Michigan school group (all 1-8 grades). The prevalence in the remaining grade schools and among high school students was low.

Gingivitis, likewise was high (11 per cent) in one of the Maryland schools (1-8 grades). It ranged from 2 to 6 per cent in the rest of the school groups.

FAMILY STUDIES

To date, six family studies consisting of 3,862 persons have been completed in Florida, Georgia, and Michigan. Another study has been under way in Michigan since April, 1947, and an eighth was started in Vermont during September. One family study was Negro and another partly white and partly Negro. The remaining studies were conducted among white populations.

The prevalence of physical findings in family studies has a different distribution from that among school children. Thickening of the bulbar conjunctiva and spots was the most frequent sign found in Negroes (37 per cent), followed by conjunctival folliculosis (32 per cent), and gingivitis (25 per cent). Among white persons, gingivitis was present in 24 per cent of the population, and thickening of the bulbar conjunctiva and spots in 26 per cent, xerosis and follicular hyperkeratosis in 15.2 per cent and conjunctival folliculosis in 15.1 per cent.

The difference in magnitudes between school and family groups is due to the fact that certain physical conditions change with age. Although the per cent of white persons of all ages with thickening of bulbar conjunctiva and spots was 26, the per cent was less than 1 in children under 13 years of age, 53 per cent for white males 21 years of age and over, and 42 per cent for white females in the same group. Among Negroes, the differences were even more marked: 1 per cent for children under 13, 83 per cent for males and 75 per cent for females 21 years of age and over.

Conjunctival folliculosis, which was the leading physical finding in the school group, was found in 15 per cent

TABLE 1

Prevalence of Selected Physical Findings Suggestive of or Associated with Dietary Deficiencies in Nutrition Studies in Three Areas of the United States, by Color, During 1946-1947

Deficiency, and Physical Finding	Persons in Study →	School Studies, All White Children 1,822 (100%)	Family Studies	
			White 2,742 (100%)	Negro 1,120 (100%)
Vitamin A				
Conjunctival folliculosis		27.2	15.1	32.1
Thickening of bulbar conjunctiva and spots		2.5	25.9	37.0
Xerosis and hyperkeratosis		11.1	15.2	17.9
Vitamin B				
Tongue conditions		6.5	18.4	4.2
Vitamin C				
Gingivitis		6.1	23.6	25.1
Vitamin D				
Rickets		15.8	7.8	8.9
Iodine — Goiter		8.5	13.0	4.2

TABLE 2

*Prevalence of Enlarged Thyroid in Nutrition Studies in the United States,
October, 1945-May, 1947, by Age, Sex, and Race*

Area and Race	Number of Persons Examined		Per cent Having Enlarged Thyroid							
			Male				Female			
			All Ages	Under 13	13 to 20	21 and Over	All Ages	Under 13	13 to 20	21 and Over
	Male	Female								
Family studies										
White										
Alachua County, Fla.	331	489	...	...	...	...	4.1	0.7*	6.5*	5.5
Pelham, Ga.	137	233	8.0	...	5.0	10.0	31.3	...	40.4	32.3
Flint Mill, Ga.	177	177	1.7*	3.3*	...	1.0*	2.3*	...	...	4.3*
Kitzmilller, Md.	167	213	7.2	7.4	20.0	2.7*	23.0	8.1	33.3	28.1
Houghton County, Mich.	263	555	4.9	2.3*	6.7*	11.7	33.3	4.7	29.8	48.2
Negro										
Alachua County, Fla.	271	340	...	...	...	...	12.4	1.0*	25.6	15.7
Ferndale, Mich.	201	308	2.5	2.3*	11.1*	...	14.6	3.0*	20.0*	24.5
School studies										
White										
Alachua County, Fla.	1,764	1,908	0.4	0.2*	0.8	...	1.4	0.4	2.8	...
Allegany County, Md.	162	173	...	...	...	...	...	...	...	...
Cumberland, Md.	477	477	0.2*	0.2*	...	...	2.5	2.1	20.0*	...
Holland, Mich.	182	147	32.4	...	32.4	...	52.4	...	52.4	...
Royal Oak, Mich.	106	98	0.9*	...	7.7*	...	5.1	4.8*	6.7*	...
Brattleboro, Vt.	878	949	...	...	...	...	0.8	0.5*	1.5	...
Negro										
Alachua County, Fla.	1,129	1,324	...	...	...	...	2.2	0.6	5.3	...

* Based on less than 5 persons

TABLE 3

*Prevalence of Signs Suggestive of Rickets in the United States,
October, 1945-May, 1947, by Age, Sex, and Race*

Area and Race	Number of Persons Examined		Per cent Having Signs Suggestive of Rickets							
			Male				Female			
			All Ages	Under 13	13 to 20	21 and Over	All Ages	Under 13	13 to 20	21 and Over
<i>Family studies</i>										
White										
Alachua County, Fla.	331	489	1.5	2.5*	2.7*	...	...	...	...	...
Pelham, Ga.	137	233	21.9	41.2	25.0	18.0	10.7	15.8*	6.4*	11.4
Flint Mill, Ga.	177	177	0.6*	...	...	1.0*	0.6*	1.6*	...	...
Kitzmilller, Md.	167	213	19.8	19.1	24.0	18.9	8.0	4.8*	6.7*	9.9
Houghton County, Mich.	263	555	20.2	16.2	40.0	21.7	8.8	6.5	14.9	9.2
Negro										
Alachua County, Fla.	271	340	0.4*	0.8*	...	...	0.6*	...	...	1.0*
Ferndale, Mich.	201	308	28.4	25.2	55.6	26.9	13.0	13.4	11.4*	13.0
<i>School studies</i>										
White										
Alachua County, Fla.	1,764	1,908	4.0	4.6	2.9	...	2.1	2.5	1.8	...
Allegany County, Md	162	173	0.6*	1.4*	...	...	...	...	...	...
Cumberland, Md.	477	477	14.9	14.6	25.0	...	8.8	8.9	...	...
Holland, Mich.	182	147	46.2	...	46.2	...	32.7	...	32.7	...
Royal Oak, Mich.	106	98	24.5	19.4	61.5	..	16.5	19.3	...	...
Brattleboro, Vt.	878	949	9.5	9.9	8.7	...	3.7	4.2	2.7	...
Negro										
Alachua County, Fla.	1,129	1,324	7.7	8.0	7.0	...	6.3	6.6	5.7	...

* Based on less than 5 persons

of all white persons studied. It was found in 30 per cent of the children under 13 years but decreased in prevalence with advancing age. Forty-eight per cent of Negro children under 13 years in the family studies were found to be suffering from this condition.

The prevalence of gingivitis increased with age, so that for adult white males the figure was 59 per cent, for females, 38 per cent, against the averages for all ages of 27 per cent. Comparative figures for Negroes were 62 per cent, 46 per cent, and 25 per cent.

Table 2 shows the prevalence of enlarged thyroid in family and school groups studied from October, 1945, through May, 1947. The prevalence for females at all ages combined was higher than for males in all groups. In most instances the prevalence was greater among adults than among children.

The highest percentages were found in the Michigan groups. In the family study, 48 per cent of females 21 years of age and over had an enlarged thyroid. Among high school students in Holland, Mich., 52 per cent of the girls and 32 per cent of the boys showed this condition.

Table 3 shows the prevalence of signs suggestive of rickets in the same groups of persons who were presented in Table 2. Signs of rickets were, in general, more prevalent among males than females in those groups in which the condition was of frequent occurrence. The prevalence was higher in children and young adults than in older persons.

Among boys under 13 years of age, the highest proportion (41 per cent) occurred in a white family study in Georgia. In a Michigan grade school in which the economic level was low, 61 per cent of the boys over 13 years of age showed signs of rickets. In certain studies, there were few evidences of this condition.

What conclusions can be made from these data? The physical signs attributable to vitamin A deficiency are very prevalent. If these are reliable signs, then vitamin A deficiency is a major problem, at least in the areas where these studies have been made. Additional studies are needed before final conclusions can be drawn.

Next in the order of prevalence is gingivitis. If this represents vitamin C deficiency, it is a major problem in this country. However, we still lack controlled studies demonstrating what percentage of this is related to C deficiency and what percentage is caused by other factors.

Although there are other causes of glossitis it is our impression that this is a fairly reliable sign of B-complex deficiency. If the prevalence of this sign is a good index of B-complex deficiency, then this too constitutes a major public health problem.

Two conditions for which we have for some time had the knowledge for prevention and control are endemic goiter and rickets. Both of these conditions are found with considerable prevalence and represent major health problems which should be the object of continuous attack by the medical profession and health departments.

Fortunately, because we do not have the emergency of actual starvation or serious food shortages seen in much of the rest of the world, our health officials have the opportunity for carefully considered long-range programs in public health nutrition.

Considerable thought, based on field experience, has been given to the development of an administrative pattern for more comprehensive nutrition programs in state and local health departments.

The following pattern, which provides for a division of functions between state and local health departments, is being recommended to state health departments:

A. At the state health department level, facilities and services are suggested which would be financially impractical for the average local health department. These include:

1. Establishment of the nucleus of a nutritional epidemiological unit. At first this may consist only of a physician and a nutritionist with knowledge of appraisal procedures. They could conduct surveys and resurveys of various population groups to determine the prevalence of nutritional problems, and to promote local interest in nutrition. It would be necessary for the local area to assist with personnel in such surveys. Local nursing and clerical assistance would be needed along with the services of a state district nutritionist. Later, a division of public health nutrition, with a physician as its director, would probably evolve. State health departments already are employing nutritionists, who will continue to play an important role in any expanding nutrition program.

2. Provision of laboratory facilities in the state health department laboratory to serve the nutrition epidemiological unit mentioned in A, 1. These laboratory facilities should also be available to hospitals and local health departments throughout the state. Although these facilities would at first have to be made available only to institutions that were equipped to collect and prepare specimens for transportation, they would be offered to all institutions and to all licensed physicians as soon as more practical methods of

preserving specimens for transporting are developed.

B. At the local health department level the following activities would probably be practical in average size departments with jurisdiction over populations of 50,000 or more.

1. Employment of a public health nutritionist to work continually with and through the public health nurses to promote improved nutrition in the local population. This nutritionist would conduct continuous inservice training in nutrition for the local public health nurses. She could prepare special diets for patients on a physician's prescription. She would assist public institutions which do not have a trained dietitian, cooperate with welfare agencies in preparing low income diets, participate in and guide promotional and educational programs in nutrition, and work closely with all types of clinics operated by the health department.

In any such program it is well to emphasize again that nutrition work should be well integrated with other functions of the state and local health departments. In planning this program we must not be discouraged because of shortage of trained personnel, and laboratory facilities. It must be remembered that no public health program was ever initiated under ideal circumstances.

REFERENCES

1. Food and Nutrition Board, National Research Council, Reprint and Circular Series, No. 122. *Recommended Dietary Allowances*. Revised 1945, Washington, D. C.
2. *J.A.M.A.*, 131, 8:666 (June 22), 1946.

Appraising the Nutritional Status of Mothers and Infants*

CLEMENT A. SMITH, M.D., AND
HAROLD C. STUART, M.D., F.A.P.H.A.

Boston Lying-in and Children's Hospitals; and Department of Maternal and Child Health, Harvard School of Public Health, Department of Pediatrics, Harvard Medical School, Boston, Mass.†

DR. Stuart and I have interpreted the title which we have been assigned on this program to refer to the appraisal of the individual mother and infant from the standpoint of recognizing general malnutrition or specific deficiencies in nutritional status. This is a very different and more difficult problem than that of assessing populations of mothers and infants from the standpoint of the incidence of nonspecific signs and symptoms and events which are known to be highly correlated with faulty maternal diet.

The finding that a new-born infant is very short or very light in weight does not justify the assumption that his mother's diet must have been deficient during pregnancy, for there are many other reasons why he might be small at birth. Group studies of the heights and weights of new-born infants in relation to the adequacy of their mothers' diets, however, justify the assumption that a declining average birth weight and length or an increase in the number of small babies born in a given period of time may well be due to changes in the general level of maternal nutrition during the period. Changes in the incidence

of such conditions as toxemia during pregnancy, stillbirth rates, premature birth rates, and neonatal death rates all justify serious consideration of the nutritional problems which may be involved. This introductory statement is made because in stressing the difficulties of appraising the nutritional status of individual mothers and new-born infants we are not considering the possible usefulness of certain signs and procedures as tools in group studies.

It happens that one of our main research projects illustrates very well the difficulties of the entire subject. Let me state our problem simply. We have, in the Boston Lying-in Hospital, a large supply of clinical material, plus a staff of obstetric and pediatric colleagues as keen and coöperative as might be desired. We have another group of associates able to record and evaluate nutritional histories with the caution and objectivity of long experience. We have facilities and personnel capable of making most laboratory measurements. Yet, faced with two Boston women and asked "Which is in better nutritional status—Mrs. A or Mrs. B?" we often feel at a loss for an answer. When, a day or so later, we are asked to answer the same question with regard to Baby A and Baby B, we feel very frustrated indeed.

No doubt, if we were comparing the

* Presented before the Food and Nutrition Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October '9, 1947.

† Studies referred to were supported in part by a grant from the Nutrition Foundation, New York City.

status of a small group of our patients with a group in China, or even in Birmingham, Ala., we could make a better showing for ourselves. But the difficulty is to rate *individuals* living in a region of relatively good nutritional circumstances. Perhaps a published example from a sound American study¹ in another northern state will show how this trouble arises.

Charts from Bethell's investigation of the relationship between the iron intake of Michigan women and the development of anemia during their pregnancies, showed that almost none of the women receiving the recommended daily intake of 15 mg. of iron became anemic. Of those with intakes below 8 mg., about 35 per cent did so. The chart thus clearly shows that iron intake is correlated with microcytic anemia. Yet these data indicate equally clearly that the clinician and laboratory worker could hope to appraise the past intake of iron correctly in only one out of every 3 pregnant women whose diets had contained one-half or less of the recommended daily allowance of an important nutritional item. Fully recognizing the risks of over-simplification, let us consider what might be expected of the infants produced by women on iron deficient diets. The classic work of Strauss² demonstrated that babies produced by mothers on such diets became significantly anemic at 6 months of age. He also showed that shortly after birth these infants of iron-deficient women had blood findings indistinguishable from those of infants born to women with good iron intakes.

After this rather querulous introduction to a very real dilemma, we may now examine the tools available for appraisal of nutritional status at whatever phase of life. These are (1) the *nutritional history*, (2) the general and specific symptoms and signs discoverable by *medical history* and *physical examination*, and (3) the results of *laboratory*

measurements. The first, of course, applies directly to the mothers and only indirectly to the new-born infants. Physical and laboratory examinations can, of course, be performed on both subjects.

1. Theoretically, the *nutrition history* has better potentialities than either of the other two. Obviously a laboratory scientist who knows *exactly* what an adult experimental rat (with normal absorptive powers) has eaten since birth should be able to compare that rat nutritionally with other rats of known intake. He could make a more accurate comparison by the nutritional history than by weighing the rat, feeling its hair, or measuring anything he might get from its blood or excreta. (If this hypothesis is not true it means that physical or laboratory findings are conceived to be more reliable than actual food intake. Probably no one would go that far—or would he?) To return to the matter in hand, we do not for a moment believe that the best nutritionist can get data as accurate as the record of a laboratory animal from a history of the most intelligent and coöperative mother. The point is, nevertheless, that the nutrition history *as a method* contains an element of direct relationship to the subject's nutritional state which is lacking in the other two methods. Otherwise the rather pernicious term "subclinical nutritional deficiency" would not be so often used.

If the inaccurate histories of vague informants are rejected as ruthlessly as would be laboratory measurements made with dirty glassware, if one includes an accurate record of the diet previous to pregnancy, and is careful to consider vomiting and other disturbances of absorption, the nutrition history offers an appraisal of unique value. We should especially like to stress the importance of diet before pregnancy in such a history, because of our Dutch experience. This indicated that mothers presumably

receiving an adequate diet previous to an acute period of nutritional deficiency show effects quite different from those appearing in pregnant women whose diets have been chronically inadequate.³

2. *Medical history and physical examination* as means of assessing nutritional status have disturbed us a good deal. It is somewhat revealing that at one point in our past efforts an obstetrician associated with our group said that he did not think he could rate mothers nutritionally, but he thought he could rate their babies, and at least one of our pediatricians thereupon mused that *he* was having a hard time rating the babies, but he would be glad to try rating the mothers. This simply illustrates the commonplace that the more closely one studies living organisms, the more cautious he becomes about quick judgments as to their individual superiority, inferiority, or, indeed, normality. Vilter, Morgan, and Spies⁴ have recently published an interesting description of the deficiency syndromes appearing during pregnancy. Although the frequency of individual symptoms was not tabulated, the authors indicated that such signs are brought into clinical prominence by pregnancy to a degree beyond their frequency in non-pregnant women. This is certainly what one would predict. Yet we have not found skin, eye, neurological, or other signs nearly so commonly in our pregnant subjects as logic and the literature would lead us to expect. For example, 11 cases of polyneuritis have been diagnosed in more than 45,000 pregnancies over the last 20 years at the Boston Lying-in Hospital. Indeed, we are so troubled by this state of affairs that arrangements are now under way to send a member of our group to study in another region of the country at a nutrition clinic where these physical signs are reported much more frequently than we are able to discover them.

So far as examining the *infant* for physical evidence of nutritional ade-

quacy, the problem is even more challenging. There are plenty of evidences that human fetal growth results in a fairly standardized product—at least in terms of nutrition and its components circulating in the blood stream. This is shown by the extraordinary rarity, in neonatal life, of the common nutritional deficiencies of infancy—rickets, scurvy, and anemia. It may be that only by following infants over 6 to 12 months after birth can one really appraise what is hidden in them when born. Such a method, of course, would have to be safeguarded by appraisal of nutritional and environmental factors added to the baseline established at birth. It would not be easy.

Variations in length and weight at birth, so easily correlated with maternal nutrition in animal studies, are not sufficiently specific to be relied upon in appraising the nutrition of the new-born infant—or, at least, in relating his nutritional status as an individual to that of his mother as an individual. This appeared in our study of pregnancy in undernourished women in Holland. The distribution curves indicated that birth weight and length fell as starvation continued, but many individual women who had lost weight during pregnancy gave birth to infants above the length and weight averages of those born to well nourished women in times of peace.

This failure of fetal weight gain to be a consistent reflection of maternal nutritional status is also a drawback to the use of special methods such as x-ray appraisals of osseous development and of measurements of tissue breadths as more delicate means of estimating the nutritional status of infants. Indeed, all we feel able to say at the moment is that the infant's size, as well as the amount and character of his measurable tissues, are in some measure, but by no means wholly, dependent upon maternal nutritional intake.

3. It was, therefore, our hope to find in

laboratory measurements the means of accurate nutritional appraisal. This seemed likely to reveal some useful mathematical data by which mother could be compared with mother, infant with infant, and (most desirable of all) infant nutritionally correlated with mother. As with Bethell's study of iron intake described above, we soon learned that correlations between maternal protein and vitamin intakes and the blood levels of these items are loose. Actually, correlation *can* be demonstrated for most items if sufficiently large groups are used. For ascorbic acid, the correlation between maternal intake, maternal blood level, and neonatal blood levels demonstrated sometime ago by Teel and Burke² is one of the closer ones. For vitamin A, there would appear to be almost no correlation at all. For other items, particularly riboflavin, we attempted to get our own information.

Warned by Dr. Lowry and others not to draw conclusions about riboflavin from blood levels, we worked a long time at trying to evaluate assays of this substance in the urine of new-borns. Unhappily, these subjects are notoriously uncoöperative in the matter of timed urine specimens. Therefore, we put in a good many hours appraising creatinine excretion as a guide to adequacy of urine collection. It would have been most satisfactory if new-born infants exhibited that constancy of creatinine excretion characteristic of adults. Unfortunately, as Dr. Stearns has indeed already shown, creatinine is not excreted in constant daily quantities by new-born infants. This exemplifies another difficulty of laboratory measurements in the neonatal period, a time when performance of the kidney obeys somewhat different laws from those which govern its performance during adult life.

For these reasons, and because the really important matter is not how much of a nutrient is circulating or being ex-

creted, we have recently been measuring the various nutritional items stored in the liver. This, of course, involves confining our present efforts to miscarriages, stillbirths, and neonatal deaths. It does not mean at all that we have given up as insoluble the problem of laboratory appraisal of nutrition in the living infant. Information as to storage, secured from a small, carefully studied series, does seem to offer a foundation of fact upon which we hope to proceed more wisely with the blood sample techniques applicable to clinical material.

In summary, our experience indicates that no satisfactory methods are yet available for the *exact* appraisal of nutritional status in individual pregnant or puerperal women and in individual new-born infants. Relations which may have statistical significance in interpreting the diet of pregnant women in groups are not always applicable to the interpretation of the state of nutrition of the individual. This is particularly true of subjects under relatively good nutritional circumstances. In more obvious degrees of starvation and malnutrition, the appraisal becomes easier. Even in those ranges the infants will differ largely in distribution curves constructed from measurements made upon groups. No single measurement gives promise of being especially useful; nutrition histories, physical examinations, and laboratory tests must be combined.

In view of the more than medical significance of the problem, the absence of simple methods for appraising nutritional status of mothers and infants is an important challenge to the ingenuity of workers in obstetrics, pediatrics, and nutrition.

REFERENCES

1. Bethell, F. H., Blecha, E., Van Sant, J. H. Nutritional Inadequacies in Pregnancy Correlated with the Incidence of Anemia. *J. Am. Dietet. A.* 19:3:165-172 (Mar.), 1943.
2. Strauss, M. B. Anemia of Infancy from Maternal Iron Deficiency in Pregnancy. *J. Clin. Investigation*, 12:345-353 (Mar.), 1933.

3. Smith, C. A. The Effect of Wartime Starvation in Holland upon Pregnancy and Its Product. *Am. J. Obst. & Gynec.*, 53, 4:599-608 (Apr.), 1947.

4. Vilter, C. F., Morgan, D., Spies, T. D. Nutrition in Pregnancy; the Effects of Dietary Deficiency in Pregnancy and the Detection and Treatment

of Nutritional Deficiency Diseases. *Surg., Gynec., & Obst.*, 83, 5:561-571 (Nov.), 1946.

5. Teel, H. M., Burke, B. S., and Draper, R. Vitamin C in Pregnancy and Lactation. I. Studies during Pregnancy. *Am. J. Dis. Child*, 56:1004-1010 (Nov.), 1938.

United Nations Appeal for Children

The Association's 75th Annual Meeting in October adopted a resolution of approval of "the program of the International Children's Emergency Fund and urges that it receive full and immediate support of the government and people of the United States."

The channels through which immediate and material support can be given to the program have now been announced. The United Nations Appeal for Children for the sinews of the war against starvation is being made through a federation of major voluntary foreign relief agencies designated by President Truman to handle American participation in the world-wide appeal for children. This organization, the American Overseas Aid and United Nations Appeal for Children, in February began a \$60,000,000 campaign to provide funds for the International Children's Emergency Fund and 24 private overseas relief agencies.

Up to now the Children's Fund has been supported largely by governments, the United States having made an ini-

tial contribution of \$15,000,000 with another \$25,000,000 to be made available on a matching formula. Pledges from 14 governments and UNRRA totaled \$40,000,000 in mid-January.

In January, the Emergency Fund was providing a daily supplementary meal to nearly four million children and pregnant and nursing mothers in 12 European countries. This feeding is done through infants' and children's centers, schools, orphanages, and maternity centers.

Maurice Pate of the United States is Executive Director of the Fund, Dr. Ludwik Rajchman of Poland is Chairman of its Executive Board, and Martha M. Eliot, M.D., is its Chief Medical Consultant.

Each reader of the *Journal* can echo the Association's resolution by sending his contribution—speedily and generously—to:

American Overseas Aid and
United Nations Appeal for Children
39 Broadway
New York 6, N. Y.

A Schick Survey of 18,000 Naval Recruits*

F. S. CHEEVER, M.D.

*Department of Bacteriology and Immunology,
Harvard Medical School, Boston, Mass.*

THIS paper is a preliminary report of the results of a Schick survey carried out among naval recruits in the period October, 1941—January, 1942, under the direction of Captain LeRoy D. Fothergill, Medical Corps, U. S. Naval Reserve. The purpose of the survey was twofold—first: to determine the percentage of recruits susceptible to diphtheria, and second: to determine what proportion of these susceptibles could safely be immunized with diphtheria toxoid. The rapid mobilization of men from all parts of the country for military training and service during the latter half of 1941 had created conditions favorable to the spread of many communicable diseases—and particularly those whose etiological agents gain entrance to the body via the respiratory tract. The 1940–1941 outbreak of diphtheria in Halifax had drawn attention to the dangers of a situation in which a virulent

strain of the diphtheria bacillus was introduced into a relatively susceptible population living under conditions of marked overcrowding. Since the status of an individual's immunity against diphtheria could be determined easily, and since effective means of artificial immunization were available, it was felt that such a survey would yield valuable information as to the possibilities of an outbreak of this disease, and as to the feasibility of a program of active immunization with diphtheria toxoid.

The recruits examined, over 18,000 in number, were drawn from all parts of the country. They had been newly inducted into the Naval Service, many of them within a matter of days, all of them within a few weeks. They were divided among the four U. S. Naval Training Stations in operation at that time, as shown in Table 1. The great majority of the recruits tested were

TABLE 1

Distribution of Recruits Among Training Stations and Incidence of Schick-positive Reactors

<i>Training Station</i>	<i>Number Tested</i>	<i>Percentage</i>	<i>Incidence of Positive Schick Reactors</i>
Newport, R. I.	4,904	26.5	40.9
Norfolk, Va.	4,560	24.7	16.6
Great Lakes, Ill.	4,017	21.7	47.5
San Diego, Calif.	4,996	27.0	32.7
Unknown	22	0.1	..
Total	18,499	100.0	34.2

* Presented before the Epidemiology Section of the American Public Health Association, at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 8, 1947.

young adults; the age distribution is given in Table 2.

The Schick test was carried out by

TABLE 2
Distribution of Recruits by Age

Age	No. of Recruits	Percentage
17	4,064	25.2
18	2,972	16.1
19	1,922	10.4
20	1,455	7.9
21	2,364	12.8
22	1,510	8.2
23	957	5.2
24	674	3.6
25	524	2.8
26	424	2.3
27-52	1,033	5.5
Total	18,499	100.0

injecting intradermally into one forearm 0.1 ml. of a standard diphtheria toxin so diluted that 0.1 ml. contained 1/50 m.l.d. The Moloney test was performed simultaneously by injecting 0.1 ml. of a 1:100 dilution of diphtheria toxoid into the other forearm by the intradermal route. The tests were read and the measurements of any positive reactions recorded at the end of 48 hours, and again at the end of 120 hours. The interpretation of the measurements of the individual tests were all carried out by one person (Captain Fothergill). Pertinent data concerning each recruit were collected at the time the test was performed. These included name, age, place of birth, place of residence before and after the age of 10 years, any history of an attack of diphtheria in the individual or in members of his immediate family, and finally any history of active or passive immunization against diphtheria.

The results of the Schick tests are summarized in the last 2 columns of Table 1. The incidence of Schick-positive reactors for the group as a whole

was 34.2 per cent, i.e., according to the Schick test approximately 1 recruit out of 3 was susceptible to diphtheria. The results of the Moloney tests are given in Table 3. The incidence of positive Moloney reactions among susceptible recruits (i.e., those giving Schick-positive reactions) was 24.4 per cent. Thus, approximately 1 susceptible recruit out of 4 would have reacted unfavorably to injections of toxoid had it been necessary to institute a program of immunization with this agent. As was expected, the incidence of positive Moloney reactions was significantly higher in recruits giving negative Schick tests.

The marked variation between the incidence of Schick-positive reactions in the four subgroups (i.e., 16.6 per cent at Norfolk as compared to 47.5 at Great Lakes) suggested further breakdowns in an effort to determine what factors could be correlated with susceptibility to diphtheria. Recruits were divided according to the geographical area (New England, Mid-Atlantic, South Atlantic, East South Central, West South Central, Mountain, and Pacific) in which they were born, in which they resided until the age of 10, and in which they lived after the age of 10. The figures for these three groups parallel each other reasonably closely.

The incidence of Schick-positive reactions was significantly higher in the northern half of the country no matter what classification (birthplace, residence to age 10, residence after age 10) was used. The reasons for this are not clear. The relatively greater amount of clinical

TABLE 3
Moloney Reactions by Immunity Status

Category	Moloney-Positive		Moloney-Negative		Total
	No.	Percentage	No.	Percentage	
Susceptible	1,538	24.4	4,773	75.6	6,311
Immune	5,998	49.2	6,190	50.8	12,188
Total	7,536	40.7	10,963	59.3	18,499

(and presumably subclinical) diphtheria in the South at present may be the important factor in the lower incidence of individuals susceptible to the disease, or again more vigorous campaigns for active immunization against diphtheria may be the cause. These and other possible factors require further analysis before an accurate appraisal of their relative importance may be made.

The incidence of Schick-positive reactions classified according to the age of the individual recruit is shown in Table 4. Contrary to expectations the percent-

TABLE 4

Incidence of Schick-positive Reactors by Age of Recruit

Age	No. Tested	Schick-positive	
		No.	Percentage
17	4,664	1,256	26.9
18	2,972	931	31.3
19	1,922	649	33.8
20	1,455	468	32.2
21	2,364	819	34.6
22	1,510	648	42.9
23	957	400	41.8
24	674	277	41.1
25	524	223	42.6
26	424	190	44.8
27-52	1,033	550	43.6
Total	18,499	6,311	34.1

age of recruits susceptible to diphtheria increased rather than decreased with age, and there was no evidence that any gradual immunization of the population presumably due to clinical or subclinical attacks of the disease occurred between the ages of 17 and 26. It is planned to analyze these figures further by comparing the age trends in different geographical sections of the country.

An attempt was made to evaluate the effect of a history of artificial immunization upon the incidence of positive Schick reactions. Recruits giving such a history were classified according to the interval since immunization, and the incidence of positive reactions compared. The results are given in Table 5. Similar studies were done on the groups giving a history of clinical diphtheria in the

TABLE 5

Schick-positive Reactions by Year of Active Immunization Against Diphtheria

Year Immunized	No. Immunized	Schick-positive	
		No.	Percentage
1941	91	20	22.0
1940	247	43	17.4
1939	339	61	18.0
1938	369	66	17.6
1937	399	90	22.6
1931-1935	1,516	318	21.0
1926-1930	921	245	26.3
Before 1926	175	51	29.8
Unknown	94	27	28.7
Totals	4,551	997	21.9

individual or among the members of his immediate family. The results are given in Tables 6 and 7. Admitting the prob-

TABLE 6

Schick-positive Reactions by Year of Occurrence of Clinical Diphtheria

Year	No. Cases	Schick-positive	
		No.	Percentage
1941	1	0	—
1936-1940	47	11	23.4
1931-1935	140	29	20.0
1926-1930	236	53	22.4
1921-1925	206	38	18.4
Before 1921	52	17	32.7
Date unknown	5	2	—
Total	686	140	20.2

TABLE 7

Schick-positive Reactions by Year of Exposure to Clinical Diphtheria in Family

Year	No. Cases	Schick-positive	
		No.	Percentage
1941	3	0	—
1936-1940	101	24	23.9
1931-1935	265	62	23.4
1926-1930	298	72	24.2
1921-1925	192	56	29.2
Before 1921	64	27	42.2
Date unknown	21	7	33.3
Total	1,044	248	23.8

able inaccuracy of an unknown percentage of the histories, the figures as obtained did not show a marked correlation between the incidence of positive Schick reactions and the interval since

the occurrence of any of these three events.

It is obvious that further statistical analysis is necessary before the significance of these figures can be assessed. Other factors which may be correlated with the incidence of Schick-positive reactions are being investigated. It is planned to supplement this brief preliminary report with a more detailed and complete analysis of all these factors.

SUMMARY

1. A Schick survey of 18,499 naval recruits revealed that 6,311, or 34.2 per cent, gave positive Schick reactions.

2. Of these 6,311 recruits presumably susceptible to diphtheria, 1,538, or 24.4 per cent, showed positive Moloney reactions when tested for sensitivity to diphtheria toxoid.

3. The incidence of susceptible recruits was significantly higher in men coming from the northern part of the United States as opposed to those coming from the southern part.

4. The percentage of recruits giving positive Schick reactions increased with age.

NOTE: This survey was carried out by the following medical officers: Capt. R. W. Babione, MC, USN; Cdr. F. A. Butler, MC, USN; Cdr. F. S. Cheever, MC, USNR; Cdr. J. N. DeLamater, MC, USN; Cdr. R. A. Mount, MC, USN; Cdr. O. F. Munch, MC, USNR; Lt Cdr. L. R. Schoolman, MC, USNR.

Dental Health Education Services of the American Dental Association*

GLENN A. G. WALTER

Dental Health Education Consultant, American Dental Association, Chicago, Ill.

THE American Dental Association has the responsibility of offering leadership and guidance in a dental health education program at a national level. Its dental health education services are planned as part of an integrated general health program, and emphasis on the need of accepting the responsibility for dental care is directed toward the individual, family, and community in that order.

The following objectives have been adopted by the American Dental Association for the national dental health program:

1. Help every American to appreciate the importance of a healthy mouth.
2. Help every American to appreciate the relationship of dental health to general health and appearance.
3. Encourage the observance of dental health practices, including personal care, professional care, proper diet, and oral habits.
4. Enlist the aid of all groups and agencies interested in the promotion of health.
5. Correlate dental health activities with all generalized health programs.
6. Stimulate the development of resources for making dental care available to all children and youth.
7. Stimulate all dentists to perform adequate dental health services for children.

Although the overall program for dental health education is directed toward the individual's responsibility and the facilities available in his particular com-

munity, the American Dental Association has established certain principles to govern the operation of this national dental health program.

These four principles act as a guide and a control from the national level:

1. *Research*—Adequate provision should be made for research which may lead to the prevention or control of dental diseases.
2. *Dental Health Education*—Dental health education should be included in all basic educational and treatment programs for children and adults.
3. *Dental Care*—
 - a. Dental care should be available regardless of income or geographic location.
 - b. Programs developed for dental care should be based on the prevention and control of dental diseases. All available resources should first be used to provide adequate dental treatment for children and to eliminate pain and infection for adults.
 - c. Dental Health is the responsibility of the individual, the family, and the community in that order. When this responsibility is not assumed by the community, it should be assumed by the state and then by the federal government. The community in all cases shall determine its methods for providing services.
4. *Participation in Program Planning*—In all conferences that may lead to the formation of a plan for dental research, dental health education and dental care, there should be participation by authorized representatives of the American Dental Association.

The first responsibility of the American Dental Association in a national dental health program is to keep the members of the dental profession informed of the results of all scientific dental research, and the basic dental health concepts that are developed. An

* Presented before the Dental Health Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 9, 1947.

explanation of all phases of the dental health education program is presented to the professional membership, and they are encouraged to participate in the dental health education activities as part of an integrated general health program in their community.

The dental health planning workshops in the state and local dental societies have been organized to study the dental health problems in a particular area, and should be first in any discussion of what is being done by the American Dental Association in dental health education. These workshops are organized by the state and local dental societies with the assistance of the Council on Dental Health of the Association, and offer a means of coördinating the work of the local, state, and national councils on dental health. These workshops have been held in Ohio, New York, Louisiana, New Jersey, Georgia, Connecticut, and Minnesota. Illinois, South Dakota and Oregon plan to hold workshops within the near future.

The workshop offers an administrative framework for coördinating functions, but the Councils on Dental Health at the local and state level offer guidance and leadership in dental health education to the general health program of the community in the same manner that the Council on Dental Health of the American Dental Association offers guidance and leadership in dental health education to the national health program.

It is impossible for the present dental personnel to meet the present dental disease problem, and prevention through education is the only possible solution. The schools, established health and welfare agencies, allied professional societies, commercial companies, and service organizations have trained personnel who are usually qualified to present their particular type of service at the time and place most meaningful to the individual, and it seems important that

dental health facts should be made available to these qualified people in a manner that can be most efficiently integrated into the general health services. It is with this thought in mind that most of the dental health education literature and activities are being planned.

Consultation services are available to official and voluntary agencies in the formation of policies for a practical and effective integration of dental health programs. It is hoped that this will prevent a feeling of being "told what to do"; but will give an opportunity for the individual to learn good dental health habits that are consistent with his particular problem and environment. The same opportunity is offered to the community; in studies of their own local dental health problems, and needed available factual information prepared to be used by the personnel of their own health services. In other words, each community, and each agency in the community has the privilege and responsibility of solving its own dental health problems; but professional guidance and factual information are made available for that purpose.

The dental health education program of the American Dental Association consists of two general services:

1. Advisory and consultative assistance in dental health education is provided free of cost to all component and constituent dental societies, departments of health and education, professional and lay organizations, commercial agencies, and to authors and publishers of school textbooks and magazines. This consultant service makes it possible to interpret present dental health concepts which are factually correct and consistent with scientific research to a group of people who have facilities for reaching a large segment of the population without employing a new tool or additional personnel in any one specialized field.
2. The second service is the production and distribution of dental health education aids, which include printed materials, films, film strips, and slides; magazine and newspaper articles; radio scripts and transcriptions, and exhibit materials. These dental health edu-

cation aids are distributed directly to the public, but it is preferable to supply them to an agency that can give the necessary motivating preparation and follow-up services to make the materials most meaningful to the individual and the community. There will be a limit on the number of pieces of material that can be obtained from the American Dental Association, but this is the result of keeping dental health information factually accurate and consistent with dental research. A definite nomenclature is being established for use in dental health literature, which will be helpful in all teaching procedures.

It is important that teachers and the personnel of all official or voluntary agencies who are participating in the teaching of dental health education should have had not only the opportunity to learn the basic dental health facts, but have also experienced good personal dental care.

The need for dental health education materials to be used in teachers' training schools, nurses' training schools, social service training divisions, and in all schools of public health as well as the materials needed immediately for inservice preparation of classroom teachers, school administrators, nurses and physicians, and other specialized groups are recognized by the dental profession and will be met as quickly as possible.

You will notice when you review the dental health education materials that are available from the American Dental Association that there are 3 dental health rules employed in all of the information distributed to the general lay public:

1. Visit your dentist at least every 6 months or as often as he recommends.

2. Eat an adequate diet, restricting refined carbohydrates, especially sugars. Emphasis is being placed on the limitation of soft drinks, candies, and chewing gum.

3. Brush your teeth properly and thoroughly immediately after eating. Special attention is being given to pointing up the fact that the dentist is the person who should determine the best method of toothbrushing for the individual mouth and prescribe the correct type of toothbrush and dentifrice to be used.

It is essential that these basic principles of dental health be understood and be made meaningful to every individual if we hope even to begin to control the problem of dental diseases. This can be done only by everyone coordinating his information and efforts with all of the facilities that are available in each community. The layman is extremely busy, and cannot be expected to spend much time or effort on lengthy reports, but will use a few facts that are presented to him time and time again. The assimilation of these facts into a satisfying experience will finally result in a desirable dental health habit. It is extremely important that good personal dental health habits are formed early in life.

Unfortunately, dental caries, which is the most prevalent dental disease, is always more rampant during youth. This is an age period filled with many more interesting and exciting things to do than conscientiously to follow a daily dental health routine for which little or no personal recognition is given. Irregular dietary habits, and the desire for confections at this age all add to the total lack of dental health in our youth.

Again, I want to say that this type of teaching must be done by personnel who have an opportunity for frequent contact with the individual whose attitude toward dental health is being influenced. Dental disease is not dramatic, and does not in most instances necessitate hospitalization. Therefore, it lacks much of the emotional appeal that is being used to stimulate interest in other diseases in a national prevention program. Dental diseases are slow, insidious processes and require a day-to-day attack.

Although dental disease is the responsibility of the individual, it must be recognized as a community public health problem, and all of our combined efforts are constantly required to attain the highest potential level of dental health—through dental health education.

International Trends in Health Care

JOHN B. GRANT, M.D., F.A.P.H.A.

International Health Division, The Rockefeller Foundation

DEVELOPMENTS outside North America in health care during the past decade have been almost revolutionary. Activity centers in European countries and in the British Commonwealth. In carrying out under the auspices of the International Health Division of The Rockefeller Foundation a preliminary survey of work and literature in the field of health care, twelve countries were visited. These countries were Australia, Canada, Denmark, England, Finland, France, The Netherlands, New Zealand, Norway, Sweden, Switzerland, and the United States. In what follows an attempt will be made to reproduce the main impressions received during this travel and to give at the end a list of chief items in the literature.

In spite of the remarkable amount of work already done, there is not yet available a universally accepted definition of health care or any clear agreement on its scope and contents. At the outset, however, the International Health Division of The Rockefeller Foundation in arranging for the above mentioned survey was prepared to accept the following assumptions:

Health of mind and body is a basic human need. A healthful community is a basic social need. *Social Medicine*, which has as its aim the meeting of these needs, is committed to a program of curative and preventive measures for the protection of the individual and the community against whatever interferes with full development and maintenance of both mental and physical capacity. It is also prepared to advance beyond these measures to the promotion of positive health through application of sociological techniques and methods.

Social Medicine, Medical Care, or Health

Care are so interchangeable as to be almost synonymous. Preference, following South African usage, should perhaps be given to the term *health care*.

Adequate Medical Care makes available to every individual in the community, without discrimination, all facilities of medical science necessary to achieve and maintain optimum health of mind and body.

The General Medical Council of Great Britain specifies more particularly that adequate social medicine aims "to seek and to promote measures, other than those usually employed in the practice of remedial medicine for the protection of the individual and of the community against such forces as interfere with the full development and maintenance of man's mental and physical capacity." Thus, medical care extends clinical medicine beyond clinical diagnosis to social pathology and therapy, thereby making it the task of medicine to assure a mentally and physically healthful community.

By any interpretation it is clear that the "full development and maintenance of mental and physical capacity" depends not only on adequate medical services but also on minimum standards of nutrition, housing, recreation, education, and social security. Acknowledgment of the importance of these non-medical factors comes out clearly in the principles of policy adopted today by most organized medical professions, such as the first and last of the ten principles of the American Medical Association, stated in June, 1945, and restated in February, 1946, which are concerned with providing necessary non-medical factors by community efforts and government aid, if it is not possible

to gain them by individual effort.¹ The South Africans have adopted the term health care in preference to medical care to emphasize the non-medical promotive and rehabilitative, as well as the medical preventive and remedial, essentials needed to arrive at full mental and physical capacity.

The provision of *medical* services depends upon three prerequisites. These are: removal of economic barriers; sufficient personnel and facilities, properly distributed; and, finally, a high degree of technical excellence in both medical personnel and equipment. Economic barriers to health care can be removed only through organized voluntary or compulsory measures. Medical personnel with adequate training must be available in sufficient numbers to deal with significant social and environmental conditions as well as clinical pathological symptoms. However, neither removal of economic barriers nor provision of adequate personnel suffices, unless there is a proper geographical distribution of both personnel and technological tools.

In deciding upon the scope of health care, two final generalizations should be taken into account. Effective measures for health promotion, disease prevention, and rehabilitation require government action and cannot be attained through voluntary initiative. This is possibly true even of curative medicine. Even in the United States some legislation is already on the statute books with respect to each of these four services, and Senator Taft's health insurance bill, limited as it is, would extend facilities for care beyond the public assistance group. The second generalization is that legislation should not be of a negative nature based on political grounds, generally due to considerations of labor, but of a positive nature based upon social-economic necessity to promote the quality of population.

The first stage of social welfare, de-

veloped a century and a half ago in England, consisted of paternalistic legislation largely to relieve outstanding ills. It was based solely upon humanitarian and philanthropic motives. All countries have passed this stage. The second period, developed some sixty years ago in Germany, dealt with social insurance. Such insurance was motivated by political considerations. The purpose was to provide security to labor by pooling risks through unemployment insurance. Most countries, including the United States, are in this second stage. The third stage is based squarely upon a population policy which aims to improve the quality of human capital by legislation directed toward removing the causes of social ills. Swedish, Danish, French, and, to a growing extent, Finnish legislation is now based upon recommendations of commissions considering the improvement of population. The report of the English Population Commission will appear in 1948.

It should be borne in mind that the component parts of legislation always vary with the economic philosophy of the political party enacting the legislation. The English Health Services Act of 1946 was inevitable with either a Labour or Conservative government in power, but the Conservatives would not have nationalized the hospitals. A health insurance act seems inevitable in the United States, but the Wagner Bill differs in shape from the Taft Bill.

The foregoing constituted the base line upon which the survey was made and by which trends were interpreted. The survey was concerned primarily with strictly medical trends, but note was also taken of essential developments in non-medical measures required for the maintenance of mental and physical capacity. The latter will first be briefly reviewed.

NON-MEDICAL FACTORS

1. *General Security*²—Strictly non-

medical social welfare legislation to provide security has, generally speaking, been enacted earlier and in more comprehensive form than legislation based upon medical or population considerations. Previous to 1937 Danish legislation was the most comprehensive, but Denmark has now been passed by New Zealand. Britain, and France, and shortly will be by Sweden. Thus, the English 1946 National Insurance Act³ provides nation-wide coverage for old age and invalidity, widows and orphans, unemployment, workmen's compensation, and funerals, as well as cash benefits for illness. All of these countries now provide one or more of the foregoing to restricted population groups. Countries having nation-wide coverage, apart from medical services, legislate specifically to promote health. Such legislation provides family allowances, disability training, and various help for married women, including maternity benefits. Family allowances, except for the United States, are now universal. In England it is a matter of national interest to help parents to maintain their children. A substantial part of the benefits is given in kind through school meals and milk services, which cost the nation 60 million pounds a year. In addition, there are 69 million pounds for cash allowances. Individuals requiring refresher training as a part of disability rehabilitation are given an allowance in excess of unemployment benefit. Women receive a maternity grant of 4 pounds, and if gainfully employed, a maternity allowance of 36 shillings a week for 13 weeks. Women not eligible for the latter allowance receive an attendance allowance of a pound a week for 4 weeks to provide domestic help, in addition to the maternity grant. In France there is, in addition, an allowance during pregnancy. Publicly provided home-aid services constitute an important international post-war development.⁴

The amount of social security costs paid from insurance premiums varies in different countries from 40 to 70 per cent, the balance being met by funds derived from the general exchequer. The English social insurance costs including health for 1948 will require at least 10 per cent of the national income, while the South African estimate for 1955 is 15 per cent. The United States federal expenditures in 1946 on social welfare constituted 1.3 per cent of the national income. It is of interest to know that in addition to the general income tax, both New Zealand and Australia levy a special welfare tax of 1/6 on the pound.

2. *Housing*⁵—Measures more immediately promoting health deal with housing, nutrition, recreation, and education. There are two types of government housing policies, an older one based on rental returns and a newer one on population needs. Outside of North America, Holland is the only country where rental returns still predominantly determine government policy. The same policy is advocated in the Taft-Ellender-Wagner Bill. Sweden has evolved the clearest example of a policy determined solely on population needs with no reference to rental returns. This policy acknowledges that the majority of families cannot pay rentals high enough to yield a profit on the housing they require. Consequently, the Swedish Government, in addition to granting third mortgage loans up to 95 per cent of the value of the property, guarantees the interest on the first and second mortgage loans, and also supplements the third loan by tax subsidies. The government without a means test also underwrites from 30 to 40 per cent of the rent. The exact amount depends on the number of children. Housing policy in the other countries reveals a similar trend. Finland, Norway, and Denmark, although providing for rent allowances determined by the number of children, have certain

variations. For example, Denmark has an upper income bracket, the allowance is paid only after the third child, and the family must live in a state-designated house. In New Zealand less than 1 per cent of houses are built on a rent return basis, and government subsidies keep the maximum rental at 25 shillings a week. Even this is more than paid for by the family allowance of 10 shillings per child per week if there are three children in the family. There is increasing international acknowledgment that rentals should not exceed 20 per cent of the wage of the laboring group.

Every country now has a national housing agency, and a number have town planning agencies. Planning is much occupied with neighborhood units of 10,000 population, some of which provide for health centers. Research is an important feature in England, Holland, and Denmark. Housing has been related to health in international literature, but due to the initiative of the American Public Health Association,⁶ the United States is the only country where such health standards have been specifically formulated.

3. *Nutrition*⁷—All European countries except Holland are establishing food policies resembling those already operating in Great Britain and Sweden. Among the items included in these policies are free or subsidized protective foods to specific population groups, enrichment of certain foods, free school lunches, price control backed by subsidies, and increased production of essential foods, particularly milk. None of the four nations of the British Commonwealth has, as yet, adopted an overall nutrition policy. South Africa, which has done so for a small percentage of its population, is an exception. However, all of the twelve countries to a greater or lesser extent provide school lunches.

4. *Recreation*—The need for mental,

social, and physical recreation, acknowledged by the American Medical Association in its tenth principle, is increasingly provided for through community centers. The underlying principles illustrated by the Peckham Center⁸ in England are that to enjoy physical and mental health the family unit must have normal social and biological outlets. These are available in rural agricultural communities, but not in industrial centers. The Peckham neighborhood unit, with its freedom of social activities and adequate admixture of families from different walks of life, permits spontaneous social-biological development, thus correcting maladjustments which make positive health unobtainable. Community centers are developing more rapidly in England than elsewhere because they became mandatory under the Education Act of 1944. South Africa has ambitious plans. The National War Memorial Health Foundation established by the veterans of the recent war is now soliciting 5 million pounds for a war memorial to take the form of 400 community centers similar to the Peckham experiment, to be erected beside each of 400 health centers in process of construction by the Ministry of Health.

5. *Education*⁹—Conventional health education of either the "propaganda" or the standard school instruction type is found to a greater or lesser extent in each country. The only effective departure from convention has been gradual introduction of the "workshop" technique in the United States and Canada, whereby representative lay leaders of the community under the direction of a trained individual discuss prepared material concerning medical care. During such a seminar, lasting one or more days, participants reach their own conclusions on what steps must be taken to meet community educational needs. These techniques have been most successful in Manitoba and in some of the

western states. The Farm Foundation and the Interbureau Committee of the U. S. Department of Agriculture, through its Farm Security Administration, are developing work of this pattern in various parts of the United States. The program is to have each agricultural college appoint a qualified worker who endeavors to have the surrounding area take the initiative in establishing prepayment plans for medical care, obtain personnel and facilities, and establish and strengthen local public health units. Presumably health departments should extend the scope of their educational activities to cover the field of medical care.

The most significant of the foregoing "non-medical" trends is to make population policy^{10, 7} a determining factor in welfare legislation. Such policies are still largely empirical and will not become scientific until disciplines are developed in social physiology, pathology, and therapy, directed specifically toward the development of the mental and physical capacity of man in relation to his environment and his community. This scientific development is a responsibility which universities are only just now beginning to undertake. University leadership could be achieved through an extension of the existing medical and other university disciplines, with a sound biostatistical approach, into such social sciences as anthropology.

MEDICAL FACTORS

It has been stated that the adequate provision of medical services for prevention of disease, cure of illness, and rehabilitation of disability requires removal of any economic barrier; adequate and geographical distribution of medical facilities and personnel; and a high technical excellence of the personnel and their tools. Recent legislative trends and thinking in these three essentials during the past decade display an almost revolutionary trend.

The overall international legislative picture is summarized in "Health Insurance, A Report of the Canadian Parliamentary Committee on Health Insurance."¹¹ A recent summary of North-western Europe is given in two U. S. Public Health Reports.¹²

1. *Economic Barriers*—Denmark is the only country which for a majority of its population over a decade ago provided medical care, largely on a "voluntary" basis.¹³ The other Scandinavian countries, while giving practically nation-wide hospitalization, were providing medical services to only a part of their populations, chiefly through mutual aid societies. The situation is changing very rapidly. New Zealand, beginning in 1938, enacted legislation which now provides comprehensive care, including free hospitalization, on a nation-wide basis for all services except specialists.¹⁴ The Germans during their occupation of Holland put through forcibly compulsory insurance for a comprehensive service based on a means test. France, as of January, 1947, inaugurated universal coverage as comprehensive as that of any other country.¹⁵ A similar Health Services Act in the United Kingdom is due to be inaugurated July, 1948.¹⁶ A similar Swedish Act begins operation in 1950. The South Africans and Australians, since the war, have provided nation-wide, tax-supported hospitalization as a first step in a planned, and comprehensive nation-wide coverage. The Finns also, since the war, are proceeding to provide this as rapidly as their special economic circumstances will allow. Norwegian legislation is in the drafting stage. Canada published in 1945 its White Paper¹¹ for comprehensive national health insurance, approved by its Medical Association. Failure of implementation has been due chiefly to broad non-medical economic factors relating to the division of fiscal powers between the Dominion and the Provinces. In the meantime.

Saskatchewan has inaugurated compulsory hospital insurance. Here in the United States there are the recurring and pending Wagner and Taft Bills, while the Hospital Survey and Construction Act¹⁷ is already law.

The only two countries in which insurance on a voluntary basis continues to receive consideration are Denmark and the United States. Insurance in Denmark is in reality only partially voluntary, because hospitalization for the 100 per cent population covered is entirely tax-supported, and medical services for the 80 per cent covered through the friendly societies are supported more than 60 per cent by taxes. It is stated that in the United States as of July 1, 1947, there were twenty-seven million enrolled under Blue Cross hospitalization plans, and six million enrolled under fifty-six medical society-sponsored plans. Membership in the latter is generally restricted by income level, and coverage is limited. It is estimated that some nine million persons carry commercial indemnity insurance for more or less limited coverage. The details of the present trend for medical care in this country are extensively reviewed in *Medicine in the Changing Order*¹⁸ and *Blue Cross and Medical Service Plans*.¹⁹

It is now anticipated that Britain's comprehensive medical care coverage will cost 200 million pounds for 1948-1949, or approximately \$20 per capita. The premiums received from insurance will meet less than one-third of the cost.

Britain's national income and total government expenditures for the year ending March 31, 1946, were approximately 5,500 million pounds each. Expenditures for the same period for social security and welfare, exclusive of education, were a little over 500 million pounds. Because of the large military expenditures included in this period in the total government expenditures, the proportion given to social security and welfare is perhaps not that of a typical

year. For a population of 1.7 million, the approximate 1944 figures for New Zealand were, for national income 300 million pounds; government expenditures, 100 million pounds; social security, including medical, 43 million pounds; and health coverage, 7 million pounds—the latter being in the range of \$13 per capita, with the New Zealand pound reckoned at \$3.25.

England, Denmark (mainly), and the Netherlands provide a capitation basis for paying general practitioners. Specialists are paid either through part-time salary or, more commonly, on a fee-for-service basis. In England they will be paid entirely on a part- or full-time salary basis. France and Sweden require that the insured person bear a part of the cost of the medicine and services provided by the general practitioner.

Three major defects in the planning of legislation for medical services seem common to the countries visited. The most serious is the complete failure, except in regard to physicians in Australia, to consider the categories and number of personnel required and the training needed to implement the organization envisioned by legislation. Second, except in South Africa, planning and legislation are for sickness rather than health insurance. Third, invariably there is inadequate provision for the three chief lags in medical care today: chronic, mental, and rehabilitative services. In addition, there are two minor defects. Planning in most countries has gone ahead in water-tight compartments without adequate reference to what is developing in other countries. Generally speaking, such observers as were sent abroad saw only established activities and overlooked the embryonic developments, which in ten years will establish the unmistakable pattern of tomorrow. Also there is almost complete disregard of the need for auxiliary medical personnel. The

United States, and, to a lesser extent, Canada are the only countries where the training of auxiliary medical personnel in all categories, except practical nursing, has become standardized, with the level of training controlled by a national organization. Similarly, these two countries are the only ones where hospital administration with regard to standard records, etc., has reached a level at all satisfactory.

One was struck by the preoccupation of national health administrators with medical services and legislation, to the exclusion of general health problems. This is true in spite of the backwardness of a number of countries in non-personal general services, environmental health and epidemiology, including laboratory diagnostic services. There is not enough recognition in these countries that a successful medical care program can be reared only on the foundation of an adequate public health program.

2. *Geographical Distribution of Facilities and Personnel*—The chief aspects to be considered are regionalization of institutions, bed requirements, numbers and function of health centers. Adequate regional distribution of institutional facilities is a need which has been increasingly accepted since the publication of "Future Provision of Medical and Allied Services"²⁰ by the British Ministry of Health in 1920. This report is the basis for "Health Services Areas"²¹ and other national planning proposals,²² including the official recommendations of a number of medical associations. Regionalization is enacted in the British Health Services Act (1946)¹⁶ and constitutes the chief basis of the recent report, *Hospital Care in the United States*.²³ France also has a scheme now being implemented for the national regionalization of hospitals and health centers very similar to the English plan.²⁴ The Scandinavian countries, beginning with Denmark (1925), have zoned hospitals to give each designated

region smaller "mixed" hospitals as well as a "central" hospital possessing medical and surgical departments with diagnostic facilities. But there has been no organization for the coordination described in the American experiments.

The overall pattern in different countries is similar. Efficient regionalization provides for institutions at three to four levels, the health centers at the periphery stemming back through community and district hospitals to a coordinated base, which preferably should be a teaching institution. There should be a two-way flow between base and periphery, which assures routine services at each level for diagnosis, consultations, and continuation education. However, no country has as yet an example of such fully coordinated regionalization. If one were available, it would constitute a most potent factor in bringing about more adequate medical care.

Three significant experiments toward this end are now in process in the United States under the auspices of the Bingham Associates,^{25, 26} Boston; the Council of Rochester Regional Hospitals,²⁷ Rochester, N. Y.; and the Michigan Community Health Program.²⁸ Foremost trends and experiments are summarized in "The Health Department and Medical Care — Certain Trends."²⁹ The most discussed physical aspects of regionalization are the number of beds and health centers required in terms of population units.

The overall pattern emerging from these three experiments has remarkable uniformity: A regional group of hospitals expresses an interest in associating with a teaching base hospital. The local diagnostic facilities are surveyed and strengthened both as to equipment and personnel. The technicians in the smaller hospitals are supervised by full-time specialists at the designated larger hospital. Qualifications for medical staff membership are laid down. The hospital service is departmentalized at

least into medicine and surgery, and assistant residents from the base inaugurate teaching ward rounds. A teaching resident is made available for one or more hospitals. As a result, central pathological conferences are instituted at routine periods, supplemented by special teaching clinics, which may or may not be conducted by specialists from the teaching base. Further steps are the inauguration of continuation education for the local medical practitioners and the institution of graduate training for specialists. The affiliated hospital meets the requirements of the board of the specialty in which training is to be given. The assistant resident proceeding to the teaching base in the second year for training in the basic sciences is replaced by an assistant resident from the teaching center. The candidate returns to the parent hospital for his third or additional resident years. As an additional feature the teaching hospital provides consultations in the regional hospitals and also "refresher" courses at the base, extended gradually to all categories of personnel besides physicians. The scheme, when complete, establishes satisfactory diagnostic services and continuation and graduate education.

Hospitals—Discussion of the number of beds required has resulted in a special bibliography. In what follows some of the more important English references are noted. Most of the figures are derived empirically. The two most careful overall studies of requirements are those of the Hospital Council of Greater New York³⁰ and of the Commission on Hospital Care.²³ The latter bases requirements on a bed-death ratio. This ratio varies from community to community, but offers a better guide for planning than empirical results or experiences based on actual hospital days as used by the Committee on the Costs of Medical Care.³¹ The total of 16.1 beds per 1,000 population (Table 1) taken from the Report of the Hospital Council of

TABLE 1

	<i>Beds per 1,000 Population</i>
General Care	
Residents	4.0
Non-residents	0.2
Convalescent Care	1.0
Long-term Illnesses	2.0
Acute Communicable Diseases.....	0.1
Tuberculosis	0.8+
Psychiatric Patients	8.0
	<hr/> 16.1+

Greater New York is of particular interest in view of the goal of 15 beds arrived at empirically in several countries.

The distribution of "general" beds is given in several of the references, particularly the Gluckman Report,³² the Australian Parliament's Joint Committee on Social Security, "Sixth Interim Report,"³³ and the British Hospital Surveys.³⁴ The population required to support adequate facilities in such clinical specialties as malignant diseases, neurosurgery, plastic surgery, thoracic surgery, etc., range from one to two million, as noted in the Australian report, the British Hospital Surveys, and the master plan of the Hospital Council of Greater New York.³⁰ The British have tentatively set up the following special service standards for a 2,000,000 population unit:

1 Radiotherapist	per 130 beds
1 Thoracic surgeon	per 60 beds in tuberculosis institutions

The institutional facilities required to remove the third major lag in medical care, referred to above, have recently begun to be explored. The principle that beds for mental, chronic, and rehabilitation services should in general be associated with general hospitals is the chief development.^{23, 33} The specific requirements for mental facilities are best set forth by Blacker,³⁵ the American Psychiatric Association,³⁶ and the U. S. Public Health Service.³⁷ Provision for long-term illnesses are barely in process of formulation, except for the generally accepted quota of two beds per 1,000 population.^{38, 39} The most systematic

proposals are probably those recommended by the New York State Health Preparedness Commission.⁴⁰ The importance of the problem of rehabilitation is evident from the general legislative provisions in both Britain⁴¹ and the United States,⁴² particularly the former. One of the best statements of specific requirements is the Baruch Report,⁴³ amplified by Kessler in *Rehabilitation of the Physically Handicapped*.⁴⁴ Denmark was one of the earliest countries to develop rehabilitation, particularly in connection with its invalidity insurance. The law requires that individuals with disabilities which may cause loss of working ability must be referred to an invalidity insurance court, which in turn refers patients to orthopedic centers with occupational therapy departments attached.⁴⁵

The United States is well in advance in establishing standards for hospitals. Much of the credit is due to the pioneering work of the American College of Surgeons, whose *Manual*⁴⁶ and *Scoring Report*⁴⁶ repay consultation. An invaluable reference text is MacEachern's *Hospital Organization and Management*.⁴⁷ Another reference is the American Medical Association's "Essentials of a Registered Hospital."⁴⁸

Health Centers—The quality of health care in any community will eventually be determined by and through health centers. The bibliography on this type of institution reflects its evolutionary state.^{1, 20, 21, 49-56} Planning for this institution as a medical service center has progressed further in the British Commonwealth than elsewhere, and attention is drawn to the discussions of Stark Murray,⁴⁹ the Socialist Medical Association,⁵⁰ Parry,⁵³ the Society of Medical Officers of Health,⁵⁴ and particularly Gale⁵² for details of function and scope. Even the eighteen specific medical and health care services enumerated by Stark Murray fall short in that they omit essential promotive and preventive activi-

ties. The size of the population to be served may vary widely between urban and rural conditions. It will be noted that the upper limit for the former is generally given as between 20,000 and 25,000 people. Parry's 10,000 unit is determined by the volume of personal health services alone, while the chief factor in the larger unit would seem to be the optimum number of general practitioners constituting a satisfactory group, generally given as 8-10. It is generally considered that services should be available within a radius of half a mile, and it is this factor in urban areas which requires neighborhood centers radiating from divisional centers. The latter would be intermediary to the affiliated hospital. National town planning agencies have been established in a number of countries, and it is of interest to note the coincidence that populations of 10,000 are recommended for "primary" neighborhood units. Again, however, nowhere is there an example of a health center exemplifying fully the total scope envisaged eventually for this institution. The international significance of such a health center as a demonstration would quickly become evident.

The rural health center has received less consideration than the urban. The U. S. Hospital Survey and Construction Act¹⁷ provides one per 30,000 population, except in areas with fewer than 12 persons per square mile, which are to have one per 20,000 population. While not entirely comparable, it is of interest to note that Australia,³³ with its sparsely distributed rural population, aims to provide 760 centers with at most two physicians for a population of approximately 2,800,000, or one center per 3,680 persons. The proposed "workshop" of the "municipal physician" in rural Western Canada covers on the average a population of less than 3,000. A planned experimental rural health center is about to be inaugurated by the Rown-

tree Trust (York, England) for a population of 10,000. Two of the most successful medical services for rural areas are the Highlands and Islands Medical Service in Scotland⁵⁷ and the more recently inaugurated district and regional service in Tasmania.⁵⁸

The medical service concept of a health center raises the question of "group" or "partnership" clinics. Consequently, one awaits with more than usual interest the forthcoming reports on this emerging aspect of medical practice by the U. S. Public Health Service and by the British Medical Association respectively. The U. S. Public Health Service has published three preliminary reports.⁵⁹

Ambulatory Services—While considerable progress has been made as to institutional bed requirements for medical care, there are surprisingly few data, as may be noted in the bibliography,⁶⁰⁻⁶³ on the facilities and personnel required for good ambulatory medical or, better still, health care services. And these few are limited to "demands" as distinct from "needs" for services. One may well query whether "needs" will be definable before scientific disciplines of social physiology and of pathology have established norms and deviations as base lines for satisfactory ambulatory services. In the meantime, one may expect increasingly accurate measurements of "demands." A significant step toward the latter is the new international classification of causes of morbidity.⁶⁴ When medical school hospitals, such as those of New York University, Johns Hopkins, and the regional teaching hospitals in Britain, are associated with prepaid medical care population units, it is anticipated that one of their chief lines of investigation will be to determine demonstrable standards for adequate medical and health care, including preventive and particularly promotive health services. Requirements for the two latter are now mainly on an

empirical, if not an out and out hypothetical, basis.

3. Medical Personnel—Numbers and Training—The rapid advances in medical knowledge, and particularly technology in the past quarter century, have brought into existence auxiliary medical workers supplementing physicians, dentists, and pharmacists. These are considered essential to adequate medical care. Apart from nurses, they now include both medical and psychiatric social workers, dietitians, occupational therapists, physical therapists, medical record librarians, medical and dental laboratory technicians, x-ray technicians, and dental hygienists. The United States and Canada are the only countries in which the qualifications and registration of each type of auxiliary medical worker are as well controlled as in the practice of medicine and dentistry. Other countries regulate one or more categories, but not all, and in several countries some categories are entirely lacking. Despite extensive legislation, there will not be adequate medical care in any country until auxiliary workers are provided in sufficient numbers and their training and supervision well organized.

Nursing is so far the only profession in which numerical requirements have been determined from job analyses. The estimates for other groups are determined to a greater or lesser extent on an empirical basis. Those for pharmacists, physical and occupational therapists (except in the mental field), medical record librarians, and practical nurses have not been determined even empirically. A considerable bibliography has developed for the other professions, particularly for physicians.

The following figures, with the exception of English^{34, 35, 71} and Australian³³ estimates on physicians, are from United States sources. The most informative United States references are "Measuring the Community for a Hospital,"⁶⁵

PHYSICIAN REQUIREMENTS

Mean	Population
1 General practitioner	to 1,500
1 Surgeon	to 10,000
1 Eye, ear, nose and throat	to 15,000
1 Internist	to 30,000
1 Gynecologist and Obstetrician	to 20,000
1 Pediatrician	to 30,000
1 Roentgenologist	to 60,000
1 Pathologist	to 100,000
1 Urologist	to 65,000
1 Orthopedist	to 100,000
1 Dermatologist	to 100,000
1 Psychiatrist	to 100,000

NOTE: Physician's services are calculated at the rate of 2,000 hours per annum.

DENTAL REQUIREMENTS

Mean	Population
Dentists	99 per 100,000 *
X-ray Technicians	27 per 100,000
Hygienists	45 per 100,000
Laboratory Technicians	18 per 100,000

* Provided there is an auxiliary staff. Lee Jones is the authority for this estimate.

The American Hospital⁶⁶ and the American College of Surgeons Hospital Standardization Scoring Report.⁴⁶ The figures presented are no more than an approximate mean of available empirical estimates. The general purpose is to draw attention to the need of basing legislative planning on estimates of personnel requirements. These figures are not to be taken as recommendations. Also, it is obvious that personnel requirements must vary considerably from country to country. Requirements in specialized fields will differ from those in the general medical and surgical fields and are not presented in this general discussion. Estimates are given in the cited bibliography. The important point to be borne in mind in formulating requirements for personnel is that increasing coördination of services and group practice, made possible through growth of prepayment for medical care, will result in a decrease of the present requirements because of the greater efficiency

NURSING REQUIREMENTS

The Manual of the Essentials of Good Hospital Nursing Service⁷⁰ suggests methods of measuring norms for staffing a ward unit.

1. The average number of bedside nursing hours required per patient during each 24 hours:

	Hours
Medical, surgical, and mixed, ward and semiprivate	3.2
Maternity, ward and semiprivate..	4.2
New-born, ward and semiprivate..	2.3
Infants, ward and semiprivate....	5.5
Older children, ward and semiprivate	4.3
Communicable disease, ward and semiprivate	4.7
Mixed, private patients.....	5.4
Maternity, private patients.....	6.5

2. The relationship of graduate bedside nursing hours to student bedside nursing hours:

	Per cent
Medical, surgical, and mixed, ward and semiprivate	31
Maternity, ward and semiprivate..	51
New-born, ward and semiprivate..	61
Pediatric, ward and semiprivate...	12
Communicable disease, ward and semiprivate	37
Mixed, private patients.....	91
Maternity, private patients.....	86

3. The number of patients per day supervisor:

	Patients
Medical and surgical, ward and semiprivate	70
Maternity, ward and semiprivate..	67
New-born, ward and semiprivate...	82
Pediatric, ward and semiprivate...	47
Medical and surgical, private patients	62
Maternity, private patients.....	50

which follows planned and coördinated services.

Other interesting data than those tabulated in this study indicate that in the medical hospital an average of 6.7 staff nursing hours were required per operation, 46 per cent of which were graduate hours and 54 per cent student hours; and, that, moreover, there was a ratio of one head nurse to 5.5 operations and of one supervisor to 15.7 operations.

The type of patients admitted influ-

ences the nursing ratio. Hospitals caring for ambulant, convalescent, and chronic patients may give adequate care on the basis of a ratio as low as one nurse to 60 patients, although this is exceptional. In the extremely active hospital a ratio of 1 nurse to 1, 1½, or 2 patients may be necessary.

OTHER ANCILLARY PERSONNEL REQUIREMENTS

- | | |
|--|--|
| 1. Medical Social workers | 1 per 200 general hospital admissions or 2,000 outpatients (per annum) |
| 2. Psychiatric Social Workers | 2 or 3 to each psychiatrist or 1 per 500 outpatients (per annum) |
| 3. Dietitians | 1 to each 100 occupied beds |
| 4. Clinical Laboratory and X-ray Technicians | 1 to each 100 beds |
| 5. Occupational and Physical Therapists | (Estimated only for mental and rehabilitation. See references.) |

Requirements of public health personnel for the United States and Canada are discussed in *Local Health Units for the Nation*.⁷²

Training and Registration of Personnel—The following standards for the training and registration of personnel are drawn entirely from United States sources, which, because they are more comprehensive, best serve the illustrative purposes of the paper. Wherever equal or higher standards of training and registration prevail, the United States illustrations will not be relevant. Certain British references are included^{73, 74} as useful in countries which have not yet evolved minimum standards of training and of registration.

The American Medical Association is responsible for continuous revision of minimum essentials with respect to acceptable medical schools,⁷⁵ approved graduate schools,⁷⁶ internships,⁷⁷ resi-

dencies and fellows,⁷⁸ basic science instruction in residencies,⁷⁹ and approved examining boards in specialties.⁸⁰

The American Dental Association is responsible for minimum essentials with respect to acceptable dental schools,⁸¹ internships and residences,⁸² schools for dental hygienists and technicians,^{81, 83} and approved examining boards.⁸⁴ Similarly, the American Council on Pharmaceutical Education has set standards of accreditation of Colleges of Pharmacy.⁸⁵

Standards for nursing are controlled by the National League of Nursing Education.⁸⁶

The most recent category of personnel to emerge, for which training for accreditation is now being systematized, is the hospital administrator. The diploma covers one year of academic work and one year of supervised hospital practice. The minimum requirements for the former have not as yet become standardized, but a suggested manual for the hospital year has been worked out.⁸⁷ Registration is with the American College of Hospital Administrators, whose requirements are still entirely on an *ad hoc* basis.

The training requirements for other categories of medical care personnel can conveniently be tabulated. Each has a national association responsible for setting minimum standards and for registration. An exception is the National Association for Practical Nurse Education, which is in process of establishment.⁸⁸⁻⁹⁰

The Committee on Professional Education of the American Public Health Association is responsible for periodic revision of qualifications for the following categories of public health personnel; health officer,⁹¹ medical administrator,¹⁰⁰ school physician,¹⁰¹ public health dentist,¹⁰² industrial hygienist,¹⁰³ public health nurse (including industrial),¹⁰⁴ health educator,¹⁰⁵ public health laboratory worker,¹⁰⁶ public

TRAINING REQUIREMENTS (U.S.A.)

Auxiliary Medical Workers

<i>Profession</i>	<i>Prerequisite</i>	<i>Training</i>
1. Medical ⁹¹ and Psychiatric Social Workers ⁹²	4 years' college	1 academic year, graduate 1 year practice
2. Dietitians ⁹³	4 years' college	1 year practice
3. Occupational Therapists ⁹⁴	1 year college	2 academic years' theory 1 year practice
4. Physical Therapists ⁹⁵	2 years' college	1 year
5. Medical Record Librarians ⁹⁶	2 years' college	1 year theory and practice
6. Laboratory Technicians ⁹⁷	2 years' college	1 year
7. X-ray Technicians ⁹⁸	High school	2 years' theory and practice

health statistician,¹⁰⁷ nutritionist,¹⁰⁸ and public health engineer.¹⁰⁹

THE PATTERN OF TOMORROW

The foregoing trends furnish us glimpses of the pattern future health services will undoubtedly assume. Any economic barrier to adequate medical care will be removed through either voluntary or compulsory insurance. The distribution of health care will be increasingly improved through institutions in regional areas based, as far as possible, on teaching hospitals, integrated with non-teaching hospitals and health centers. A two-way flow from the health center at the periphery to the teaching hospital at the base will assure (a) adequate social and clinical pathological diagnostic services throughout the area; (b) routine continuation education for all categories of personnel in hospitals of more than 50 beds, which for physicians would imply teaching ward rounds, central pathological conferences, special teaching clinics, as well as adequate libraries and records; and lastly, (c) graduate instruction for designated categories of personnel. Adequate services for chronic, disabled, and psychosomatic patients will have been attained.

In the future the general practitioner will find it increasingly to his advantage to practise in groups in health centers providing diagnostic facilities and ancillary personnel, as well as ready consul-

tation with fellow practitioners. As already recommended by several national medical associations, the family, rather than the individual, will be the unit of practice. A reoriented medical education will extend the practice of the general practitioner beyond his present clinical diagnosis and therapy to include most of the personal health services now rendered by health departments. He also will be responsible for prescribing measures required for the protection of the individual and of the community against such forces as interfere with development and maintenance of full mental and physical capacity.

The chief factor in rapid establishment of this pattern is the degree of aptitude of the medical profession, and especially of the general practitioner who serves as the quarterback of the medical team, in providing community family health care. The development of this aptitude requires the reorientation and extension of medical education to include social as well as clinical pathological diagnosis. A trend toward integrating social environmental and clinical instruction is already discernible. Some 27 schools in the United States now have varying degrees of clinical integration, in the manner which has already been described. Although a great step forward, this integration is too often of a negative nature because the activities practised are

limited chiefly to steps taken after disease occurs. Few relate to health promotion. The latter, generally speaking, cannot be undertaken effectively until there is prepayment in some form to provide promotive, preventive, and rehabilitative services.

Also, the rapidity with which medical education becomes reoriented will depend on the extent to which social medicine is accorded the same academic recognition and facilities for investigating and teaching social physiology, pathology, and therapy that is now provided for clinical physiology, pathology, and therapy. The immediate problem in reorientating the future general practitioner is to give him the same level of clerkship and internship in social as in clinical medicine.

The prime essential is, therefore, the provision of the health care facilities in a community as much under professorial administration as are the clinical laboratory and hospital facilities in other fields. The availability of medical school-controlled health centers is as essential for the teaching of social medicine as hospitals are for clinical medicine. In this respect there are two significant developments taking place in the United States. Medical schools are organizing themselves to promote comprehensive health care on a prepayment basis to groups in the community, and at the same time making the group clinics available for teaching purposes. The inauguration of the Health Insurance Plan of Greater New York has led New York University to establish a group clinic to provide comprehensive medical care. Other schools in New York are planning to follow suit. Recently medical care of the indigent in Maryland was transferred from Welfare to the State and Baltimore City Health Departments. The two medical schools in Baltimore are organizing health centers within their premises to provide health care to the people in their own areas.

Because the English Health Act provides for a comprehensive medical service on a prepayment basis, a unique opportunity is arising to explore and demonstrate the positive aspects of health care. Two medical centers in England are now experimenting in regard to control of the medical care facilities in their adjacent communities, including health centers. These two institutions are the Department of Social Medicine and Public Health at the University of Manchester and a group associated with London University. A University Health Center Planning Committee has been established under the chairmanship of the London School of Hygiene, associated with University College Hospital and the Child Health Institute, together with the London County Council and the British Medical Association. It is of interest to note that, at a recent meeting of an informal group of British professors of medicine, this health center requirement for the teaching of social medicine was discussed in considerable detail. A tentative conclusion reached was that one general practitioner and his team of required ancillary workers should be available for each clerk or intern in social medicine.

With the components of the general pattern clearly emerging here and there, the time in several countries is ripe for a further consolidation. The pump is primed. This was not true even ten years ago. The universal establishment of this pattern of health care as a "social science in the service of society" would usher in a new and momentous era in human welfare.

BIBLIOGRAPHY

1. American Medical Association. National Health Program of the American Medical Association. *J.A.M.A.*, 130, 8:494-496 (Feb. 23), 1946.
2. Robson, W. A., Ed. *Social Security*. London: George Allen & Unwin, Ltd., 1945.
3. Great Britain. *National Insurance Act, 1946*. 9 & 10 Geo. 6 Ch. 67. London: H. M. Stationery Office, 1946.

4. International Labour Office. Home Aides Services. *Internat. Labour Rev.*, Geneva, LVI, 1:39-46 (July), 1947.
5. Simon, E. D. *Rebuilding Britain—A Twenty Year Plan*. London: Victor Gollancz, Ltd., 1945.
6. American Public Health Association, Committee on the Hygiene of Housing. *Housing for Health*. Lancaster, Pa: The Science Press Printing Company, 1941.
- American Public Health Association, Committee on the Hygiene of Housing. *An Appraisal Method for Measuring the Quality of Housing*, Part I. Nature and Uses of the Method. New York: A.P.H.A., 1945. Part II. Vol. A. Survey Director's Manual; Vol. B. Field Procedures; Vol. C. Office Procedures. New York: A.P.H.A., 1946.
- Winslow, C.-E. A. Health Goals for Housing. *A.J.P.H.*, 37, 6:653-662 (June), 1947.
7. Schultz, T. W., Ed. *Food for the World*. Chicago: University of Chicago Press, 1945.
8. Pearse, I. H., and Crocker, L. H. *The Peckham Experiment*. London: George Allen & Unwin, Ltd., 1943.
9. Derryberry, M. The Role of Health Education in a Public Health Program. *Pub. Health Rep.*, Washington, 62, 46:1629-1641 (Nov. 14), 1947. Government Printing Office.
10. Myrdal, A. *Nation and Family*. London: Kegan Paul, Trench, Trubner & Co., Ltd., 1945.
11. Canada, House of Commons, Special Committee on Social Security. *Health Insurance—Report of the Advisory Committee on Health Insurance Appointed by Order in Council P.C. 836, Feb. 5, 1942*. Ottawa: Government Printer, 1943.
12. Mountin, J. W., and Perrott, G. St. J. Health Insurance Programs and Plans of Western Europe. *Pub. Health Rep.*, Washington, 62, 11:369-99 (Mar. 14), 1947. Government Printing Office.
- Perrott, G. St. J., and Mountin, J. W. Voluntary Health Insurance in Western Europe. *Pub. Health Rep.*, Washington, 62, 21:753-67 (May 23), 1947. Government Printing Office.
13. *Social Denmark*. Copenhagen: Socilat Tidsskrift, 1945, pp. 68, 206, 318, 325-327.
14. New Zealand, Department of Internal Affairs, Historical Branch. *Introduction to New Zealand*. Washington: New Zealand Legation, 1945.
- New Zealand. *Social Security Act of 1938 and Amendments and Regulations of 1939, 1940, 1941, 1942, 1943, 1944, and 1946*. Wellington: Government Printer.
15. France, Ministère du Travail et le la Sécurité Sociale. *Notes Documentaires et Études*, Nos. 450 et 451 (Série Française CXIII et CXIV), La Sécurité Sociale en France. Paris: Ministère du Travail, 1946.
16. Great Britain. *National Health Service Act, 1946*. London: H. M. Stationery Office, 1946.
17. United States. *Hospital Survey and Construction Act, Public Law 725, 79th Congress, August 13, 1946*. Washington: Government Printing Office, 1946.
18. The New York Academy of Medicine, Committee on Medicine and the Changing Order. *Medicine in the Changing Order*. New York: The Commonwealth Fund, 1947.
19. Reed, L. S. *Blue Cross and Medical Service Plans*. U. S. Public Health Service. Washington: Government Printing Office, 1947.
20. Great Britain, Ministry of Health, Consultative Council on Medical and Allied Services. *Interim Report on the Future Provision of Medical and Allied Services*. London: H. M. Stationery Office, 1920.
21. Mountin, J. W., Pennell, E. H., and Hoge, V. M. Health Service Areas, U.S.P.H.S. *Bull. No. 292*. Washington: Government Printing Office, 1945.
22. U. S. Public Health Service, Hospital Facilities Section. Various reports and studies. Washington.
23. American Hospital Association, Commission on Hospital Care, *Hospital Care in the United States*. New York: The Commonwealth Fund, 1947.
24. Bridgman, R. F. Un Plan Français de Réorganisation Hospitalière. *Techniques Hospitalières*, Paris, 10 and 11 (July-Aug.), 1946.
25. Proger, S. Distribution of Medical Care. *J.A.M.A.*, 124, 13:823-826 (Mar. 25), 1944.
26. Proger, S. Medical Education and Medical Care. *Hospitals*. Chicago, 20, 4 (Apr.), 1946.
27. Council of Rochester Regional Hospitals. *The First Year's Experience—1946*. Rochester, N. Y., 1947.
28. Wilkinson, C. F., Jr. Hospitals' New Role as Michigan Decentralizes. *Hospitals*, Chicago, 21, 2 (Feb.), 1947.
29. Grant, J. B. The Health Department and Medical Care—Certain Trends. *A.J.P.H.* New York, 37, 3:269-275 (Mar.), 1947.
30. The Hospital Council of Greater New York. *The Master Plan for Hospitals and Related Facilities for New York City*. New York, 1947.
31. Committee on the Costs of Medical Care. *Medical Care for the American People—the Final Report*. Chicago: University of Chicago Press, 1932.
32. Union of South Africa. *Report of the National Health Services Commission*. Pretoria: Government Printer, 1944.
33. Commonwealth of the Parliament of Australia, Joint Committee on Social Security. *Sixth Interim Report*. Canberra: Commonwealth Government Printer, 1943.
34. Great Britain. Hospital Survey, *The Hospital Services of London and Surrounding Area*; Hospital Survey, *The Hospital Services of Berks., Bucks., and Oxon.*; Hospital Survey, *The Hospital Services of the Eastern Area*; Hospital Survey, *The Hospital Services of the South-Western Area*; Hospital Survey, *The Hospital Services of South Wales and Monmouthshire*; Hospital Survey, *The Hospital Services of Sheffield and East Midlands Area*; Hospital Survey, *The Hospital Services of the West Midlands Area*; Hospital Survey, *The Hospital Services of the Yorkshire Area*; Hospital Survey, *The Hospital Services of the North-Western Area*. London: H. M. Stationery Office, 1945. Hospital Survey, *The Hospital Services of the North-Eastern Area*. London: H. M. Stationery Office, 1946.
- Nuffield Provincial Hospitals Trust. *The Hospital Surveys—The Domesday Book of the Hospital Services*. Oxford: Oxford University Press, 1946.
35. Blacker, C. P. *Neurosis and the Mental Health Services*. London: Humphrey Milford, 1946.
36. American Psychiatric Association. Standards for Psychiatric Hospitals and Out-Patient Clinics Approved by the American Psychiatric Association. *Am. J. Psychiat.*, New York, 102, 2:264-269 (Sept.), 1945.
37. U. S. Public Health Service. Standards for Psychiatric Training and Clinics. *Pub. Health Rep.*, Washington, 61, 26:943-956 (June 28), 1946.
38. The Hospital Council of Greater New York. *The Bulletin*, New York, 3, 8 (Aug.), 1947.
39. Great Britain, British Information Services. *Rehabilitation in Great Britain—I.D. 455*. New York, 1947.
40. New York State Health Preparedness Commission. Program for the Care of the Chronically Ill in New York State. *Legislative Document (1947) No. 69*. Albany, 1947.
41. Great Britain. *Disabled Persons Employment Act, 1944*. London: H. M. Stationery Office, 1944.
42. United States. *Vocational Rehabilitation Act, Public Law 113, 78th Congress, July 6, 1943*. Washington: Government Printing Office, 1943.
43. The Baruch Committee on Physical Medicine. *Report on a Community Rehabilitation Service and Center*. New York, 1946.

44. Kessler, H. H. *Rehabilitation of the Physically Handicapped*. New York: Columbia University Press, 1947.
45. American College of Surgeons. *Manual of Hospital Standardization*. Chicago, 1945.
46. American College of Surgeons. *Hospital Standardization Scoring Report*. Chicago, 1947.
47. MacEachern, M. T. *Hospital Organization and Management*. Chicago: Physicians' Record Company, 1946.
48. American Medical Association, Council on Medical Education and Hospitals. *Essentials of a Registered Hospital*. J.A.M.A., Chicago, 112, 21:2166-2168 (May 27), 1939.
49. Murray, D. S., and McNee, L. C. J. *Now for Health*. London: St. Botolph Publishing Company, Ltd., 1946.
50. Socialist Medical Association. *S.M.A. Bulletin 87, Report of the S.M.A. Sub-Committee on Health Centres*. London, 1947.
51. Kark, S. L., and Kark, E. The Practice of Social Medicine. *J. Cape Town Post-Graduate Medical Association, Clinical Proceedings*, Cape Town, 4, 5 (July), 1945.
52. Gale, G. W. Health Centre Practice, Promotive Health Services and the Development of the Health Centres Scheme. *South African M. J.*, Cape Town, June 22, 1946, pp. 326-330.
53. Parry, R. H. Health Centres. *J. Roy. San. Inst.*, London, LXVII, 2:111-118 (Mar.), 1947.
54. The Society of Medical Officers of Health. Health Centres. *Pub. Health*, London, LXI, 1:5-12 (Oct.), 1947.
55. Health Centres of Tomorrow, Parts I-VI. *The Lancet*, London, CCLII (6436-6441):32-33, 78-79, 114-16, 154-55, 189-90, 228-30 (Jan. 4-Feb. 8), 1947.
56. American Medical Association. Health Centers Under the Hospital Construction Act. J.A.M.A., Chicago, 134, 14:1179-1181 (Aug. 2), 1947.
57. Newsholme, A. *International Studies*, Vol. 3, England and Wales, Scotland, Ireland. London: George Allen & Unwin, Ltd., 1931.
58. Australia, Tasmania, Department of Public Health. *Report of the Secretary for Public Health, Tasmania, for 1945*. Hobart, 1946. Also personal communications.
59. Hunt, G. H., and Goldstein, M. S. Medical Group Practice in the United States, Part I, Introduction. *New England J. Med.*, Boston, 237, 3:71-77 (July 17), 1947.
- Hunt, G. H., and Goldstein, M. S. Medical Group Practice in the United States, Part II, Survey of Five Groups in New England and the Middle Atlantic States. *New England J. Med.*, Boston, 237, 20:719-731 (Nov. 13), 1947.
- Hunt, G. H., and Goldstein, M. S. Medical Group Practice in the United States, Part III, Report of a Questionnaire Survey of All Listed Groups, 1946. J.A.M.A., Chicago, 135, 14:904-909 (Dec. 6), 1947.
60. Lee, R. L., and Jones, L. W. *The Fundamentals of Good Medical Care*. Washington: Committee on the Cost of Medical Care, 1933.
61. Bradbury, S. *Cost of Adequate Medical Care*. Chicago: University of Chicago Press, 1937.
62. International Labour Office. Social Insurance and Assistance. *Internat. Labour Rev.*, Montreal, LIII, 3-4:271, table (Mar.-Apr.), 1946.
63. Roemer, M. I. A Program of Preventive Medicine for the Individual. *Milbank Mem. Fund Quart.*, New York, XXIII, 3:207-226 (July), 1945.
64. United Nations, World Health Organization, Interim Commission. *Proposed Statistical Classification of Diseases, Injuries and Causes of Death*. Ottawa, 1947.
65. American Hospital Association. *Measuring the Community for a Hospital*. Chicago, 1945.
66. Corwin, E. H. L. *The American Hospital*. New York: The Commonwealth Fund, 1946.
67. Davis, G. Wanted: 381 Pathologists, 819 Radiologists. *Hospitals*, Chicago, 21, 10:49-51 (Oct.), 1947.
68. Hurlin, R. G. *Statistics of Medical Social Casework in New York City: 1945*. New York: Russell Sage Foundation, 1946.
69. U. S. Public Health Service, Division of Hospital Facilities, personal communication, V. M. Hoge, July 12, 1946.
70. American Hospital Association and National League of Nursing Education. *Manual of the Essentials of Good Hospital Nursing Service*. Chicago: American Hospital Assn., 1942.
71. Murray, D. S. *Health for All*. London: Victor Gollancz, Ltd., 1942.
72. Emerson, Haven. *Local Health Units for the Nation*. New York: The Commonwealth Fund, 1945.
73. General Medical Council. *Recommendations as to the Medical Curriculum*. London, 1947.
74. Ministry of Health, Department of Health for Scotland, Ministry of Labour and National Service. *Report of the Working Committee on the Recruitment and Training of Nurses*. London: H. M. Stationery Office, 1947.
75. American Medical Association, Council on Medical Education and Hospitals. *Essentials of an Acceptable Medical School*. Chicago, 1945.
76. American Medical Association, Council on Medical Education and Hospitals. *Essentials of an Approved Graduate Medical School*. J.A.M.A., Chicago, 115, 9:725 (Aug. 31), 1940.
77. American Medical Association, Council on Medical Education and Hospitals. *Essentials of an Approved Internship*. J.A.M.A., Chicago, 118, 17:1497-1500 (Apr. 25), 1942.
78. American Medical Association, Council on Medical Education and Hospitals. *Essentials of Approved Residencies and Fellowships*. Chicago, 1947.
79. American Medical Association, Council on Medical Education and Hospitals. *Basic Science Instruction in Hospital Residencies*. J.A.M.A., Chicago, 133, 10:697-98, 717 (Mar. 8), 1947.
80. American Medical Association, Council on Medical Education and Hospitals. *Essentials for Approved Examining Boards in Specialties*. Chicago, 1942.
81. American Dental Association. *Reports of Officers and Committees, 88th Annual Session*. Chicago, 1947.
82. American Dental Association. Report of the Council on Dental Education. *J. Am. Dent. A.*, Chicago, 33:508 (Apr. 1), 1946.
83. American Dental Association. Report of the Council on Dental Education. *J. Am. Dent. A.*, Chicago, 33:915 (July 1), 1946.
84. American Dental Association. Report of the Council on Dental Education. *J. Am. Dent. A.*, Chicago, 34:527 (Apr. 15), 1947.
85. American Council on Pharmaceutical Education. *Standards for Accreditation of Colleges of Pharmacy*, Baltimore, 1945.
86. National League of Nursing Education. *Statement of Policy for the Accreditation of Schools of Nursing*. New York, 1946.
87. American Hospital Association and American College of Hospital Administrators, Joint Commission on Education. *The Administrative Internship in the Hospital*. Chicago, 1947.
88. Office of Education. *Practical Nursing, Misc. No. 8*. Washington: Government Printing Office, 1947.
89. National Association for Practical Nurse Education. *Practical Nurse Education*. New York, 1947.
90. Deming, D. *The Practical Nurse*. New York: The Commonwealth Fund, 1947.

91. American Association of Medical Social Workers. *Statement of Standards*. Washington, 1947.
92. American Association of Psychiatric Social Workers. *Membership in the American Association of Psychiatric Social Workers*. New York, 1946.
93. American Dietetic Association. *Academic Requirements for Active Membership in the American Dietetic Association and Entrance to Courses for Student Dietitians Approved by the Executive Board*. Chicago, 1944.
94. American Medical Association, Council on Medical Education and Hospitals. *Essentials of an Acceptable School of Occupational Therapy*. Chicago, 1943.
95. American Medical Association, Council on Medical Education and Hospitals. *Essentials of an Acceptable School for Physical Therapy Technicians*. Chicago, 1943.
96. American Medical Association, Council on Medical Education and Hospitals. *Essentials of an Acceptable School for Medical Record Librarians*. Chicago, 1945.
97. American Medical Association, Council on Medical Education and Hospitals. *Essentials of an Acceptable School for Clinical Laboratory Technicians*. Chicago, 1943.
98. American Medical Association, Council on Medical Education and Hospitals. *Essentials of an Acceptable School for X-Ray Technicians*. Chicago, 1946.
99. American Public Health Association, Committee on Professional Education. *Report on the Educational Qualifications of Health Officers*, 1946.
100. American Public Health Association, Committee on Professional Education. *Report on the Educational Qualifications of Medical Administrators of Specialized Health Activities*, 1944.
101. American Public Health Association, Committee on Professional Education. *Report on the Educational Qualifications of School Physicians*, 1944.
102. American Public Health Association, Committee on Professional Education. *Report on the Educational Qualifications of Public Health Dentists*, 1945.
103. American Public Health Association, Committee on Professional Education. *Educational Qualifications of Industrial Hygienists*, 1941.
104. American Public Health Association, Committee on Professional Education. *Recommended Qualifications for Public Health Nursing Personnel*, 1942.
105. American Public Health Association, Committee on Professional Education. *Report on the Educational Qualifications of Health Educators*, 1943.
106. American Public Health Association, Committee on Professional Education. *Report on the Educational and Experience Qualifications of Public Health Laboratory Workers*, 1943.
107. American Public Health Association, Committee on Professional Education. *Educational Qualifications of Public Health Statisticians*, 1938.
108. American Public Health Association, Committee on Professional Education. *Report on the Educational Qualifications of Nutritionists in Health Agencies*, 1946.
109. American Public Health Association, Committee on Professional Education. *Report on the Educational Qualifications of Public Health Engineers*, 1947.

The April issue will be the Annual Special Book Issue. Dr. Huntington Williams, Health Commissioner of Baltimore, contributes an article entitled "The Health Officer's Book Shelf." There will be more book reviews than ordinarily and many announcements from publishers of newer books for public health workers.

Watch for the April Book Issue.

Experience of Rheumatic Patients Who Served in the Armed Forces, 1942-1946*

MAY G. WILSON, M.D., J. W. PAYSON, AND
ROSE LUBSCHEZ

*New York Hospital and the Department of Pediatrics,
Cornell University Medical College, New York, N. Y.*

WHEN war was declared in 1941, the patients under continuous medical supervision in the New York Hospital Children's Cardiac Clinic sought our advice as to eligibility for service. The majority of the 268 rheumatic patients of military age were eager to enter the services. It was our practice to offer a summary of the clinic record to each

patient. Of the men who volunteered or were drafted, 62 per cent (167) were accepted. Most of these men denied their past history and made every effort to pass the physical examination. The majority of the 101 patients who were classified as 4F presented their past record at the induction center.

In Table 1, A and B, there is sum-

TABLE I
RHEUMATIC HISTORY AND CARDIAC DIAGNOSIS

TYPE OF RHEUMATIC FEVER DURING CHILDHOOD (ONE OR MORE ATTACKS)	NO. MEN	A. SERVICE MEN									RECURRENT ATTACKS 1942-1946		
		VALVULAR DISEASE			CARDIAC ENLARGEMENT***						R. F.	B. E.	A. F.
		M. I.	M. S.	A. I.	SLIGHT	MODERATE	MARKED						
ACTIVE CARDITIS AND CARDIAC FAILURE	32	18	14*	8	11*	4	3*	2	21	9	2	-	-
POLYARTHRITIS	34	16	18*	3	5*	-	-	9	22	3	1	-	-
CHOREA	33	13	20*	1	10*	-	-	11	21	1	-	-	-
POLYARTHRITIS & CHOREA	17	9	8*	2	5*	-	-	4	13	-	-	-	-
JOINT PAINS	25	14	11*	1	4*	1	-	9	15	1	-	-	-
TOTAL	141	70	71*	15	35*	5	3*	35	92	14	3	-	-
B. CIVILIAN GROUP													
ACTIVE CARDITIS AND CARDIAC FAILURE	43	34	9*	30	8*	22	1*	-	13	30	4*	1	2
POLYARTHRITIS	16	8	8*	2	8*	-	-	1	15	-	-	-	-
CHOREA	31	12	17*	4	10*	1	1*	3	26	2	-	-	-
POLYARTHRITIS & CHOREA	7	4	3*	4	3*	3	-	-	4	3	-	-	-
JOINT PAINS	4	2	2*	-	4*	-	-	1	3	-	3	1	1
TOTAL	101	60	39*	40	33*	26	2*	5	61	35	7	2	3

R.F.-RHEUMATIC FEVER
B.E.-BACTERIAL ENDOCARDITIS
A.F. AURICULAR FIBRILLATION

* REGRESSION OF MURMURS OF VALVULAR LESIONS
** INCLUDES ONE DEATH
*** FLUOROSCOPIC EXAMINATION IN P. A. AND
OBLIQUE VIEWS

* This study was aided by a grant from The Commonwealth Fund.
Presented on June 7, 1947, American Rheumatism Association Meeting.

marized the past rheumatic history and cardiac diagnosis for 242 men. It will be noted that all of these men had rheu-

matic fever and rheumatic heart disease. In the service group 23 per cent had one or more attacks of active carditis with failure. In about one-half of the service group and one-third of the civilian group, the physical signs of valvular lesions had regressed. As might be expected, in the civilian group the past rheumatic history was more severe and the resultant cardiac damage was of greatest degree. In this group 43 per cent had one or more attacks of active carditis with failure during childhood.

A continuous close contact was maintained with the men in service by frequent personal letters. In addition, home visits were made for exchange of information. The majority of the patients returned for clinic visits during furloughs and after discharge from the service. The civilian group remained under routine medical supervision.

The distribution of the men in the various branches of the armed forces

and at primary and secondary training camps in the United States is summarized in Table 2 and in Figure 1.

TABLE 2

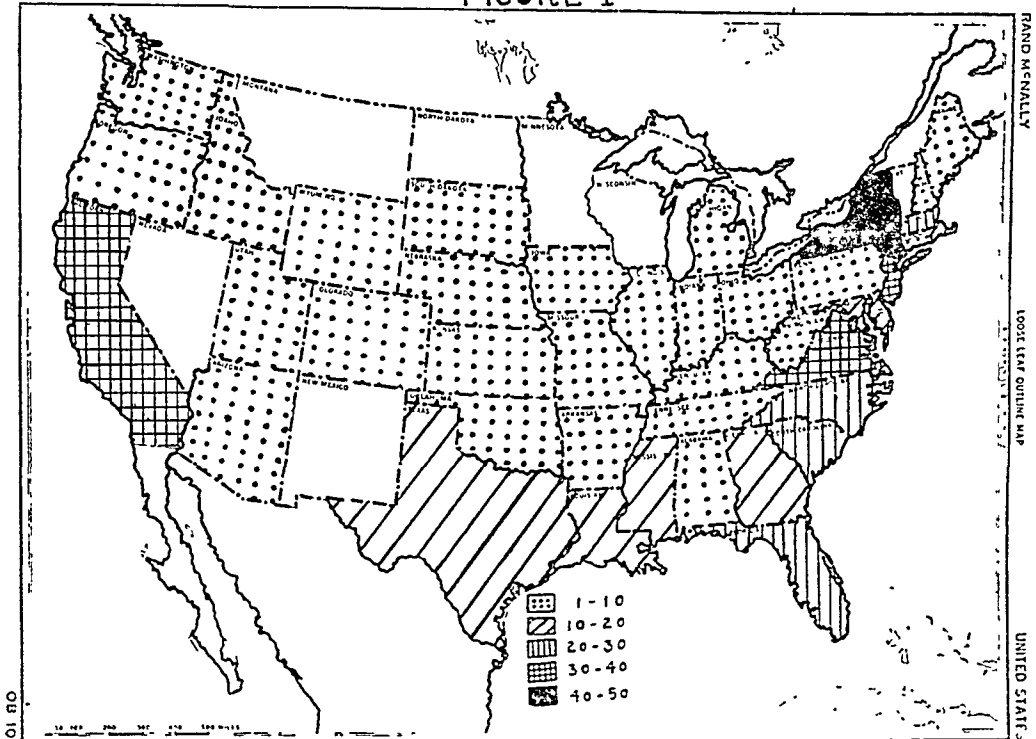
*Distribution of 141 Men in Various Branches of Service **

<i>Branch of Service</i>	<i>Number</i>
Navy	49
Coast Guard, Merchant Marine	10
Marine Corps	12
Army	
AAF	26
Signal Corps, Engineers, Chem. Warfare, Communications	15
Infantry, Tank, Tank destroyers, Anti Tank	26
Ordnance, Anti Air, Coast and Field Artillery	12
Quartermaster, Cook, Clerk, Medical Corps	12
Amphibious Forces, Paratroopers, OSS	3
Not specified	4

* Individuals may be represented in more than one branch of service.

It is apparent that the majority of the men were under considerable physical stress and experienced various climatic exposures. Seventy-eight per cent were

FIGURE 1



sent overseas and 47 per cent were in active combat. In Table 3 distribution

TABLE 3

*Distribution of 141 Men in Various Theaters of Operation **

Theater	Number
E.T.O.	44
Middle East	16
Pacific	61
North Atlantic	11
C.B.I.	11
Others	
Alaska, Aleutians, Iceland	4
Caribbean, South America	17

* Individuals may be represented in more than one theater.

of the men in various theaters of operation is presented.

During 386 patient-years of service, the morbidity experience in the United States and overseas is summarized in Table 4. Here it may be seen that, ex-

TABLE 4

Morbidity Distribution of Service Group

Type of Illness	Number
<i>Febrile</i>	
Rheumatic Fever	3
Scarlet Fever	2
Measles	2
Meningitis	1
Pneumonia	5
Grippe, "Cat Fever"	9
Upper Respiratory Infections	24
Bronchitis, Sore Throat, Sinusitis	14
Infectious Mononucleosis	1
Tropical Diseases	17
<i>Miscellaneous</i>	
Asthma	2
Accidents, Sun Stroke	12
"Nervous," Battle Fatigue	16
Surgical, Skin Infections	21
Kidney Infections	2
Hypertension	2
Chronic Arthritis	1
Vague joint-pains *	12
<i>Battle Casualties</i>	
Wounded	19
Deaths	2

* Complaints of fleeting pains with no constitutional symptoms. Not reported to medical officer.

cept for the low incidence of rheumatic fever, the various illnesses were not significantly different from Army and Navy morbidity reports.

A comparison of the incidence of rheumatic fever among our patients in serv-

ice and at home revealed that 3 men were hospitalized for rheumatic fever while in the armed forces. In the civilian group during 402 patient-years, there were 7 patients with recurrent attacks, of whom 1 died. In addition, 2 patients had bacterial endocarditis and 2 developed auricular fibrillation. It is noteworthy that cardiac failure, bacterial endocarditis, and auricular fibrillation did not occur among the men in the service. Of particular importance is the observation that among the men who returned to the clinic since discharge, no change in physical signs or cardiac enlargement was observed. Two of the patients who developed rheumatic fever in 1945 are still in military hospitals. The third patient returned to the clinic for examination. No evidence was obtained to indicate further cardiac damage.

The high incidence of rheumatic fever (about 40,000 cases) among Army and Navy personnel would appear to indicate that the circumstances of military service impose a greater risk than civilian pursuits for recurrent attacks of rheumatic fever.

It has been reported that about 50 per cent of the men who developed rheumatic fever in the armed forces had a previous rheumatic history. According to Provision MR 1-9, a history of rheumatic fever without a recurrence within two years was not disqualifying. It is therefore probable that a relatively large number of rheumatic subjects were inducted.

Although the actual number of rheumatic subjects inducted into the armed forces is not known, an approximate number may be estimated. Using data obtained from Selective Service Headquarters, the Office of the Surgeon General, the Bureau of Medicine and Surgery, and the National Research Council, the number of rheumatic subjects in the armed forces was estimated and the number of rheumatic recurrences ex-

TABLE 5

Estimated Rheumatic Persons in the Armed Forces with Cases Expected and Observed

Source	Selective Service Hq. ¹	National Research Council (Beche) ²	Office of Surgeon General (Sartwell) ³	Bureau of Medicine & Surgery (Ware) ⁴
Years included	1940-1945	1912-1945	1942-1945	1912-1945
Total strength (Man-Years)	17,384,700 *	31,300,000	24,668,000	9,966,171
Rejectees				
All defects	30%	—	—	—
Cardiovascular	5.7%	—	—	—
Rheumatic heart disease †	2.8%	—	—	—
Total population represented	17,384,700	48,099,985 ‡	35,239,989 ‡	14,237,383 ‡
No. rheumatic based on population incidence of 2%	—	980,000	701,800	281,748
3%	—	1,470,000	1,057,200	427,121
4%	—	1,960,000	1,409,600	569,495
No. rheumatic in service	815,780 **			
2%		607,600	436,976	176,544
3%		911,400	655,464	264,815
4%		1,215,200	873,952	353,087
Recurrences expected §	32,631			
2%		24,304	17,479	7,061
3%		36,456	26,218	10,592
4%		48,608	34,958	14,123
Cases observed	40,000	39,099	19,805	21,211

* Selective Service figures given for men, not man-years.

† Average experience reported in various services.

‡ Based on the assumption that the number of man-years in service is 70% of total man-years available for induction. (Value from Selective Service.)

** $17,384,700 \times 2.8\% = 499,810$ rejected for rheumatic heart disease, based on cardiac clinic figures 499,810 = 38% of rheumatics available for induction. 62% of available rheumatic subjects were inducted

§ Based on a civilian recurrence rate of 4%.⁴

pected in this group was calculated.

In making these analyses, it must be emphasized that the data released to us were not final reports, and that it was necessary to make certain assumptions which may not be entirely justified.

For these analyses, the following assumptions were made:

1. That the number of rheumatic subjects accepted and rejected by the armed forces was consistent with our clinic experience; i.e., 62 per cent were accepted and 38 per cent rejected.

2. That the incidence of rheumatic individuals in the population available for induction could be estimated as either 2 per cent, 3 per cent, or 4 per cent.

3. That the average civilian recurrence rate of 4 per cent, which was obtained in New York City for major recurrent attacks in this age group, is applicable to the men in service.

Analysis of Selective Service Data: About 17 million men were examined,

of whom 30 per cent were rejected for all defects; 5.7 per cent were rejected for cardiovascular defects. Reexamination of about 4,000 men revealed that on an average, 50 per cent of the cardiovascular rejectees had rheumatic heart disease. That is, about 500,000 men with rheumatic heart disease were rejected. If the proportion of rejectees and inductees from our cardiac clinic is representative, about 800,000 rheumatic subjects may have been inducted. In New York City we would expect about 33,000 recurrent attacks for this age group. About 40,000 cases of rheumatic fever have been reported for the men in the armed services.

Analysis of the Army and Navy Data:

The total man-years in the services from 1942 to 1945 represent 70 per cent of the man-years in the population which was available for induction (30 per cent were rejected). Therefore the pool from which the service group was drawn represents 49 million man-years.

The incidence of rheumatic subjects available was calculated as 2 per cent, 3 per cent, and 4 per cent of this pool. The mean value, i.e., 3 per cent, receives support from the incidence of rheumatic heart disease rejectees reported by selective service. On the assumption that 62 per cent of these subjects were inducted, an estimated pool of 600,000 to 1 million rheumatic man-years in the service is obtained, of whom 4 per cent would be expected to have a recurrence.

The total number of recurrent attacks ranged from 24,000 to 48,000, depending upon the estimated population incidence. Thirty-nine thousand cases were reported by the National Research Council for the Army and Navy.

The closest agreement between expected recurrences and reported cases was obtained when the population incidence was assumed to be 3 per cent.

Comparable analyses were made for the Army data alone and the Navy data alone. These revealed that the predicted recurrences were greater than the observed cases in the Army, assuming a 3 per cent population frequency for the disease, although the agreement on the basis of a 2 per cent incidence was good. For the Navy data, it is apparent that the number of expected recurrences was underestimated, regardless of the population frequency assumed.

SUMMARY AND CONCLUSIONS

1. Two-thirds of the rheumatic patients of draft age in the Cardiac Clinic were accepted in the armed forces.

2. The incidence of rheumatic fever (major recurrent attack) among 141 rheumatic patients in the armed forces was less than 2 per cent for 386 patient years.

3. The incidence of recurrence among 101 rheumatic patients rejected for service was 7 per cent for 400 patient-years.

4. Men with rheumatic heart disease were able to tolerate strenuous activity in basic training and under combat conditions.

5. If the assumptions made are valid and within the limitations of the data available for analysis, it appears that the majority of the attacks of rheumatic fever reported in the services were recurrences.

6. Our own limited cardiac clinic experience indicates that the risk for a recurrent attack of rheumatic fever is no greater in the services than in civilian pursuits.

REFERENCES

1. Massell, B. F., and Jones, T. D. Some Practical Aspects of the Rheumatic Fever Problem Which Have an Important Bearing in Military Medicine. *Am. Heart J.* 27:575-587 (Apr.), 1944.
2. Silver, Captain Saul L., and Baker, Lt. Colonel Lyle A. Re-examination of Veterans Discharged Because of Heart Disease or Hypertension. *J.A.M.A.* 130:136-139 (Jan. 19), 1946.
3. Parran, Dr. Thomas. "Heart Disease," Radio Talk, Feb. 10, 1947. Mutual Broadcasting System, 1:30 P.M. E.S.T.
4. Wilson, May G., and Lubschez, Rose. Recurrence Rates in Rheumatic Fever. *J.A.M.A.* 126:477-480 (Oct. 21), 1944.
5. Selective Service Headquarters. Aug. 1945, *Report*.
6. National Research Council. Beebe, Gilbert W., Personal Communication.
7. Office of the Surgeon General. Sartwell, Philip E., Personal Communication.
8. Bureau of Medicine & Surgery. Ware, Captain Robert L., Personal Communication.

Salmonella from Dogs and the Possible Relationship to Salmonellosis in Man*

ARTHUR H. WOLFF, D.V.M.,† NORMAN D. HENDERSON,
B.S., AND GRACE L. McCALLUM, B.S.

*Bureau of Disease Control and Bureau of Laboratories, Michigan Department
of Health, Lansing, Mich.*

RELATIVELY little information is available concerning the occurrence of Salmonella in dogs. Bruner and Edwards¹ have identified four Salmonella types from 18 outbreaks among dogs, namely: *S. typhimurium*, *S. choleraesuis*, *S. anatum* and *S. newport*. Edwards² maintains that these dogs were almost invariably affected with enteritis and in some cases whole litters of pups died of enteritis and septicemia. Van Dorssen³ describes enteritis in puppies experimentally produced by feeding *S. enteritidis* var. *dublin*. Stafseth⁴ reports a septicemic outbreak caused by *S. choleraesuis* in a litter of pups. *S. bredeney* and *S. newington* have also been reported from canine septicemia by Dolman⁵ and Castelo,⁶ respectively. Seligmann⁷ alludes to the isolations of *S. anatum* and *S. panama* from dogs. Reitler⁸ describes a peculiar disease observed in Palestine among dogs living in groups. The disease appeared to be associated with tick infestation. It either produced a fatal septicemia or ran a chronic course with rash, cough, anemia, and neuritic symptoms. From these outbreaks a new Salmonella type possessing the antigenic formula VI, XIV, XXIV . . . r-1.7. was isolated. Shirlaw⁹ dis-

cusses *S. typhimurium* infection of dogs in India. Newman¹⁰ isolated *S. give* from a dog affected with diarrhea of over a month's duration.

Of public health interest are several Scandinavian reports in which outbreaks of human Salmonella infection were shown to be epidemiologically related to Salmonella infections among dogs. Kauffmann¹¹ reports an outbreak of gastroenteritis involving six members of a family of seven and the family dog. *S. glostrup* was isolated from the feces of all members of the family and from the blood of the infected dog. Although the origin of infection was not determined, it was assumed that the sources of infection for man and dog were identical. Caspersen¹² reports a case in which an infected dog was the source of a paratyphoid outbreak involving six human beings. *S. paratyphi B* was the causal organism isolated from the human cases. The diseased dog was incriminated as the source on the basis of the clinical history and analytical serological tests. Another instance in which the dog was considered the source of a human paratyphoid outbreak is described by Magnusson.¹³ The causative organism, isolated from the involved dog and human beings was *S. abortus-canis*.¹⁴

Because of the possible public health significance of canine salmonellosis a study was initiated by this department to determine to what extent dogs may

* Presented before the Epidemiology Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 8, 1947.

† Division of Veterinary Public Health, U. S. Public Health Service.

serve as hosts for the Salmonella group and to determine the clinical manifestations these organisms may produce in dogs.

The dogs examined in this study were from three sources: the Michigan State College Veterinary Clinic, Lansing Animal Shelter, and a private kennel. This paper gives the preliminary results from bacteriological examination of 100 dogs. Eighteen of these animals were found to be excreting 16 different Salmonella types.

METHODS

In the present study, fecal specimens were collected by means of a rectal swab technique adapted from that described for human beings by Hardy.¹⁴ One hundred and sixty-eight fecal specimens were collected from 100 dogs. The swabs were dropped directly into tetrathionate broth and incubated for 18–24 hours at 37°C. Following incubation, 0.1 ml. was streaked upon SS agar. The glass rod used for streaking was carried over to the second SS plate to obtain a less heavily seeded plate. Poured bismuth sulfite plates with 0.1 ml. of inoculum were also used. However, these appeared to offer no additional advantages and were discontinued. The SS plates were incubated for 24 hours at 37°C. Non-lactose-fermenting colonies were inoculated into Hajna's triple sugar slants. Proteus organisms were eliminated on the basis of urease activity, using the medium of Rustigian and Stuart.¹⁵ Growth from triple sugar slants showing Salmonella-like* reactions was tested with polyvalent Salmonella serum. Those cultures agglutinated by the serum were sent to the Salmonella Typing Station† where identification was made on the basis of biochemical reactions and antigenic analysis.

RESULTS

Table 1 summarizes the data on rectal swabs collected and cultured from 74 dogs at the Michigan State College Veterinary Clinic and the Lansing Animal Shelter. Repeat specimens from these dogs were usually unavailable. The animals are grouped in Table 1 according to their clinical conditions. Five of the 38 "Distemper" dogs yielded Salmonella organisms: *S. typhimurium* was isolated from two of these dogs, and *S. newport*, *S. manhattan* and *S. minnesota* (monophasic) were each isolated once from distemper cases. All of these cases exhibited enteritis of varying degrees. The eight dogs grouped under "Gastroenteritis" were animals with a primary condition of gastroenteritis and no known history of any predisposing or incitatory factors. The one positive dog from which *S. oranienburg* was isolated appeared normal at the time of collecting the specimen but 24–36 hours later exhibited a severe diarrhea persisting for 2 days. A repeat specimen 10 days later was negative. Included in the "Normal" group were "boarders" and "strays," all appearing clinically well, at the Veterinary Clinic and Animal Shelter. No Salmonella were isolated from these normal dogs.

The monophasic variety of *S. minnesota* in Table 1 was recovered from a dog with a 3 months' history of intermittent fever and diarrhea. The animal had never fully recovered from what had originally been diagnosed as distemper. This particular case led to the investigation of the private kennel from which this dog originated. The word "kennel," in this instance is perhaps a misnomer. It was found that 25 to 30 dogs were housed with three human beings in a small three room dwelling. As might be conjectured, disease was rampant among the dogs. Distemper, enteritis, and septicemia were continually decimating the animal population of the household.

A total of 94 fecal specimens, taken

* Acid and gas in the butt, alkaline slant with or without H₂S

† Michigan Department of Health, Bureau of Laboratories

TABLE 1

*Salmonella Types Isolated from Dogs at Michigan State College Veterinary Clinic and
the Lansing Animal Shelter*

<i>Clinical Conditions</i>	<i>Number of Dogs Examined</i>	<i>Number of Isolations</i>	<i>Types of Salmonella Isolated</i>
<i>Distemper</i>	38	5	<i>S. typhimurium</i> , <i>S. manhattan</i> <i>S. newport</i> , <i>S. minnesota</i> (monophasic)
<i>Gastroenteritis</i>	8	1	<i>S. oranienburg</i>
<i>Normal</i>	28	0	.....

in four series at 10–12 day intervals, were collected from 27 of these dogs. After an interim of one month a fifth series was collected. All the dogs were not always available for reexamination. However, 3 to 5 fecal specimens were obtained from most of the animals.

Table 2 presents the data on 13 animals in the "kennel" from which *Salmonella* were recovered. Stool specimens from the remaining dogs were negative for *Salmonella*.

strated from one of the six animals. Four dogs yielded *S. bredeney* which was not recovered from any repeat specimens. *S. cubana* was identified from two dogs and once on repeat examination. The following were all isolated on single occasions: *S. minnesota* (monophasic) *S. minnesota* (diphaseic), *S. worthington*, *S. give*, *S. cerro*, *S. kentucky*, *S. illinois*, *S. meleagridis* and two monophasic types with the antigenic formulae XXVIII:y and III,XV:z₁₀. The latter two

TABLE 2

Salmonella Types Isolated from a Private Kennel

<i>Dog</i>	<i>Date of Specimen Collection</i>				
	<i>I—Feb. 6, 1947</i>	<i>II—Feb. 13, 1947</i>	<i>III—Feb. 27, 1947</i>	<i>IV—March 11, 1947</i>	<i>V—April 14, 1947</i>
A. <i>S. minnesota</i> * (monophasic)		(died) x	x	x	x
B. <i>S. bredeney</i>		negative (died)	Autopsy negative for <i>Salmonella</i>	x	x
C. <i>S. oranienburg</i>		negative	<i>S. kentucky</i>	negative	negative
D. <i>S. oranienburg</i>		negative	<i>S. oranienburg</i>	x	x
E. <i>S. bredeney</i>		<i>S. give</i>	negative	negative	negative
F. <i>S. bredeney</i>		negative	<i>S. cubana</i> <i>S. oranienburg</i> <i>S. cerro</i>	negative	negative
G. <i>S. minnesota</i>		negative	<i>S. oranienburg</i>	<i>S. cubana</i> † <i>S. meleagridis</i> †	
H. <i>S. bredeney</i>		negative	negative	<i>S. illinois</i>	x
I. negative		negative	negative	negative	negative
J. III, XV:z ₁₀		negative	<i>S. cubana</i>	negative	negative
K. negative		<i>S. oranienburg</i>	negative	negative	negative
L. <i>S. worthington</i> XXVIII:y		negative	negative	negative	negative
M. <i>S. oranienburg</i>	x		x	x	x

* Fecal specimen collected at Veterinary Clinic 10 days prior to indicated date

† Fecal specimens from which these organisms were isolated were collected between dates of series IV and V

x = No specimen collected

As can be observed in Table 2 the most frequently isolated type from the kennel was *S. oranienburg*. This organism was recovered from six dogs. Repeat isolation of this type was only demon-

organisms have not yet been officially named. They appear to be monophasic varieties of *S. tel-aviv* and *S. illinois*, respectively.

The bacteriological findings recorded

in Table 2 present an incongruous picture. Not only were repeat isolations relatively few but in several instances (Dogs C, E, F, and G), subsequent examinations resulted in the finding of one or more *Salmonella* differing in type from the preceding isolations. In addition, more than one *Salmonella* type was recognized in single stool specimens of dogs L and F.

The pathological significance of these

Salmonella organisms for this kennel is obscure. The kennel owner claims that almost the entire kennel was affected with septicemia, distemper, or enteritis at one time or another during the 6 months prior to our investigation. Fecal specimens taken from two of the kennel members during sieges of diarrhea were negative for *Salmonella*. Post-mortem bacteriological examinations of two 6 week old puppies affected with hemor-

TABLE 3

Previously Reported Isolations of the Salmonella Types Found in this Study

<i>Salmonella</i> Type	Dogs	Man	Fowl and Animals (other than dogs)	Other Occurrences
	Clinical Condition	Clinical Condition		
<i>S. bredeney</i>	Septicemia ⁵	Infant-diarrhea, ¹⁷ gastroenteritis, ¹⁸ septicemia * ¹⁷	Fowl, ¹⁹ swine, cattle and sheep ¹	Porcine lymph- nodes,† ^{20, 21} retail pork, ²² dried egg powder ²³
<i>S. cerro</i>	.....	Infant-diarrhea, ¹⁷	Fowl ¹⁹	Porcine lymph- nodes,† ²⁴ dried egg powder ²⁵
<i>S. cubana</i>	.....	Gastroenteritis ²	Fowl ²⁶	.....
<i>S. give</i>	Gastroenteritis ¹⁰	Infant-diarrhea, ¹⁷ gastroenteritis, ^{10, 20} septicemia, * ²⁰ and carriers ^{17, 20}	Fowl ¹⁹ and swine ¹	Porcine lymph- nodes,† ²⁰ retail pork, ²² dried egg powder ²³
<i>S. illinois</i>	.....	Gastroenteritis ²	Fowl and swine ¹⁰	.....
<i>S. kentucky</i>	.....	Gastroenteritis, ^{17, 20} and septicemia * ²⁷	Fowl, ¹⁹ camels, and reptiles ¹	Food poisoning, ²⁸ dried egg powder ²⁹
<i>S. manhattan</i>	.....	Gastroenteritis and carriers ^{10, 20}	Fowl, ¹⁹ swine, and reptiles ¹	Dried egg powder ²³
<i>S. meleagridis</i>	.....	Infant-diarrhea, ¹⁷ gastroenteritis, septicemia, * and carriers ^{10, 20}	Fowl, ¹⁹ swine, and reptiles ¹	Porcine lymph- nodes,† ²⁰ dried egg powder, ²⁹ food poison- ing, ²⁷ and sewage ³⁰
<i>S. minnesota</i>	.....	Infant-diarrhea, ¹⁷ gastroenteritis ⁷	Fowl, ¹⁹ cattle, and swine ¹	Dried egg powder ²³
<i>S. minnesota</i> (monophasic)	.....	Gastroenteritis and septicemia * ³¹	.....	.....
<i>S. newport</i>	Enteritis and/or septicemia ^{1, 2}	Infant-diarrhea, ¹⁷ gastroenteritis, septicemia, * and carriers ^{10, 20, 27}	Fowl, ¹⁹ cattle, swine, rodents, mink, foxes, and reptiles ¹	Porcine lymph- nodes,† ^{21, 24} dried egg powder, and food poisoning ²¹
<i>S. oranienburg</i>	.....	Infant-diarrhea, ¹⁷ septicemia, * and carriers ^{10, 20, 27}	Fowl, ¹⁹ and foxes ¹	Dried egg powder and food poisoning ²³
<i>S. typhimurium</i>	Enteritis and/or septicemia ^{1, 2}	Isolated from many clinical conditions, primarily gastro- enteritis	Many species of birds and animals	Numerous miscellaneous isolations
<i>S. worthington</i>	.....	Gastroenteritis, septicemia * and carriers ^{10, 27}	Fowl, ¹⁹ cattle, swine, and rodents ¹	Porcine lymph- nodes,† ²⁰ dried egg powder, and food poisoning ²²
III,XV:z ₃₀	.....	.....	Fowl ²	.....
XXVIII:y	.....	.....	Fowl ²	.....

* Septicemia refers to any of the following clinical pictures: enteric (or paratyphoid) fevers; generalized septicemia and/or localized septic manifestation.

† Mesenteric lymph nodes of apparently healthy swine.

rhagic enteritis were negative for *Salmonella*.^{*} Moreover, all of the dogs from which *Salmonella* were isolated, with the exception of A and B, were clinically normal at the time of our examinations. Both dogs A and B died of enteritis and septicemia, and post-mortem bacteriology of dog B revealed no *Salmonella*. A blood specimen was obtained from dog F from whose feces five different *Salmonella* types were isolated. The culture of the blood was negative. Agglutination tests were performed with the serum against each of the five types recovered from this dog. The highest demonstrable titer was 1:40 with *S. bredeney*.

In view of the incongruity of the *Salmonella* isolations from this kennel and in view of the kennel's decidedly substandard sanitation, it was thought that the food or drink might be affording a means of "reinfection." No *Salmonella* could be isolated from the water. However, both the well and cistern gave a high coliform index. Water samples taken from the common watering bowl yielded only *Proteus* strains which might indicate fecal contamination. Of the food included in the ration, eggs seemed to be the most likely source. All eggs consumed by these dogs were rejected candled eggs from a local market. Eggs from the local market and the supply stored at the kennel have been cultured. To date, only *S. pullorum* has been isolated.

DISCUSSION

It is difficult to assess the pathological significance of these *Salmonella* types for dogs on the basis of this limited study. The combined data from the Michigan State College Veterinary Clinic and the Animal Shelter indicate some association of these organisms with distemper or enteritis, or both. On the other hand, the kennel findings sug-

gest the possibility that these kennel dogs were transient carriers. In any event it appears that the dog may serve as a more frequent host of *Salmonella* than has been thought in the past.

Table 3 illustrates some previously reported occurrences of the *Salmonella* types identified in this study. The 16 types recognized in this work are serologically, biochemically, and morphologically similar to those frequently infecting man, birds, and other animals. Consequently an epidemiological relationship may exist between dogs, birds, man, and other animals. To the writers' knowledge, of the types found in this work, only *S. give*, *S. bredeney*, *S. newport*, and *S. typhimurium* previously have been reported from dogs. On the other hand, all of the 16 types have been isolated as suspected pathogens from human beings with the possible exceptions of those organisms with the antigenic formulae III,XV:z₁₀—and XXVIII:y.

SUMMARY

The following *Salmonella* types have been recovered from dogs by other workers: *S. typhimurium*, *S. choleraesuis*, *S. anatum*, *S. newport*, *S. panama*, *S. give*, *S. bredeney*, *S. newington*, *S. paratyphi B*, *S. abortus-canis*, *S. glossitrip*, *S. enteritidis* var. dublin and a type closely related to *S. carrau*. Most cases manifested enteritis with septicemia occurring as a frequent sequel.

A study has been started to collect data pertaining to the incidence and significance of *Salmonella* organisms among dogs. Stool specimens were collected by rectal swabs from 100 dogs. Tetrathionate broth and SS Agar were used routinely for isolation procedures. *Salmonella* types were recovered from the stools of 18 of the 100 dogs examined. The following types were identified: *S. manhattan*, *S. newport*, *S. minnesota* (both monophasic and diphasic varieties), *S. oranienburg*, *S.*

^{*} The immediate cause of death in both pups was ileal intussusception.

typhimurium, *S. bredeney*, *S. worthington*, *S. give*, *S. cubana*, *S. cerro*, *S. kentucky*, *S. illinois* and *S. meleagridis*. There were two types isolated to which the antigenic formulae of XXVIII:y and III, XV:z₁₀ respectively were ascribed.

The pathological significance of these isolations has not yet been entirely ascertained, and additional work is being performed toward this end. However, this work does indicate that the dog may be a frequent host for the *Salmonella* organisms. In view of the established pathogenicity for man of most of the above cited *Salmonella* organisms, the dog should be considered as a potential source of *Salmonella* infection for man.

ACKNOWLEDGMENT: The authors wish to express their appreciation to Dr. P. R. Edwards of the *Salmonella* Typing Station, University of Kentucky, Lexington, Ky., for his assistance in confirming some of the *Salmonella* types identified in this work.

REFERENCES

1. Bruner, D. W., and Edwards, P. R. Salmonellosis of Domestic Animals. *Proc. Fiftieth Annual Meeting of U. S. Livestock Sanitary Assoc.*, 1946.
2. Edwards, P. R., Bacteriologist, University of Kentucky (personal communication).
3. Van Dorssen, C. A. Experimental Infection of Puppies with *S. Enteritidis* var. Dublin. *Z. Veterinarik.*, 49:419, 1937. (Abstract, *Vet. Bull.*, 9:146, 1939.)
4. Stafseth, H. J., Neu, L., and Sholl, L. B. *Salmonella cholerae-suis* Infection in Pups. *M.S.C. Vet.*, 5:21-22, 1944.
5. Dolman, C. E. Bacterial Food Poisoning. *Canad. Pub. Health J.*, 34:97-111, 1943.
6. Castelo, M., and Salsamendi, R. C. *Salmonella newington* in the Dog. *An. Fac. Vet.*, Montevideo, 4:359-361, 1938. (Abstract, *Vet. Bull.*, 11:355, 1941.)
7. Seligmann, E., Saphra, I., and Wassermann, M. *Salmonella* Infections in the U. S. A., *J. Immunol.*, 54:69-87, 1946.
8. Reitter, R., and Menzel, R. Some observations on *Salmonella* Strains in Dogs, Mice and Ticks. *Tr. Roy. Soc. Trop. Med. & Hyg.*, 39:523-527, 1946.
9. Shirlaw, J. F., McDonald, J., and Hayes, W. Canine Typhi-murium Infection. *Indian Vet. J.*, 22:87-89, 1946.
10. Newman, J. P., Department of Bacteriology, Michigan State College (personal communication).
11. Kauffmann, F., and Henningsen, E. D. A New Type of *Salmonella* from Man and Dog. *Acta. Path. et microbiol. Scandinav.*, 16:99-102, 1939. (Abstract, *Vet. Bull.*, 9:825, 1939.)
12. Caspersen, J. A Paratyphoid Outbreak with a Peculiar Origin (Dog). *Forh. Norsk. Med. Sels. K.*, 10:138-143, 1937. (Abstract, *Vet. Bull.*, 9:825, 1939.)
13. Magnusson, K. E. A Dog as a Source of Paratyphoid Infection. *Ztschr. Hyg. u. Infektionskr.*, 121:136-138, 1938. (Abstract, *Vet. Bull.*, 9:825, 1941.)
14. Gard, S. A New Type of *Salmonella*, *S. abortus-canis*. *Ibid.*, 432-434.
15. Hardy, A., Watt, J., and Decapito, T. Studies of the Acute Diarrheal Disease, VI. *Pub. Health Rep.*, 57:521-524, 1942.
16. Rustigian, R., and Stewart, C. A. Decomposition of Urea by *Proteus*. *Proc. Soc. Exper. Biol. & Med.*, 47:108, 1941.
17. Hormaeche, E., Surraco, J. L., Pelluso, C. A., and Aleppo, P. L. Causes of Infantile Summer Diarrhea. *Am. J. Dis. Child.*, 66:539-551, 1943.
18. Kauffmann, F. A New *Salmonella* Type (*Salmonella bredeney*) and Evaluation. *Ztschr. f. Hyg. u. Infektionskr.*, 119:356-368, 1937.
19. Edwards, P. R., and Bruner, D. W. Occurrence and Distribution of *Salmonella* Types in the United States, *J. Infect. Dis.*, 72:58-67, 1943.
20. Rubin, H. L., Scherago, M., and Weaver, R. H. The Occurrence of *Salmonella* in the Lymph Glands of Normal Hogs, *Am. J. Hyg.*, 36:43-47, 1942.
21. Hormaeche, E., and Salsamendi, R. Presence in Mesenteric Ganglia of Normal Hogs of Bacteria of *Salmonella* Group Which Cause Summer Diarrhea in Children. *Arch. Urug. Med., Argy. Espec.*, 9:665-672, 1936.
22. Cherry, W. B., Scherago, M., and Weaver, R. H. The Occurrence of *Salmonella* in Retail Meat Products, *Am. J. Hyg.*, 37:211-215, 1943.
23. Topley, W. W., and Wilson, G. S. *Principles of Bacteriology and Immunity*, Williams & Wilkins, 3rd ed., 1946.
24. Hormaeche, E., and Salsamendi, R. Normal Hog as Carrier of *Salmonella*, *Arch. Urug. de Med. Cir. y Espec.*, 14:375-387, 1939.
25. Seligmann, E., Wassermann, M., and Saphra, I. A. New *Salmonella* Type: *Salmonella cubana*. *J. Bact.*, 51:123-124, 1946.
26. Bruner, D. W., and Joyce, B. J. *Salmonella* Types Encountered by the 15th Medical General Laboratory, *Am. J. Hyg.*, 44:19-24, 1947.
27. Seligmann, E., Saphra, I. A., and Wassermann, M. *Salmonella* Infections in Man, *Am. J. Hyg.*, 38:226-249, 1943.
28. Solowey, M., et al., Microbiology of Spray-Dried Whole Egg, *A. J. P. H.*, 37:971-982, 1947.
29. Varela, G., and Zozaya, J. *Salmonella* from Hogs, *Rev. Inst. Salubr. Infirm. Trop.*, 2:311-318, 1941.
30. Bornstein, S., and Saphra, I. A. The Occurrence of Several Unusual *Salmonella* Species, *J. Infect. Dis.*, 71:55-56, 1942.
31. *Case Histories*, Michigan Department of Health, Bureau of Disease Control.

Problem of Dust Control for the Disinfection of Air*

FROM the standpoint of control, all air-borne diseases, with few exceptions, may be considered to take place "indoors" where people congregate, and the bacterial and viral content of the intramural environment attains an infective level. Whether pathogens in "droplet nuclei" as defined in the report of the Subcommittee for the Evaluation of Methods of Control of Air-borne Infections¹ are more important in the spread of air-borne diseases than dust-borne organisms from "environmental reservoirs" on floors, clothes, and bedding; has not been determined. Irrespective of the size of the droplets in which bacteria are expelled from the respiratory tract, the majority relatively soon settle and become components of dust.² Several studies, which have been published in the past year, have added much information concerning the relative importance of the methods of dispersal of respiratory disease agents in the air and the immediate environment. It seems important to summarize the results of these studies briefly.

Dispersal of respiratory disease agents into the environment: Duguid,³ employing *Erythrobacillus prodigiosus* as the tracer organism, found that speaking, coughing, and sneezing produced many droplets small enough to remain air-borne as droplet nuclei, and that essentially all of these droplets origi-

nated from the front of the mouth. The extent of air-borne infection which may occur from droplet nuclei then must depend on the frequency with which pathogenic organisms occur in the secretions in the anterior mouth. Examining 85 scarlet fever, 50 faucial diphtheria, and 20 open tuberculosis patients, he found, respectively, small numbers of hemolytic streptococci, diphtheria bacilli, and tubercle bacilli in the anterior mouth secretions of only a small portion of the individuals in each group.⁴

Studying the size of droplets expelled by sneezing, coughing, and talking by microscopic measurement, Duguid⁵ found that they ranged in diameter from 1 to 2,000 microns, the most common being between 4 and 8 μ . The proportion of droplets of each size which contained bacteria, whether commensal or pathogenic, was determined by the size of the droplets and by the number of bacteria in the secretions atomized. Calculations made on the basis of size distribution showed that few of the smaller droplets and, thus, fewer droplet nuclei are likely to contain organisms. He concluded, therefore, that droplet spray is unlikely to give rise directly to air-borne infection unless very large numbers of pathogenic organisms are present in the secretions of the anterior mouth. In undisturbed air of a 1,700 cu.ft. room, Duguid found that 90 per cent of the bacteria carrying droplet nuclei disappeared by settling in from 30 to 60 minutes; particles larger than 8 μ disappeared in 20 minutes, while smaller particles remained suspended for a longer period of time. When the air

* Referee's Report on Suppressive Measures for the Control of Dust, to the Standard Methods Committee for the Examination of Germicides and Antibacterial Agents. Committee authorized 1941. Published Reports, *A.J.P.H.*, May, 1943, Aug., 1944, Aug., 1945, Apr., 1946, and Apr., 1947.

was disturbed by a fan, the bacteria disappeared at a much faster rate.

Hare and associate have extended their observation on the mechanism of spread of bacterial and certain virus infections of the respiratory tract.⁶ They confirmed their earlier observations and those of Duguid³⁻⁵ that the number of organisms expelled varies according to the type of respiratory activity, and concluded that only by "violent and impolite" methods (sneezing) can a carrier of a pathogen infect the atmosphere of his vicinity to any great extent directly from his mouth or nose. They point out that the path which organisms take after leaving the nose and mouth will likewise vary with the particular activity but will, in general, be downward and forward. The site of impingement of the great majority of particles is on objects below the level of the head, resulting in the direct contamination of the immediate environment of the donor by his nasal and buccal secretions. As these extruded bacteria can be raised again and again into the air as dried particles, Hare considers these dust-borne agents responsible for conveying infections to others.

The recent studies of Hamburger and coworkers⁷⁻⁹ support the findings of Duguid³⁻⁵ and Hare.⁶ These investigators found that persons with positive nose cultures for hemolytic streptococci extruded many more of these pathogens into their environment than did those with positive throats alone. By far the greatest number were expelled by blowing the nose, although some individuals dispersed hundreds and millions of streptococci, respectively, by coughing and sneezing. In wards housing these individuals only an occasional hemolytic streptococcus could be recovered from the air during quiet periods; whereas, during periods of bedmaking and floor sweeping large numbers were recovered from the air.

From their studies, Hamburger and

associates⁹ concluded that the extensive streptococcal contamination of the environment took place somewhat as follows: The act of blowing the nose and sneezing contaminated the handkerchief and, simultaneously, the hands, with a few streptococci escaping into the air. From the handkerchief, the dried nasal secretions containing hemolytic streptococci are dispersed into the air and settle out as dust. The contaminated hands provide the opportunity for transfer of microorganisms to personal clothing, bedclothes, and anything with which they come in contact. Thus, by these routes the environmental surfaces and air may become markedly contaminated with pathogens; this would probably be the usual situation where streptococcal disease was epidemic in hospital wards, boarding schools, orphan asylums, and military barracks and schools. They further conclude that direct hits by streptococci expelled by unprotected sneezing, coughing, or talking, or the inhalation of droplet nuclei containing streptococci dispersed by these activities undoubtedly account for a certain number of sporadic infections, but they are probably of secondary importance in the epidemic spread of streptococcal disease.

Hodges and MacLeod recently reported an extensive study on epidemic pneumococcal pneumonia in an army camp.¹⁰ The presence of specific pneumococcal types throughout the population was uniform and pneumonia occurred in all parts of the camp. Airborne dissemination of pneumococci among the personnel appeared to be a likely explanation of this epidemiological picture, for it was found on culturing the dust in the schoolrooms and barracks that a high percentage of the samples were positive for pneumococci. The types found in the dust reflected directly the prevailing types of pneumococci in the throats of carriers, supporting the earlier work of Stillman.¹¹

Little is known concerning the mech-

anisms of the spread of virus diseases of the respiratory tract. In all probability they are air-borne, and because of their small size as compared to bacteria may well be carried in droplet nuclei. At the same time, they may be dispersed as dust-borne agents. Influenza virus A is known to be resistant to drying and will survive in the environment for several days.¹² Recent studies of laboratory outbreaks of Q fever strongly incriminate infected dust-borne particles as the means of dissemination.^{13, 14}

While investigating the problem of air hygiene in dressing rooms for burns or major wounds with a new sampling device, Bourdillon and Colebrook¹⁵ found that large numbers of bacteria were liberated when dry bandages and wool were removed from a patient. Likewise, large clouds of bacteria often containing pathogens were liberated by the movement of pajamas or other bedclothes that have been used for some hours. Their data confirm the observation of others that unsoiled blankets should not be allowed in any surgical dressing room.

New apparatus for measuring particle size: There is a tremendous range in the size of droplets expelled in mouth and nose secretions during talking, sneezing, coughing, blowing the nose, and spitting, and the final size of droplet nuclei or dust-borne particles capable of carrying pathogens is not accurately defined.¹⁶ Knowledge of the range of particle size of dust containing bacteria which are dispersed into the air during bedmaking and floor sweeping would be most helpful in evaluating the importance of dust-borne bacteria in the spread of respiratory disease. Hatch¹⁷ reviews the problem of the behavior of microscopic particles in the air and in the respiratory system. Studies show that particles larger than $5\ \mu$ are removed primarily in the upper respiratory tract while progressively smaller particles are deposited in the more distal

parts of the bronchial tree and alveoli.

These findings are supported in a recent study by Davis.¹⁸ Employing the rabbit as the experimental animal, he found that droplets above $7\ \mu$ were all removed by the nose during inhalation. About half the $3\ \mu$ diameter drops penetrated the lungs and practically all those $1.5\ \mu$ and smaller.

Most instruments utilized in the collection of dust particles for size measurement employ a single jet or slit and a single stage for deposition of the dust. Recently a new instrument called "the Cascade Impactor," for sampling liquid and solid aerosols has been described by British workers.¹⁹ Because this apparatus seems applicable to the study of the size range of naturally dispersed droplet nuclei and dust-borne particles carrying bacteria in a given atmosphere, a brief description of it is given. This instrument is suitable for sampling wind-borne and stationary aerosols such as natural fogs and clouds, fine sprays, insecticidal mists, coarse dusts, pollen, and spores, etc. By means of four progressively finer jets impinging on glass slides in series the sample is split up into size-graded fractions in a form suitable for microscopic analysis. The greatest efficiency of sampling is achieved for particles in the diameter of range 50 to $1.5\ \mu$. The size-grading greatly facilitates the detailed microscopic examination of heterogeneous samples and in some cases enables approximate size-distributions to be obtained by bulk estimations of the samples without the need for microscopic sizing. A complete description with diagrams and photographs of the apparatus and results of sizing aerosols of certain liquid and solid materials is given.

Recently, Sonkin²⁰ has described a modified cascade impactor for sampling and sizing aerosols of particles below $1\ \mu$ in diameter. He was able to separate clouds containing particles of glycerol water, methylene blue solution

below 1 μ into different size classes permitting rapid and convenient size characterization of the aerosol. In discussing the question of the use of the cascade impactor with Sonkin, he states that it can be readily adapted to the study of size range of naturally dispersed bacterial particles (droplet nuclei and dust-borne particles).²¹

Landahl and Block,²² studying the penetration of air-borne particles through the human nose have also employed the cascade impactor. Employing corn oil, sodium bicarbonate, and tricalcium phosphate, they studied the effect of particle size and flow rate through the nose. They found that (a) in the case of corn oil droplets passing through the nose at 10, 17, 29, and 60 liters per minute, the particle diameters corresponding to 50 per cent penetration were found to be 8, 5, 5, and 2 μ , respectively; (b) for sodium bicarbonate particles at 17 and 60 liters per minute, the diameters for 50 per cent penetration were 2 and 1 μ ; and (c) for tricalcium phosphate at 17 liters, the 50 per cent penetration size was 4 μ .

Studies on the application of oil to floors and bedclothes for the control of dust-borne bacteria and cross-infections in hospitals: In an Australian hospital, Rountree and associate²¹ found large numbers of hemolytic streptococci in the ward floor and blanket dust and also in the dust from the floor of the surgical dressing room where the sterile trays were prepared. Sampling the ward air revealed a marked increase in the number of bacteria during bedmaking.

Rountree²⁵ found that the emulsifying mixture referred to as "Fixanol C"²⁶ containing cetyl pyridinium bromide known to be highly germicidal exhibited marked bactericidal properties for a number of Gram-positive and Gram-negative organisms. Likewise, the "Fixanol C" when incorporated in the oil-in-water emulsion imparted a bactericidal action to the emulsion. Blank-

ets treated with "Fixanol C" and oil became bactericidal and retained this property for as long as 3 months. Although she found a 1 per cent water solution of "Fixanol C" non-irritating to the skin as shown by the patch test, it was pointed out that the hypersensitivity of certain individuals to bromide drugs should be borne in mind when subjecting them to the wearing of garments or sleeping in blankets treated with this oil formula.²⁶ Wright and associates³⁰ in discussing their experience with this oiling method consider the risk of skin irritation negligible.

A trial study²⁷ over a 4 month period, employing blankets oiled with "Fixanol C" without other dust control measures, was made by Rountree. No effect was observed on the incidence of wound cross-infection on a surgical ward, although the treated blankets were shown to contain almost 100 per cent fewer bacteria than unoiled ones in similar use.

Robertson²⁸ reports the results of instituting oiling procedures in the Chicago Lying-In Hospital on the bacterial content of the air in one, two, and four bed wards, operating room, birthroom, and nursery during the months of February to May, 1946. All articles of clothing coming to the hospital laundry were treated with the T-13 oil emulsion formula² with the exception of the personal clothing of internes and nurses. The percentage reduction of air-borne bacteria brought about by oiling was greatest in the rooms containing 4 patients (90 per cent) and least in single rooms (40 per cent). In the nursery where the bacterial count was lowest initially, the reduction after oiling was very slight.

In 1944, Wright and coworkers²⁹ reported a highly favorable study on the use of oiled bedclothes and floors in preventing cross-infections due to the hemolytic streptococcus in measles wards. When these methods were employed, the streptococcal (type 6) cross-

infection rate among the patients fell from 58.1 per cent during the preliminary period with oiled floors alone to 18.6 per cent when, in addition, oiled bedclothes, garments, and ward linen were used. The cross-infection rates for the same periods in the unoiled wards were 53.5 per cent and 73.3 per cent, respectively.

Recognizing the difficulty of drawing conclusions with respect to the value of dust control procedures for the prevention of hospital cross-infections from a single study, Wright and associates³⁰ carried out a similar study the following year (1945) on the measles wards of another hospital. Similar methods were employed²⁶ and a more rigid aseptic technique was instituted to reduce the possibility of other modes of spread. As was found in their previous study²⁹ the oiling methods effected a marked reduction in the total bacterial and streptococcal counts in the air of the test ward. Thus, the reduction in the mean total bacterial count and hemolytic streptococcal count of the air of the oiled wards during bedmaking was 92.3 per cent and 94.7 per cent, respectively, and during floor sweeping, 79.1 per cent and 95.9 per cent, respectively, when compared to counts obtained in the air of the control ward during similar periods of activity.

In contrast to the favorable clinical results obtained in their 1943 study, the cross-infection rate, although low on both wards in 1945, was actually higher (20 per cent) in the oiled than (12.4 per cent) in the unoiled ward. The authors found these results difficult to explain. They point out that both wards had a comparatively low cross-infection rate of the same order as the 18.6 per cent rate which was regarded as satisfactory for the oiled ward in the 1943 investigation. The low degree of aerial contamination by streptococci in both wards suggested that the cross-infections were caused by a mode of spread which

was not air-borne. Two factors are presented which possibly explain the higher cross-infection rate on the test ward—(a) a higher admission rate of type 12 streptococcus, the only streptococcal type which showed signs of “communicability” and “virulence,” and (b) a higher admission rate of skin sepsis and streptococcal otorrhea cases.

The absence of a markedly virulent “communicable” strain of streptococcus on the wards in the 1945 study was in striking contrast to the condition on the wards in 1943. In the latter investigation, only one group A streptococcal type (type 6) was responsible for the high cross-infection rate and complications on both wards before and on the control ward after oiling methods were instituted. In the 1945 study, numerous types and groups of hemolytic streptococci were isolated from the cases of cross-infection. Thus, the conditions favorable for the spread of streptococci in measles wards vary from one epidemic year to another.

Wright and her coworkers conclude “that the results of the 1945 investigation need in no way discourage further trials of dust suppression by oiling. Should unfavorable conditions of 1943 recur in subsequent measles epidemics, dust control may again assume importance as a measure of preventing infection.”

SUMMARY AND CONCLUSION

1. Recent studies suggest that the indirect spread of respiratory tract infections from the inhalation of dust-borne bacteria is more important than by the direct inhalation of infectious droplets or droplet nuclei. The relative importance of droplet nuclei and dust-borne particles in the spread of virus infections is not known. More exact knowledge concerning the size range of dust-borne particles and droplet nuclei containing bacteria and viruses is essential to evaluate further methods for

the control of infections spread by the air-borne route.

2. An apparatus for sizing liquid and solid aerosols has been reported. This instrument, or a modification of it, appears to be adaptable to the study of size ranges of naturally dispersed droplet nuclei and dust-borne particles carrying bacteria and viruses.

3. Recent studies confirm the results of earlier investigations^{2, 23} that to oil floors and bedclothes for the control of dust-borne bacteria is a highly efficient procedure. The use of the T-13 oil emulsion formula for the treatment of bedclothes with oil in a civilian hospital has been demonstrated. The incorporation of germicidal agents into oil-in-water emulsions to increase their efficiency merits further study.

4. Two studies by the same investigators have been reported which show that in 1943, dust suppressive measures effected a marked and significant reduction in the incidence of cross-infections due to a highly communicable strain (type 6) of hemolytic streptococcus on a measles ward; but in 1945, when the incidence of cross-infections due to numerous types and groups of streptococci was low, no effect was observed. Likewise, in another study, oiling blankets with a germicidal oil-in-water emulsion did not reduce the incidence of secondary infections of burns in a surgical ward.

5. The studies reviewed in this report point up the fact that no respiratory tract infection, whether of bacterial or virus etiology, and no wound or burn infection is acquired only by the air-borne route. The opportunities for spread of respiratory tract infections or of developing secondary infections of wounds and burns by other means than through the air in an environment highly contaminated with infectious dust are many. Direct contact with some object or person in the environment may assume a role of major importance in some situations.

REFERENCES

1. Perkins, J. E. The Present Status of the Control of Air-borne Infections. *A.J.P.H.*, 37:13, 1947.
2. Loosli, C. G. Dust and Its Control as a Means of Disinfection of Air. *A.J.P.H.*, 37:353, 1947.
3. Duguid, J. P. The Numbers and the Sites of Origin of the Droplets Expelled During Expiratory Activities. *Edinburgh M. J.*, 52:385, 1945.
4. Duguid, J. P. Expulsion of Pathogenic Organisms from the Respiratory Tract. *Brit. M. J.*, 1:265, 1946.
5. Duguid, J. P. The Size and the Duration of Air-Carriage of Respiratory Droplets and Droplet Nuclei. *J. Hyg.*, 44:471, 1946.
6. Hare, R., and Mackenzie, D. M. The Source and Transmission of Nasopharyngeal Infections Due to Certain Bacteria and Viruses. *Brit. M. J.*, 1:865, 1946.
7. Hamburger, M., Jr., Green, M. J., and Hamburger, V. G. The Problem of the "Dangerous Carrier" of Hemolytic Streptococci; II. Spread of Infection by Individuals with Strongly Positive Nose Cultures Who Expelled Large Numbers of Hemolytic Streptococci. *J. Infect. Dis.*, 77:96, 1945.
8. Hamburger, M., Jr., Puck, T. T., Hamburger, V. G., and Johnson, M. A. Studies of the Transmission of Hemolytic Streptococcus Infections; III. Hemolytic Streptococci in the Air, Floor Dust, and Bedclothing of Hospital Wards and Their Relation to Cross-Infection. *J. Infect. Dis.*, 75:79, 1944.
9. Hamburger, M., Jr., and Green, M. J. The Problem of the "Dangerous Carrier"; IV. Observations Upon the Role of Hands, of Blowing the Nose, of Sneezing, and of Coughing in the Dispersal of These Microorganisms. *J. Infect. Dis.*, 79:33, 1946.
10. Hodges, R. G., Capt. M.C. A.U.S., and MacLeod, C. M. Epidemic Pneumococcal Pneumonia; II. The Influence of Population Characteristics and Environment. *Am. J. Hyg.*, 44:193, 1946.
11. Stillman, E. G. Further Studies on the Epidemiology of Lobar Pneumonia. *J. Exper. Med.*, 26:513, 1917.
12. Edward, D. G. ff. Resistance of Influenza Virus to Drying and Its Demonstration on Dust. *Lancet*, 2:664, 1941.
13. Commission on Acute Respiratory Diseases. A Laboratory Outbreak of Q Fever Caused by the Balkan Gripe Strain of Rickettsia Burnetti. *Am. J. Hyg.*, 44:123, 1946.
14. Huebner, R. J. Report of an Outbreak of Q Fever at the National Institute of Health. *A.J.P.H.*, 37:431, 1947.
15. Bourdillon, R. B., and Colebrook, L. Air-Hygiene in Dressing-Rooms for Burns or Major Wounds. *Lancet*, 1:256 and 601, 1946.
16. Jennison, M. W. Atomizing of Mouth and Nose Secretions into the Air as Revealed by High-Speed Photography. *Aerobiology*. American Assn. for the Advancement of Science, 17:106, 1942.
17. Hatch, T. F. Behavior of Microscopic Particles in the Air and in the Respiratory System. *Aerobiology*. American Assn. for the Advancement of Science, 17:192, 1942.
18. Davis, C. N. Filtration of Droplets in the Nose of the Rabbit. *Proc. Roy. Soc., Series B*, 133:282, 1946.
19. May, K. R. The Cascade Impactor: An Instrument for Sampling Coarse Aerosols. *J. Sc. Instruments*, 22:187, 1945.
20. Sonkin, L. S. A Modified Cascade Impactor: A Device for Sampling and Sizing Aerosols of Particles Below One Micron in Diameter. *J. Indus. Hyg. & Toxicol.*, 28:269, 1946.
21. Sonkin, L. S. Personal Communication.
22. Landahl, H. D., and Block, S. Penetration of Air-borne Particles Through the Nose. *J. Indust. Hyg. & Toxicol.*, 29:269, 1947.

23. Loosli, C. G., and Robertson, O. H. Recent Studies on the Control of Dust-borne Bacteria by Treatment of Floors and Bedclothes with Oil. *Am. J. M. Sci.*, 209:166, 1945.

24. Rountree, P. M., and Armytage, J. E. Hospital Blankets as a Source of Infection. *M. J. Australia*, 1:503, 1946.

25. Rountree, P. M. The Treatment of Hospital Blankets with Oil Emulsions and the Bactericidal Action of "Fixanol C" (Cetyl Pyridinium bromide). *M. J. Australia*, 1:539, 1946.

26. Harwood, F. C., Powney, J., and Edwards, C. W. A New Technique for the Application of Dust-laying Oils to Hospital Bedclothes. *Brit. M. J.*, 1:615, 1944.

27. Rountree, P. M. Cross-Infection of Wounds in a Surgical Ward During a Trial of the Use of Oiled Blankets. *M. J. Australia*, 1:427, 1947.

28. Robertson, O. H. The Dispersal of Respiratory Pathogens in Relation to the Occurrence and Control of Air-borne Infections. *Am. Rev. Tuberc.*, 55:109, 1947.

29. Wright, J., Cruickshank, R., and Gunn, W. The Control of Dust-borne Streptococcal Infection in Measles Wards. *Brit. M. J.*, 1:611, 1944.

30. Begg, N. D., Smellie, E. W., and Wright, J. Dust Control in Measles Wards with a Note on Sulfadiazine Prophylaxis. *Brit. M. J.*, 1:209, 1947.

CLAYTON G. LOOSLI, M.D., *Referee*
Associate Professor of Medicine
University of Chicago, School of
Medicine

Best Sellers in the Book Service for February

An Appraisal Method for Measuring the Quality of Housing: A Yardstick for Health Officers, Housing Officials and Planners.

Part I. Nature and Uses of the Method, 1945.....	\$1.00
Part II. Appraisal of Dwelling Conditions, 1947. 3 Vols.....	5.00
Color Atlas of Hematology. Kracke. 1947.....	5.00
Common Contagious Diseases. 4th ed. Stimson. 1947.....	4.00
The Control of Communicable Diseases. 6th ed., 1945.....	.35
Diagnostic Procedures and Reagents. 2nd ed., 1945.....	4.00
Manual of Determinative Bacteriology. 6th ed., Bergey et al., 1948.....	15.00
Military Preventive Medicine. Dunham. 1940.....	3.25
Milk and Food Sanitation Practice. Adams, 1947.....	3.25
Public Health Law. 3rd ed. Tobey. 1947.....	4.50
Standard Methods for the Examination of Water and Sewage, 9th ed., 1946.....	4.00
Water Bacteriology. Prescott, et al., 1946.....	4.50
Your Community. rev. 3rd ed. Colcord. 1947.....	1.50

Order from the Book Service
AMERICAN PUBLIC HEALTH ASSOCIATION

American Journal of Public Health

and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

March, 1948

Number 3

Editorial Board

REGINALD M. ATWATER, M.D.
Chairman, and Managing Editor

LEONARD GREENBURG, M.D.
PROFESSOR JOHN M. HENDERSON
RALPH S. MUCKENFUSS, M.D.

STUART MUDD, M.D.
RAYMOND S. PATTERSON, PH.D.
GEORGE ROSEN, M.D.

C.-E. A. WINSLOW, DR.P.H., *Editor*

AUGUSTA JAY, *Editorial Associate*

FRUITS OF THE PRINCETON CONFERENCE

THE fact that approximately one-third of the population of the United States lives in areas which lack the essential services of a full-time health officer has long been a subject of concern to our Association. Dr. Haven Emerson's Subcommittee on Local Health Units has provided us with full data on this point, has suggested definite and practical ways in which this vital health need of the nation could be met, and has fought gallantly for the cause for the last five years. During the past six months public interest in the subject has at last been aroused on a wide scale, and the promise for future progress is now bright.

A Conference was held at Princeton last fall under the auspices of the American Public Health Association which brought together representatives of 65 national citizens' organizations representing some 50,000 local and state branches whose membership constitutes a large part of the adult population of the country.¹ At this Conference, the representatives of these agencies discussed the findings of the *Subcommittee on Local Health Units of the Committee on Administrative Practice*²; the citizen agencies present, by resolution, urged their respective agencies to use all their influence to get complete coverage of the nation with health units of such area and population as to be economically efficient and justifiable.

Since September, the published *Proceedings of the Princeton Conference*³ (as well as four special bulletins of information) have been sent to the participating agencies. The National Health Council—as the appropriate body representing voluntary citizen participation in the health program—has accepted leadership in developing a nation-wide campaign for universal full-time health service. Its first major step was the calling of a planning meeting in New York on January 23. To this recent Conference, 47 of the Princeton agencies sent delegates at their own expense. They voted that a national advisory and coordinating committee be created under the National Health Council which would develop programs, educational materials, hold regional meetings, and give staff advisory service to local committees and councils seeking to extend local health services. Resolutions of the Conference⁴ state “that the goal is to obtain complete coverage of all states and all communities by local full-time health units under competent professional direction.” They ask:

That the National Health Council be requested to create a National Advisory Committee on Local Health Units composed of responsible representatives of interested organizations.

That this committee seek to develop a central program advisory service, materials and such other clearing house functions as may prove desirable.

That the national organizations be encouraged to begin stimulation of state and local action to obtain the necessary local health units.

That each organization be encouraged to develop a specific program of action adapted to its structure and character.

That each organization urge its state and local affiliates to work coöperatively with existing state-wide and local coöperating agencies or councils in order that there may be a pooling of interests, planning and action in securing complete coverage.

Among the items discussed by the Conference was the increase in local full-time health service that has actually taken place since July, 1947. In the last six months of 1947, 16 new counties were brought under the umbrella of full-time local health service. This has come about by the creation of only three new health departments, because consolidation of counties or of cities and counties has been even more active than the creation of new departments. Buffalo and Erie County in New York, for example, with a population of nearly one million; Seattle and King County, Washington, with more than half a million persons, have each consolidated their health departments, as have Charleston and Kanawha County in West Virginia. South Carolina is serving the entire state with six fewer local health departments than it had six months ago. Indiana has organized the first bi-county health department in its history.

At the January meeting, the agencies represented reported a surprising degree of activity already carried out by them in furthering this plan. The national Congress of Parents and Teachers has undertaken to sponsor a federal bill providing specifically for grants-in-aid to encourage local health service. Both the National Tuberculosis Association and the National Society for the Prevention of Blindness have adopted as a part of their national platforms coöperation with other agencies in developing community health services. Some of these activities were reported in the January *Journal*⁵; others will be reported elsewhere. That there should have been such an outpouring of interest as a result of the first bringing together of representatives of the general public in behalf of extending local health units, gives us hope that the presently underprivileged third of the nation with respect to health protection may, in the foreseeable future, enjoy those minimum health services which every citizen has a right to expect from his local government.

REFERENCES

1. The Princeton Conference on Local Health Units. *A.J.P.H.*, 37, 11:1502-1505 (Nov.), 1947
2. Emerson, Haven, M.D. *Local Health Units for the Nation*. New York: Commonwealth Fund, 1945. 233 pp.
3. *Proceedings of the National Conference on Local Health Units*, Sept., 1947. A.P.H.A.
4. See page 456.
5. Ripples from the Princeton Conference. *A.J.P.H.*, 38, 1:108-109 (Jan.), 1948.

NEW DEVELOPMENTS IN TRICKLING FILTER OPERATION

SINCE the trickling filter was developed nearly half a century ago and the activated sludge process was introduced in 1913 and 1914, there have been many useful advances in mechanical detail; but the underlying principles of sewage treatment have remained essentially stable. In the past decade, however, new concepts of the working of the trickling filter have been developed which permit a radical improvement in the efficiency of that valuable method of sewage treatment.

It has long been known that the trickling filter could operate successfully for short periods at very high rates; and it was gradually recognized that the limitation of the load which such a filter would carry was related to the clogging which results from an increase in the zoögleal films which develop on the surfaces of the filtering material.

Actually, little biochemical oxidation occurs as the liquid passes through the filter. The oxygen-demanding constituents are physically removed from the flow, accumulate on the filter media, undergo oxidation, and eventually are "unloaded."¹ In serving the dual purposes of separation and subsequent oxidation of organic material, the efficiency of the filter in removal of B.O.D. per unit volume is much decreased. In addition, older methods of surface distribution provided unequal utilization of all portions of the filter bed.

For many years it had been observed that the recycling of certain strong trade wastes through a filter increased the ultimate purification obtained.² The advantages of securing uniform distribution of the waste over all portions of the filter bed were also recognized. Realization of the importance of these principles in the treatment of municipal sewage seems to have arisen concurrently in England, Germany, and the United States during the early 1930's.

The resulting modifications of the trickling filter which have been worked out and are now available to designers, are numerous. They range from single or two-stage filtration with recirculation, developed in this country; to alternating double filtration and enclosed aerated filters, experimented with in the British Isles. Each of the suggested flow sheets may have an application under certain conditions, but each must be custom-built to the problem at hand. Together, they constitute a formidable challenge to the conventional trickling filter and the activated sludge process, and can also compete with chemical precipitation where only partial treatment is desired. This challenge is not to be interpreted in terms of treatment superiority alone, but on the basis of economy in construction and operation and of flexibility in meeting unforeseen changes in quantity and quality of sewage. The substantial ability of the conventional filter to take "shock" loads is attained at the expense of low efficiency per volume of filter during normal operation.

The development of "high-rate" filters in the United States was greatly stimulated by a 1940 report of civilian consulting engineers on sewage treatment policy at military installations. The report suggested that the new filters would provide an acceptable method of treatment in many cases, for reasons of economy, and because temporary use of the installation would minimize the importance of any unexpected difficulties which might arise due to lack of experience with the new processes.

The exhaustive study of the National Research Council on Sewage Treatment at Military Installations³ has added greatly to the knowledge of "high rate" filters as well as other types of treatment. It deserves the closest study by authorities responsible for sewage treatment in civilian communities.

At present it is estimated that over 300 communities in the United States have adopted one form or another of "high rate" filter treatment. Loadings of B.O.D. per cubic yard of media vary from 1.5 to 5 lbs. compared with 0.25 lbs. in conventional filters. For typical municipal sewage the permissible increase in loading can result in up to 90 per cent reduction in the amount of filter rock required, and major savings in the cost of filter structure and area of site. Additional costs of pumping, and of increased sedimentation capacity, to some extent reduce the savings described. Performance of the plants varies from that to be obtained

with chemical treatment to that of a well operated activated sludge plant, depending on the intent of the designer. Nitrification and bacterial removal at high loadings are less complete than with conventional filters.

In several ways, the behavior of high capacity filters is intermediate between old-style filters and activated sludge. Since biological growth is discharged continuously, without oxidation in the bed, it is greater in volume than trickling filter humus, but less difficult to digest and dewater than activated sludge. Repumping is required for circulation; and power costs are apt to be between those for conventional filters and activated sludge since the pumping of sewage against low heads is more economical than the use of compressed air.

Requirements for technical supervision vary, but in many cases are comparable to those at conventional trickling filter plants.

The contribution of industry in providing highly efficient low-lift pumps, and improved mechanisms for distribution of liquid on the filter have been an essential corollary to the improvements described. Wide experience has now been obtained with a variety of flow sheets on typical domestic sewage, on various industrial wastes and on mixtures of both.

Designers should endeavor to provide the greatest flexibility possible in these types of plants. Arrangements to change the amounts of recirculated liquid, and to pump filter or secondary effluent into the primary clarifier or to the filter should be included.

The economy of high capacity filters is of particular interest with present construction costs, which are almost 100 per cent above those of pre-war, and with many treatment plants approaching the limit of their capacity. In some cases provision of recirculation equipment alone may render it possible to increase markedly the capacities of existing filters or to compensate for insufficient sedimentation capacity.

In resort areas, or where industrial activity is seasonal, it is sometimes feasible to provide conventional filters for a low winter load which can be operated as high rate units during the greater flow and concentration of the summer.

There is also an increasing need for economical methods of industrial waste treatment to meet desired stream standards. Here too, the newer filter applications are worthy of consideration. Combinations of open earth lagoons and high capacity filters particularly merit consideration in this regard.

In Britain due to curtailment of new construction, much of the recent work has had the objective of increasing filter capacities without major changes in equipment or structures. This has necessitated the use of loadings in the neighborhood of 0.35 lbs. of B.O.D. per cubic yard which would not be classified as "high rate" operation in this country.⁴ In addition, British practice regards the production of a well nitrified effluent as desirable with the smaller stream dilution usually available there. There is also less tendency to rely on chlorination for good bacteriological results. For equivalent performance, recommended filter loadings in the two countries do not vary substantially.²

REFERENCES

1. Phelps, E. B. *Stream Sanitation*. New York: Wiley, 1944, p. 88.
2. Hurley. *British Sewage Treatment Practice*. *Sci. Works J.*, Jan., 1947.
3. *Sewage Treatment at Military Installations*. *Sci. Works J.*, July, 1946.
4. *Critical Review of Literature of 1946*. *Sci. Works J.*, Mar., 1947. *Two-Stage Bio-Filter Operation*. *Public Works*, Dec., 1947.

A DREAM

THE Health Officer dropped in at the Club late one afternoon (shall we say, for a cup of tea?). The Professor was in one of the two really comfortable chairs before the window, and he sank back in the other with a sigh of relief. Of course, the Professor was bound to talk—he was always talking—but you didn't have to listen.

The Professor was full of beans this afternoon. "Joe," he said, "you should have been at that meeting in Washington last week. They're beginning to make plans for a President's Conference on Childhood and Youth. We shall really have a program by then, a program which will visualize the child as a person—a human being—not a dissected jig-saw puzzle with one piece labelled 'Health,' and one 'Recreation,' and one 'Education.' We're going to put the pieces together and make a real picture."

There was a good deal more of this, and the Professor's voice was soothing. The Health Officer was tired that afternoon. He drowsed off a bit and had a dream.

He dreamed that he was sitting at the head of his conference table at the office, with eight men and two women gathered about the table. He was telling them about a recent intensive study of the boys and girls in the city's largest high school. He reviewed the physical defects revealed by this study, the lack of sound health knowledge, the emotional maladjustments and social frustrations which had come to light. He urged a real coöperative effort on the part of all the social forces which bear on the health of the child.

He asked the Commissioner of Education what could be done to build a really unified program of health education, in which the physical examination of pupils could be integrated with day-by-day instruction in the classroom. Of course, there were no conflicts between the two departments; but arbitration of grievances is not coöperative planning.

He called on the Secretary of the County Medical Society for suggestions as to what could be done to secure more complete correction of the physical defects found in school children. What could the individual physicians do to meet this situation and what should the city do to supplement their efforts?

He raised a question or two with the Director of the V.N.A. as to what its nurses in the home could accomplish in closing the gap between diagnosis and treatment and pledged his support to the Association in its effort to get more nurses and raise their salaries to a more adequate level.

He reviewed, with the psychiatrist heading the Child Guidance Clinics, the notable accomplishments of those clinics on the one hand, and their quantitative inadequacy to meet the real needs of the community, on the other.

He questioned the Commissioner of Charities as to the figures set for forming relief budgets and their relation to the actual costs of living.

He drew out from the Director of the Family Society a statement in regard to the expert counselling given in border-line households as to budgeting and management, advice which may make reasonably normal family life possible even on a substandard income.

The Commissioner of Parks and Playgrounds was called on for a statement as to the facilities for recreation which are so vital in connection with building the physical and emotional and social health of youth.

The pastor of one of the leading parishes presented his views on the indispensable contribution which the Church could make to a full-valued personality.

The Chairman of the Housing Authority was there too; and he pointed out the vital service which public low-rent housing was rendering in the rehabilitation of the home as a corner-stone of community living.

The State Commissioner of Labor and Industry happened to be in town and he contributed something on the relation of sound child labor laws to the common cause.

At this point, a heavy truck thundered by outside. The Health Officer woke up and said, "Oh well, it was only a dream!" And the Professor was still talking.

THE VIRUS OF A COMMON COLD

IT is a challenging circumstance that the commonest type of communicable disease to which the human race is subject—and the one which causes more days of disability than any other—should remain so largely a mystery. Some "colds" are probably physiological in origin, but others occur in sharply marked community epidemics. The "common cold" is probably not one disease but many from an etiological standpoint; and how closely the specific organisms concerned are related, no one can say with certainty. A very high degree of specificity of symptoms may be manifest in a given place and at a given time, while quite a different picture is presented in another epidemic.

That some infections of this type are due to filterable viruses, has been demonstrated for more than thirty years. Now, for the first time a specific virus, identified as the cause of a typical "cold in the head" has been cultivated by Topping and Atlas of the National Institute of Health.¹ This virus has been carried through seven successive passages in allantoic fluid and shows no decrease in virulence, but instead stabilization of virulence at a rather high level. Of sixty volunteers inoculated intranasally with allantoic fluids or fluids from embryonated hen's eggs; 57 have exhibited a characteristic and uniform syndrome.

This is a substantial forward step in the study of the minor, but immensely important, infections of the upper respiratory tract. The duplication of these observations by other workers in the presence of clinically similar infections should prove of the greatest importance, particularly if means can be devised for comparing the effects of the viruses isolated and their mutual immunological relationships (assuming—as common experience would suggest—that such infections are followed by a temporary state of immunity). Topping and Atlas have opened the door to a road which may lead to a real understanding of this vital health problem.

REFERENCE

1. Topping, N. H., and Atlas, L. T. *Science*, 106:636 (Dec. 26), 1947.

Credit Lines

HELPING THE COMMON MAN TO UNDERSTAND

The process grows apace of bringing public health to the average man in his own language. Five recent examples are of interest:

One is "Our Neglected Insane" by George S. Stevenson, M.D., Medical Director of the National Committee for Mental Hygiene in the October 28 issue of *Look Magazine*. With more pictures than words, it tells what are the usual conditions in mental hospitals, and gives five suggestions on "What you can do to help." Number 5 of these suggestions is perhaps the most thought provoking. It is, "You can read the fourth chapter of Genesis, 9th verse, and think through the meaning of those famous words: 'Am I my brother's keeper?'"

The *American Magazine* for December, under the title "Flu Doctor," tells briefly the story of the influenza vaccine developed from fertile hen's eggs by Thomas Francis, M.D. Dr. Francis, it will be remembered, received one of the Association's 1947 Lasker Awards. The *American's* story includes a picture of Dr. Francis working in his laboratory.

Look Magazine's December issue, in "The Hospital Goes Home," tells how Montefiore Hospital in New York is sending chronically ill patients home and still providing them with modern hospital care. Mostly in pictures, this tells of a unique experiment in home care using doctors, nurses, social workers, and housekeepers.

The *Country Gentleman* for September (in its Country Gentlewoman Section) has "A Picture of Health" by Laura Lane in which the community implications of the Hospital Survey and Construction Act are explored, with particular emphasis upon what each citizen

can do about his health and that of the community.

Parents' Magazine for October, 1947, in an article, "They Eat Breakfast in Cedar Rapids," tells with suitable illustrations and typical menus how Cedar Rapids, Iowa, became "good breakfast" conscious "over-the-back-fence," as it were.

BLITHE IS BORN

"Blithe," which stands for Better Living in Illinois Through Health Education, stepped into the public health education scene in October, 1947, with Volume 1, No. 1. This is to be a monthly clearing house for the exchange of ideas, published by the Illinois State Health Department whose Director of Health Education is Margaret Cowdin. A feature of the first issue is a detailed account of the organization of the Adams County Health Council. In this county, the city of Quincy and the county are organizing a joint health department which will be in effect on a full consolidated basis by July 1, 1948.

A.D.A. FORECAST

This is the name of the new monthly publication of the American Diabetes Association, Vol. 1, No. 1, which appeared in January. It is a national magazine for diabetics and the general public giving information about diabetes and its control. The first 2 copies off the press were presented to Charles H. Best, M.D., co-discoverer of insulin, and Elliot P. Joslin, M.D., of Boston, world renowned authority on diabetes, at a special ceremony in New York on December 12.

The editor of the Journal is Elizabeth M. Mullmann, formerly editor of the Philadelphia Metabolic Society Quar-

terly which has been discontinued in favor of the new magazine. Publication office is One Nevins Street, Brooklyn 17, N. Y. Subscription price is \$2 a year, 25¢ a copy.

TEXAS HAS A PUBLIC HEALTH JOURNAL

A new member of the fraternity of monthly public health journals is the *Texas Journal of Public Health*, Vol. 1, No. 1, which first set up a lusty cry in November, 1947. This is the organ of the Texas Public Health Association which already has a history of a quarter of a century. The leading article in this first issue is "How a Health Department Functions in a Disaster," which tells how the Galveston County Health Department operated in the Texas City Disaster, "the one organization on the mainland capable of doing relief work within one hour after the initial explosion." The editor is Mary E. McNeill and the address is Court House, Dallas, Tex.

DENVER'S CAPSULE REPORT

The 36th Annual Report of the Denver Tuberculosis Society is primarily a spot map showing tuberculosis cases in the city, of which a new one is reported every 15 hours. But on the edges and the back of the map, it manages to report on 16 activities carried out during the year, on its plans for 1948, and to mention 5 items under "Here's How You Can Help," as well as to summarize its finances, thank its volunteers, and print the names of its officers. A good example of effective brevity.

MEDICAL RESEARCH ON THE AIR

A weekly "Research Report," now being used by 54 broadcasting stations, is being prepared by the National Society for Medical Research. This society, whose President is Anton J. Carlson, M.D., was organized in 1946 as an outgrowth of the New York State Medical Society's successful campaign against

the enactment of anti-vivisection legislation in that state.

The weekly 15 minute radio scripts constitute a resumé of the activities, achievement, and adventure of medical science. Nor is the material confined narrowly to activities in the United States. A recent weekly script (Research Report XVII) discussed British Anti Lewisite, the new chemical approach of Swedish Professor Holgar Hyden of the Stockholm Karolinska Institute toward the mentally ill, and a brief story of vitamins up to date, beginning with Casimir Funk in Poland and his work on beri beri in sailors. All this material should be a good antidote to the quackeries that disturb the air waves.

The society also publishes a bi-monthly bulletin devoted to the problems raised by anti-vivisection campaigns. The Jan-Feb., 1948, issue (Vol. 2, No. 3) lists a number of excellent articles on animal experimentation that have been reprinted and are available without charge. These should be of particular interest to health educators. National Society for Medical Research, Chicago 2.

STATE LEGISLATION AFFECTING PHYSICIANS

The *Journal of the American Medical Association* performs a real service for its members in summarizing in one place 1947 state legislation of interest to physicians. In the Organization Section of the November 29, 1947, issue (Vol. 135, No. 13), George E. Hall of the Bureau of Legal Medicine and Legislation, under 9 main headings such as allied professions, hospitals, foods and drugs, control of disease, and medical and hospital insurance plans, summarizes the legislation with full footnote references to the specified laws.

CONNECTICUT TAKES THE NEXT STEP

Connecticut has long had a permissive local health district law; its 1947 legis-

lative session enacted a bill for state aid to such districts. The next logical step has now been taken—a suggested plan by the State Health Department for grouping the 169 municipalities of the state into health districts, each of which would have a health center built as a part of the hospital and health center construction program.

Under this plan the state is divided into 8 hospital areas but the three alternate plans for health districts range from 28 to 31. Of the 28 districts in one plan, 13 had an estimated 1946 population of less than 50,000, 5 of less than 40,000.

The hospital and health center plans are outlined in *Connecticut Hospital and Public Health Center Survey Report* which is available from the Connecticut State Health Department, Hartford.

YOUR HEALTH DEPARTMENT

The Cattaraugus County (N. Y.) Health Department has prepared an 8 page leaflet to help residents understand and use the services of their health department. Entitled "Your Health Department," it has a picture and a short description of each of the department's activities together with a directory of the district subcenters. Emphasis is upon the services; no space is used to list important names.

CLEVELAND CATCHES RATS

Cleveland celebrated Rat Week, December 1-6, by killing off all the rats that could be found by the combined efforts of the citizens. The Junior Chamber of Commerce gave \$25 to the first person who brought in 40 rat tails, and a similar award to the person bringing in the largest number during rat week. The Cuyahoga Rat Control Organization also awarded \$25 to the professional exterminator who brought in the greatest number of rat tails. The City Health Department publicized procedures for rat proofing.

"The serious shortage of food in the world" is the first item in the reasons given for this special drive on rats.

POLIO AND PEOPLE

One of the new publications preparatory to the 1948 March of Dimes campaign is "Polio and People." It is significant for the simple and sympathetic way in which it tells what services the individual family with a polio sufferer may expect from his local chapter and what are the jobs still to be done in wiping out infantile paralysis. As such it is a useful model for other health education material. *Publication No. 66*, National Foundation for Infantile Paralysis, 120 Broadway, New York 5.

DENTAL HEALTH EDUCATION

On the theory that children's books are especially suited to the mind and interest of children, the Georgia State Health Department makes the text and illustrations of *Frank Visits the Dentist* look and sound like a story book for small children. Short conversational sentences and brightly colored illustrations help the child to think of the dentist's visit as an interesting adventure. With the pamphlet also are book marks with five dental slogans, each reproduced in five colors. Available from Annie Taylor, Educational Director, Division of Dental Health, Georgia Department of Public Health, Atlanta 3.

PROMOTING PUBLIC HEALTH NURSING

The kit for the 1948 National Public Health Nursing Week, April 11-17, has been distributed. It is intended primarily for local committees sponsoring the "week" in local communities but also is useful in a year round program of public information. It is attractively packaged and has good promotional material with varied appeal. National Organization for Public Health Nursing, 1790 Broadway, New York 19. \$1.00 per kit.

Section Highlights of the 75th Annual Meeting

SUMMARIES of Section highlights at the 75th Annual Meeting of the Association as seen through the eyes of the Section Secretaries are shown below. It is the hope that these will bring to the many members who could not get to Atlantic City something of the flavor and content, in capsule form, of the Sections' scientific meetings. Eight of the Section secretaries have prepared such summaries. They are herewith presented, beginning with the earliest Section organized.

LABORATORY SECTION, GEOFFREY ED-SALL, M.D., *Secretary*:

The expanding scope of public health laboratory activities was strikingly illustrated by the variety of material which was discussed at the sessions of the Laboratory Section in Atlantic City. Papers on methods for detection of occult blood in the presence of iron salts, on the cell smear method of diagnosing cancer, on the use of chick embryo smallpox vaccine (on a larger scale than has been tried heretofore in this country), and a lively group of papers on various aspects of Rh typing, were representative of the range of interests to be found in the sessions of this Section.

Of special interest to diagnostic workers were reports on micro techniques for rapid identification of pathogenic organisms, on limitations of the rectal swab method for diagnosis of enteric disease, and on the latest results of a coördinated study of various gonococcus media. The meetings were also enlivened by the presentation of different points of view with regard to the best technique for identification of diphtheria bacillus.

The joint session of the Laboratory Section with the Conference of State and Provincial Public Health Laboratory Directors provided a setting for some of the most informative material that was presented at the meetings. Other joint sessions yielded information of a variety too great to be condensed in a paragraph, but among the highlights may be mentioned: a significant report on the effect of diet on susceptibility of rats to typhus; an up-to-date report of the status of the microbiology of frozen foods; a series of papers which defined and explained some of the obscure factors which determine good or bad dishwashing; a group of papers expounding the applications of statistics to laboratory procedures; and a panel of reports on the current status of immunization procedures.

Also of interest was a luncheon session—the first held by the Section in several years—at which Dr. Stuart Mudd and Dr. Robert S. Breed reported on the recent International Microbiological Congress.

Two developments of major interest to the Section with regard to standard methods should be reported: first, that Dr. Archie Robertson was able to display a galley proof of the forthcoming 9th edition of *Standard Methods for the Examination of Dairy Products*; second, that the standard methods work heretofore developed and handled by the Laboratory Section and other sections has been raised to the level of an Association activity through establishment of a Coördinating Committee on Laboratory Methods under the Committee on Research and Standards. This promises to tie together the related

activities of the various Sections in this field in a way hitherto impractical and to expedite the production of published results of the work of these committees.

HEALTH OFFICERS SECTION, JOSEPH G. MOLNER, M.D., *Secretary*:

The Health Officers Section meetings at the 75th Annual Meeting of the American Public Health Association at Atlantic City were unusually well attended and interest in the subject materials of the speakers was apparent.

An interesting panel discussion on "The Essentials of Good Local Public Health Administration" was conducted by panel leader, Dr. V. A. Van Volkenburgh. This panel was composed largely of local health officers at city and county levels and included also Dr. Carl E. Buck, Field Director of the American Public Health Association.

The panel discussed the problems that face local health officers, particularly the shortage of personnel and the inadequate training of existing personnel. Good personnel management, budgeting, and the relationship of the health department to other agencies were also discussed. Audience participation at this panel discussion was exceptionally good.

Visitors from Great Britain, Sir Andrew Davidson and Sir Allen Daley, discussed the impact of the war upon post-war public health. It was rather fascinating to learn that their problems were not greatly different from ours. Sir Allen Daley pointed out specifically that there is a definite tendency in Great Britain toward affiliating hospital with public health services.

Dr. Bruce H. Douglas, Health Commissioner of Detroit, presented the problems that face a large American city. These three speakers brought out vividly the difficulties which public health agencies in Great Britain and in this country are presently encountering and also offered suggestions as to ways

and means of meeting these problems.

An interesting paper was presented by Dr. Hart E. Van Riper, Medical Director of the National Foundation for Infantile Paralysis, on the subject, "Can Public Health Agencies Handle Poliomyelitis Alone?" He pointed out that the cost of care of infantile paralysis victims, particularly with modern methods of therapy, is almost prohibitive. Outbreaks of poliomyelitis are apt to be rather sudden and are, of course, unpredictable. Generally speaking, governmental agencies when making appropriations for public health do not make allowance for unpredictable outbreaks of poliomyelitis. He stated further that often emergency appropriations through these channels require long periods of time.

It is difficult to emphasize fully the significance of another paper presented at this session, namely, "How Much Control of Cancer?" by Drs. Earle G. Brown and Joseph H. Kinnaman of the Nassau County (New York) Health Department. The authors indicated clearly that the health agency will ultimately have as an important responsibility the problems of cancer control and cancer education programs.

The last session of the Health Officers' Section was devoted to a series of papers on Hospital Relations. Here was discussed the rôle which the hospital can play in a public health program, both through its physical facilities and through an active sharing program. The proposed and already existent hospital programs in New York State, Saskatchewan, and Indiana were described in detail, together with the practical application of combined hospital and health center programs, particularly in the Latin Americas. It appeared from this series of papers that an increasingly closer relationship is being developed between hospital and public health programs, to the advantage of both hospital and public health services.

VITAL STATISTICS SECTION, CLARA E. COUNCELL, Ph.D., *Secretary*:

The Vital Statistics Section had a varied program with discussions of many different phases of work in this field. There were two independent and two joint sessions, one with the Laboratory Section and the Biometrics Section of the American Statistical Association; and one with Epidemiology, Maternal and Child Health, and School Health Sections, and the Council on Rheumatic Fever of the American Heart Association.

The first independent session was devoted to papers on National and International Vital Statistics. These included a comprehensive summary of the major problems of vital statistics registration, by Dr. Bailey, which elicited supporting comments, especially from the registrars. In Dr. Fraenkel's paper on medical attendance during terminal illness there were some new and effective statistics to show lack of adequate medical care in the areas studied.

Dr. Linder described the machinery and accomplishments of statistical activities of the United Nations, and, in the absence of Dr. Curiel, Dr. Neurdenburg of the Netherlands reviewed the status of the proposed International Statistical Classification of Diseases, Injuries and Causes of Death, as well as some of the highlights of the recent International Statistical Conference. Dr. Hedrich presented a proposed set of rules for resident allocation which was approved by the Vital Statistics Section, to be referred to the Committee on Research and Standards.

The round table of representatives from Vital Statistics and other health fields, with Dr. Winslow performing brilliantly as panel leader, provided a helpful picture of what is needed in training for the use of vital statistics. Although some felt that the requirements suggested were certainly ambitious, there was nevertheless a high

degree of unanimity of opinion. The discussion presented opportunities for the exchange of useful ideas. It seems to be generally accepted that sound training in methods, with emphasis upon application to practical problems, and increasing use of field work are desirable.

In the business sessions Dr. Puffer, Dr. Linder, and Dr. Councell were re-elected as Chairman, Vice-Chairman, and Secretary respectively. Dr. Moriyama was elected to succeed Dr. Whitfield, whose term expired in 1947. Dr. Watkins was reappointed as Vital Statistics Section representative on the Fellowship Committee of the Association. Mr. Pennell has agreed to serve on the Committee for Membership and Vital Statistics Directory of the Section.

Dr. Densen's report, for the Committee on Remuneration and Standards, summarized the status of the study of background information and salaries of professional personnel.

Mrs. Jones reported for the Committee on Opportunities in Statistical Work that the committee hopes to acquaint qualified persons with job opportunities in public health statistics by publication of a pamphlet on "Careers in Public Health Statistics." A plan was also suggested, for Section and Association consideration, by which travelling fellowships would be made available to vocational guidance officers in colleges so that they might become informed of the activities and opportunities in the field of public health statistics.

The report of the Committee on Membership and Directory read by Miss Bellows indicated that work on the revision of the *Directory* is under way. Several professional societies have already been circularized for prospective members.

FOOD AND NUTRITION SECTION, ALICE H. SMITH, *Secretary*:

The limitation in number of sessions

from preliminary analyses of the American Academy of Pediatrics study of child health services.

The general subjects of the joint sessions were immunization, preservice and inservice training, and the rheumatic fever control program.

At the business sessions, in addition to the election of officers for the coming year, the Section heartily endorsed the proposed expansion of official Association activities in maternal and child health through the formation of a special committee, with members drawn from the several Sections particularly interested in maternal and child health. Several resolutions were introduced and four were finally approved for submission to the general Resolutions Committee. It is to be noted that three of the four were finally passed by the Governing Council and promulgated officially. The resolutions recommended: (1) support for the International Children's Emergency Fund, (2) extension of programs for the care of premature infants, and (3) repeal of specific taxes on oleomargarine.

It was pointed out that wider participation by the membership and fellowship of the Section in program planning and activities between annual meetings would make the secretary's task easier as well as make the Section itself more useful.

PUBLIC HEALTH NURSING SECTION,
ROSALIE I. PETERSON, R.N., *Secretary*:

The Public Health Nursing Section participated in two joint meetings, one with the Health Officers and Public Health Education Sections, and the Public Health Veterinarians. Mary C. Connor, *Chairman* of the Nursing Section presided as co-chairman and introduced the Public Health Nursing speaker, Marion W. Sheahan, who presented a paper on "The Public Health Nurses' Contribution in the Annual

Planning of a Public Health Program."

The other joint meeting was with the School Health, Maternal and Child Health, Public Health Education, and Food and Nutrition Sections, where Miss Connor again acted as co-chairman. Miss Ruth Freeman presented a paper on "The Contribution of the School of Nursing and the Graduate Course of Public Health Nursing," and Hortense Hilbert was a discussant representing Public Health Nursing.

The Public Health Nursing Section had a meeting of its own, in which topics that were of vital concern to nurses today were discussed, namely: "The Public Health Nurse in a Nutritional Appraisal Program" by Mary McLaughlin, "Public Health Nursing in the Cancer Control Program of the U. S. Public Health Service," by Rosalie I. Peterson, and "Field Experience Facilities in Public Health Nursing," by Helen Fisk.

In pre-war days, the Public Health Nursing Section had had its business meeting at a luncheon meeting. This was resumed this year, and approximately 300 persons attended. In addition to the election of officers, reports by the Chairman of the Standing Committees were made. These reports consisted of the one on "Administration" by Marion Sheahan, on "Education" by Ella McNeil, on "Eligibility" by Alberta B. Wilson. All three stressed the stimulation and enjoyment which they had had in serving on these committees. Dorothy Deming gave a report on "The Merit System Examination Program for Public Health Nursing." Interspersed with these reports were delightful solos rendered by a local student nurse. This program was sponsored by the New Jersey State Organization for Public Health Nursing.

A ballot had been prepared for the Nursing Section prior to the meeting which facilitated the voting. The following members were elected to office:

imposed by the Association membership at the 75th Annual Meeting was not accompanied by limitation of quality in the case of the Food and Nutrition Section. On the contrary, two outstanding sessions were held.

Dr. Johan Latsky of the Food and Agriculture Organization of the United Nations and Dr. Martha M. Eliot of the U. S. Children's Bureau, left no doubt in the mind of anyone present of the urgent need for a sympathetic understanding of the needs of people in war-torn countries. Their words, based upon personal observation, left no doubt about our moral and financial obligation to "do something about it."

The session on Methods for Appraisal of Nutritional Status brought us up to date on projects that have been under way for some time. There was considerable discussion provoked by the papers read, in fact, small groups were still "discussing" forty minutes after the meeting was adjourned.

Dr. Charles G. King reported the progress of a new committee, Sanitary Practices in Food Industries. Although the Food and Nutrition Section has assumed responsibility for the formation of this committee, the membership will consist of representatives of many other sections interested.

The Committee on Remuneration made a progress report and will continue to collect data this year.

The services of the Section Council were offered to the Association Merit System Service.

If you enjoyed the meetings, we hope you will spread the word around and encourage attendance at next year's meeting. We hope, too, that you will feel free to send the Secretary suggestions for next year's program.

MATERNAL AND CHILD HEALTH SECTION, MYRON E. WEGMAN, M.D.,
Secretary:

The Maternal and Child Health Sec-

tion held one independent session and three joint sessions at the Annual Meeting of the Association. The independent session was devoted chiefly to problems of child development. Dr. Edith Jackson described experiences with a rooming-in project for new-born babies at the New Haven Hospital. Patients for the experiment were selected from mothers who wished to have their babies in the same room with them, a desire apparently present in the majority of mothers. There was general approval of the idea on the part of both parents and nurses despite occasional difficulties. The plan worked particularly well with primiparae.

Dr. C. Anderson Aldrich described a study of the answers to the question, "What behavior does your child have of which you do not approve?" asked of mothers of one year old children. One of the surprising results was that almost two-thirds of the mothers said that their babies did nothing of which they disapproved. This may have been influenced in part by the amount of education in child development which mothers taking part in Dr. Aldrich's clinic had had. It was also obvious that many of the things of which some mothers complained were quite unimportant.

Dr. Margaret F. Gutelius described her experiences with modified self-selection of food for preschool children in the home. On this regime, although there were occasional bizarre departures from the usual meal, the children, nevertheless, over a period of time selected a well balanced diet, grew well, and were well adjusted.

Dr. Kent Zimmerman described the beginnings of a program in the state and local health departments of California, looking toward expansion of activities in mental hygiene and preventive pediatrics.

Dr. Charles L. Williams summarized some of the statistical data resulting

Ruth Freeman, *Chairman*, Margaret S. Taylor, *Vice-Chairman*; Zella Bryant, *Secretary*; Marion H. Douglas, *Section Representative of the Nominating Committee for the Governing Council*; Mary C. Connor, *Section Council Representative for a five year period*; and Alberta B. Wilson, *Nursing member on the Committee on Eligibility*.

In addition to these sponsored programs, nurses participated in other meetings. Miss Sheahan represented Public Health Nursing in a panel discussion on "Basic Training for Vital Statistics," and Mary E. Parker discussed "Nursing Follow-up in a Rheumatic Fever Community Program." This was a joint meeting of the Maternal and Child Health, Epidemiology, School Health, and Vital Statistics Sections, and the Council on Rheumatic Fever of the American Heart Association.

I am sure that you will enjoy the opportunity of working with Zella Bryant. You will find her coöperative, stimulating, and conscientious. I shall also be able to give her suggestions and will be available for discussions. In fact, I have just prepared a memorandum of some of the suggestions which I believe will be helpful. I know that I have left the work as Secretary in good hands and I am equally sure you will enjoy working with her.

PUBLIC HEALTH EDUCATION SECTION,
REBA F. HARRIS, *Secretary*:

The 25th annual program of the Public Health Education Section grew out of the work of the membership throughout the past year. While workshop procedures characterized the entire program, a variety of conference techniques was used. These techniques provided a wide range for membership participation in such activities as: presiding at a session, a group conference or a committee meeting; asking questions, giving opinions and taking part in group dis-

cussions; mapping plans, compiling and giving committee reports; presenting formal papers; giving active consultant services in the motion picture theater, the Association press room; and rendering service in Health Education and Publicity headquarters, and in other scientific exhibits.

Through the work of the 14 committee chairmen and the Section Council a total of 118 members came to the conference with a specific assignment on the program. It is estimated that 70 to 80 per cent of others present took an active part in some phase of the work during the conference period.

Some of the highlights of the Section program were:

1. The pre-conference planning group composed of Section Council members, all committee chairmen and past officers of the Section for its twenty-five years of existence.

2. The lively business conference at a dinner session with 150 members present.

3. The 12 informal group conferences held by cross-Section and Regional committees with a combined total attendance of 1,130.

4. The two interesting joint sessions with other Sections, and the final session of four formal papers.

5. The exhibits from Hawaii and Canada with formal papers by members from these countries; the coöperative work with the National Publicity Council for Health and Welfare Services, the motion picture theater, and the Association press room.

6. The appointment of a Committee on Mechanics of the Section.

SCHOOL HEALTH SECTION, S. S. LIFSON,
Secretary:

Attendance at the meetings organized by the School Health Section reaffirms the fact that health programs related to school children continue to interest public health workers.

The reports on research projects were well received. Four studies were presented dealing with anemia in school age children, topical application of fluorides, testing for visual acuity and absenteeism in schools. Combining a business ses-

sion with reports on scientific research proved to be a good combination.

Five Sections co-sponsored a symposium on preservice and inservice preparation in health for school personnel which created considerable interest. Strong sentiment was expressed for publishing and reprinting the symposium papers as a group. The round table summary which completed the symposium was a successful innovation. Representatives designated by the sponsoring Sections discussed the papers from the point of view of their Section interests. Questions from the floor followed.

How well community resources for health education are being used in the school health program was the subject of another session. A panel composed of a county health officer, a school superintendent, and a health educator in a voluntary agency were the discussants. All agreed that health education in schools should make greater use of the health education resources of both official and voluntary agencies.

The School Health Section Council, through which the business of the Section is transacted, met often and long. Several pieces of business will be of interest to the Association membership as a whole.

1. Work was begun on drafting a set of principles to be used when legislation concerning the health program for school age children is under consideration. This is an important step forward since at each session of Congress new bills are introduced dealing with the School Health Program. These can now be considered objectively, on the basis of the principles endorsed by the Section. A committee continues this work on principles. It is anticipated that the final statement will be

one on which the several professional groups concerned can agree.

2. Ex-officio representation on the School Health Section Council was accepted by the U. S. Office of Education, the American Association for Health, Physical Education and Recreation—a department of the National Education Association, the American Academy of Pediatrics, and the American Medical Association. The School Health Section benefited materially by their counsel and experience. We wish to take this opportunity to express appreciation for their assistance.

3. The Section was pleased to learn that the National Society for the Prevention of Blindness plans to initiate a comprehensive study of vision testing procedures. At the 1946 Annual Meeting of the Association, the School Health Section Council voted to request the Society to undertake such a study.

4. The School Health Section coöperated in the Health Education and Publicity Headquarters by making consultants available to counsel with members of the Association on various aspects of the School Health Program. Ten members of the Section covered the Consultation Center. Judging from the comments heard, this was a worth while service. This service will be provided again at the next annual meeting. The School Health Section invites the suggestions of Association members on how the consultation service can be of greatest assistance.

5. The Section is indebted to two of its members for a tentative statement on the Relationships of the Voluntary Agencies to the School Health Program. After clearance with interested organizations and agencies, this statement will be widely distributed.

6. The School Health Section Council discussed ways in which its members can be involved to a greater degree than heretofore in the work of the Section. It is recognized that but a small percentage of the membership can get to the annual meeting. It is also recognized that the strength of the Section as well as of the Association is dependent upon the interest and support of the rank and file membership. A concerted effort will be made this year to engage Section members in projects of benefit to the school child.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted. All books reviewed in these columns may be purchased through the Book Service.

Handbook of Psychiatry — By *Winifred Overholser and Winifred V. Richmond*. Philadelphia: Lippincott, 1947. 252 pp. Price, \$4.00.

This book is addressed to the layman. The last paragraph reads, "This book has been written in the faith that the layman wants to know more about psychiatry, and that, rightly informed, he will lose much of his dread of mental abnormalities and be willing, even eager, to join with psychiatry and mental hygiene in helping to advance the campaign for better human beings in a better world." It is a well written, clear, very superficial statement of abnormal psychology, perhaps one might say of descriptive psychopathology, but it contains little of a modern psychodynamic viewpoint. It describes the usual mental illnesses and their etiology, though in the functional psychoses and the neuroses, the etiological concepts extend beyond hereditary determination and an unhappy childhood, neither of which is presented as offering much hope of later reorganization of the personality and recovery. This interpretation of modern psychiatry is hardly in keeping with the views of the practising or outpatient psychiatrist, though it is justifiable in the light of the intramural experience of the authors. As a presentation of classical psychopathology, the book includes the usual, unproved clichés involving causality, but hedges when the issue narrows to the particular case. For example, the impression that schizophrenia is a hereditary disease is clearly stated, but at the same time the statement about whether or not persons with schizophrenic relations should marry includes the following: "If both parties are themselves healthy and normal personalities, the chances of healthy off-

spring are perhaps as good as the average." While this may be justified in a practical sense in that few clinicians have full faith in the belief that heredity is important in the schizophrenias, it is certainly not a defensible view scientifically.

This would be a good review of psychiatry for the practitioner; it is beyond the grasp of the average layman. Since its concept of mental hygiene is hardly more than implied by the term selection, it has no preventive function.

On page 142, there is an unfortunate misprint of *paranoia* for *paranoid* that is confusing at an important juncture of the development of the book's plan.

PAUL V. LEMKAU

A Survey of the Epidemiological Services in Canada with Recommendations as to Desirable Developments in the Organization and Policy of the Department of National Health and Welfare—By *D. F. Milam, M.D., and W. A. McIntosh, M. D.* Ottawa: Edmond Cloutier, 1947. 57 pp.

This interesting report represents the summation of an intensive study of the needs and inadequacies of the epidemiological services in Canada by Dr. Milam of the International Health Division of the Rockefeller Foundation. Fifteen months were spent in appraising the program then in existence in each of the Provincial Departments of Health, and the report presents recommendations for the organization of a federal Division of Epidemiology. Although preliminary efforts were made to establish such a unit in 1937, this was discontinued with the onset of war and Canada has been essentially without such service except for the functions carried out by the Laboratory of Hygiene.

The report should be of interest not only to those concerned with the coördination of federal epidemiological services but to those in the same field on the state level, since most of the recommendations apply equally well to each state health department. Of particular interest is the discussion of the relative rôles of the Laboratory and the Department of Epidemiology and the arguments pro and con as to the allocation of responsibility for epidemiological investigation, a problem which undoubtedly exists in most state health departments. The discussion and recommendations emphasize the broad applicability of epidemiological principles, not only to the field of communicable disease control but to the work of many other divisions of the health department, as well as to other governmental departments and to university research programs. It is the intent of the recommendations to create a Department of Epidemiology that will coördinate these interrelated projects.

An added valuable feature to the report is the appendix, which presents concisely chronological notes on the development of the Department of National Health and Welfare and other governmental services in Canada concerned with epidemiology. ROBERT F. KORN

Proceedings of a Conference on Industrial Ophthalmology — *Sponsored by the Columbia University College of Physicians and Surgeons. New York: Columbia University Press, 1947. 291 pp. 56 illus. Price, \$3.00.*

This book is a comprehensive post-graduate course in the peculiarities of industrial ophthalmology, its principles and professional relationships. Eyesight in industry includes a fourfold purpose—placement, protection, correction and illumination in visual acuity on the job, and consideration of the employee as a whole. It is demonstrated that a good program for the conserva-

tion and utilization of eyesight in industry requires the harmonious efforts of the ophthalmologist, optometrist, psychologist, and safety engineer—without encroachment on the practising specialist. Singular industrial population surveys reveal 15 per cent with serious eye defects; 20–50 per cent require visual help for the job assigned; only 20 per cent above 55 years pass near-point vision tests; six to eight minutes is required for screening and clinical eye tests. Other subjects such as the use of safety goggles, clear and tinted lenses for welders, basic information on illumination, e.g., contrast ratio—1:10, brightness ratios preferably 1:5 for the prevention of fatigue; use of color in the plant; industrial toxic compounds hazards and treatment and industrial first aid in chemical injuries of the eye are included. Scientific facts contributory to optimal and safe use of eyes in industry, and methods in studying the visual demands of the job are presented; research problems, including goggles for spray painting, pooling clinical information on toxicity and chemical neutralization are posed. The book is highly recommended to industrial physicians and hygienists, practising ophthalmologists, and health administrators and educators.

ROY M. SEIDEMAN

Molecules Against Microbes — *By E. S. Duthie. London, W. C. 1: Sigma Books, Ltd., 7 John Street, 1947. 156 pp. Price, 6s.*

The field of chemotherapy has long been ripe for a brief but comprehensive review; and the present volume "is an attempt to give to the ordinary man and woman a picture of how these discoveries were made." If "the ordinary man and woman" in England can follow the formulae of organic chemistry with which Dr. Duthie's volume is replete, the general reading public across the water is much better educated than on this side of the Atlantic. It seems,

however, to the reviewer that the average public health worker in the United States will find the story appealing and helpful, although such a reader may be fired by curiosity as to the almost magical processes by which the chemist determines where a particular side-chain is fixed to an organic molecule and how the chemist succeeds in attaching a desirable side-chain at precisely the right place. Dr. Duthie's simplified formulae are, however, most illuminating to the layman in organic chemistry and his illustrations (including the photograph of the actual culture plate which led Fleming to the discovery of penicillin) throw much light on the subject. Only a very few minor slips can be noted such as the statement that no cocci are motile and the author's acceptance of the old story about the Countess of Chinchon. Mrs. Duran-Reynals has shown that it was the Countess' husband who was responsible and that the tale of the lady's illness was without foundation.

It is a fascinating road upon which Dr. Duthie leads us from emetine and quinine (discovered by the indigenous natives of Brazil and Peru and introduced to Europe in the 17th century); from mercury and arsenic and atoxyl; to Ehrlich's salvarsan in 1909; the preparation of atabrin in 1933; the discovery of prontosil by Domagk in 1932 and the further development of the sulfonamide compounds; the discovery of penicillin by Fleming in 1928 and its practical development during the World War; and finally the preparation of streptomycin by Waksman in 1943.

In reviewing this story one cannot help being impressed by the outstanding contributions of German and Japanese scientists in this field; and one is again astounded that a nation so intellectually constructive as the Germans should also have qualities which lead them to forbid Domagk to receive the Nobel Prize and permitting them to re-

flood the malarial marshes of Italy prior to their retreat in the second World War.

On the whole, the development of chemotherapy during the past ten years is one of the most extraordinary chapters in the history of science. As Dr. Duthie says, "With powerful chemical weapons now at our disposal in unlimited amounts, and the prospect that others even more effective may at any moment be discovered, there is no sound reason why vast sections of the world's population should continue to live in squalor and disease, and why some of the richest regions of the world should remain in a state of only partial development. In ridding these regions of diseases which now make them dangerous if not uninhabitable for man, the chemist, biologist and doctor can play a very big part, if and when they are given the sources and facilities, often denied to them in the past."

C.-E. A. WINSLOW

Lets Talk about Your Baby—
By H. Kent Tenney, Jr., M.D. (3rd ed.) Minneapolis: University of Minnesota Press, 1947. 115 pp. Price, \$1.50.

This small book with weight charts and immunization records is a good supplement to the physician's personal contact with the father and mother of his infant patients. It is written in talkative, entertaining, and yet serious style. A thread of continuity creates personal interest in the reader's mind and is achieved by having several paragraphs in each chapter come as words from the baby's mouth. It is, therefore, easy for the reader to be sympathetic with the fundamental needs of the baby.

Of course, in such a short book some aspects of child development are omitted or only slightly touched upon. However, since the book is intended to cover only the period of infancy, no serious omissions are present. It would have been helpful to have more suggestions regarding preventive orthopedic meas-

ures. Topics that are particularly well covered are those of breast feeding, management of eating, vitamins, advice on clothing, and discussions on communicable diseases, including diarrhea. This book should be of value not only to parents but to physicians who are beginning the practice of pediatrics. One very sound suggestion to physicians is that the author indicates that he makes home visits to the baby until the infant is four months of age.

This book is an example of the leadership of practising pediatricians and their contribution to public health. Because it contains fairly specific advice on the application of new scientific developments, it is hoped that it will be revised at frequent intervals.

MARTHA L. CLIFFORD

Marriages Are Not Made in Heaven—By Janet Fowler Nelson, Ph.D., in collaboration with Margaret Heller. New York: The Woman's Press, 1947. (rev. ed.) 158 pp. Price, \$1.75.

To those individuals who believe with the author that "marriage is not a job of work, but a way of life" this little volume will be welcome. Although the book was prepared as a discussion outline for small groups of women who want further education on marriage, it contains much of interest for parents and young girls.

The author has skillfully combined the social and personal approaches to marriage, supplying material from the field of sociology, psychology, and economics in such chapters as "The Boy Friend and the Budget," "War between the Sexes," "Time on My Hands," "Speaking of Sex," and many others equally interest provoking and rich in content.

Material presented includes suggested methods for developing discussion and resource questions for participants. References are sound. Educators and par-

ents will find this of great help in their everyday approach to teaching better family living. BERNARDINE CERVINSKI

Summary of International Vital Statistics, 1937-1944—Prepared under the supervision of Halbert L. Dunn, M.D., Chief, National Office of Vital Statistics, U. S. Public Health Service, Washington, D. C.: U. S. Government Printing Office, 1947. 299 pp.

This volume was compiled and published by the National Office of Vital Statistics, U. S. Public Health Service, from data obtained during the war years to meet the urgent need for international population and vital statistics information. A wealth of material is presented with full recognition of the limitations of the data. One interesting chapter is devoted to population density in 66 countries which shows England and Wales at the top of the list with 727 inhabitants per square mile (excluding the higher densities in the Straits Settlements and in Malta) with Australia at the bottom with 2.5. The United States in this table is at 45.7 and Canada, 3.2. Other interesting tables relate to the trend of selected causes of death, including the communicable diseases, as well as longevity, marriage statistics and divorce.

REGINALD M. ATWATER

How to Interpret Social Welfare—By Helen Cody Baker and Mary Swain Routzahn. New York: The Russell Sage Foundation, 1947. 141 pp., Price, \$2.50.

Health workers in public and voluntary agencies will find this manual on methods of interpretation as applicable to their work as to the field of social work. The emphasis in this compact and meaty little book is on the "how" to interpret rather than the content of interpretation. Basic methods are presented without elaboration on the refinements or philosophy of public rela-

tions. Media commonly used by most agencies are described with explanations of how to use them directed toward staff workers and executives. The suggestions for staff discussion should prove fruitful and well worth a weekly period for a year or more. The excellent examples included should stimulate awareness of similar examples as they come along.

In the beginning of the book the authors have included a chart relating the agency to its various publics. It aptly illustrates the book's whole approach—calling attention first to the simple ways in which an agency or staff member can avoid many a blunder, and then giving helpful ideas in executing the everyday job of public relations.

MARY F. CHAMPLIN

Medical, Legal and Social Approaches to the Problems of Inebriety—*Proceedings of a Conference Sponsored Jointly by the Research Council on Problems of Alcohol and the New York Academy of Medicine, January 8, 1947, New Haven, Conn.: Quarterly Journal of Studies on Alcohol, 1947. 60 pp. Price, single copy, \$.50; 50 or more, \$.35 each.*

In the winter of 1947, the Research Council on Problems of Alcohol and the New York Academy of Medicine jointly sponsored a one-day conference which explored the medical, legal, and social approaches to the problems of inebriety. The proceedings have now been published in a pamphlet which brings up to date the present thinking with respect to alcoholism as a public health and medical rather than a penal problem.

MARTHA LUGINBUHL

Training in Clinical Psychiatry—*Symposium—By Lawrence S. Kubie, Chairman, Molly R. Harrower, Ph.D., Ed. New York: The Josiah Macy, Jr. Foundation, 1947. 88 pp. Price, \$1.50.*

Some of the most adventurous minds

in the fields of psychiatry, clinical psychology and psychiatric social work were brought together to discuss the training of clinical psychologists from the pre-clinical to the postgraduate level. This book is the report of their deliberations. The outstanding educational difficulty in the field is that of training in the clinical setting and its supervision. Clinical opportunities are too few and supervisory technics are not as clear in this field as they are in the more developed one of psychiatric social work. The place of the clinical psychologist in therapy, the relation his training has to that of the physician, the proportion of stress to be given to the psychologist as an administrator and interpreter of tests, are all discussed in considerable detail and with little concern for long-standing educational prejudices regarding the separation of the various professional groups represented at the symposium. The book will prove stimulating to those interested in training, both inservice and resident.

PAUL V. LEMKAU

Handbook of Communicable Diseases — *By Franklin H. Top and Collaborators. (2nd ed.) St. Louis: Mosby, 1947. 992 pp. 95 illus. Price, \$8.50.*

This second edition of a well known and widely used book has been expanded considerably, not in terms of appreciably more space for each disease but in terms of new chapters pertaining to diseases not covered in the previous edition and in contributions of nine new collaborators. It is still elementary, because of the necessarily brief space allotted for each disease, rather than advanced in its treatment of the subject. The new volume displays evidence of having been brought up to date as well as can be judged: (1) by spot checking on such subjects as influenza, German measles, poliomyelitis, and others; and, (2) from the references at the end of

each chapter. These indices are qualitative rather than quantitative, yet some idea may be gained from the following: The present volume is enriched by approximately a thousand new references, nearly two hundred of which refer to the twelve newly included subjects. The remaining eight hundred refer, by and large, to new material. Emphasis has varied from 98 new references for poliomyelitis and 47 for influenza to only 6 new ones for tuberculosis, and this in the face of increasing interest in BCG prophylaxis and streptomycin therapy. In the chapter on Specific Prevention of Certain Communicable Diseases, no comment was made concerning BCG.

There is no appreciable change in the arrangement and presentation of the material—after a very brief general summary of infection, immunity, epidemiology, regulations, specific prevention, serum reactions, and home and hospital management there follows, classified according to portal of entry, an orderly presentation of a number of parasitic diseases, including some helminth, protozoan, fungus, bacterial, spirochetal, virus and rickettsial diseases. The number of illustrations, both color and half tone, has been increased.

For those who found the first edition useful, this reviewer strongly recommends this new, larger and more comprehensive edition; for those who are not familiar with the book, it is recommended as a convenient and excellent digest. The index is adequate for the purposes for which the book is intended.

E. GURNEY CLARK

Practical Clinical Psychiatry.—By Edward A. Strecker, Sc.D., M.D., Franklin G. Ebaugh, M.D., and Jack R. Ewalt, M.D. (6th ed.) Philadelphia: Blakiston, 1947. 476 pp. Price, \$5.00.

This is the sixth edition of a widely used standard textbook of psychiatry. The book has been brought up to date in the light of advances made in the

field since the last edition in 1940. While the theoretical approach is in general eclectic, the predominant point of view of the authors is that of the school of psychobiology of Adolph Meyer, to whom the volume is dedicated.

In the section on classification, three types of classification are given, the genetic-dynamic classification of Adolph Meyer, the standard classification of the American Psychiatric Association, and the newer classification of the Army Medical Department. While the authors indicate that the army classification represents a step forward, the sections of the textbook are organized on the classification of reaction types used in previous editions. These are: Organic reaction types, delirious reaction types, paranoid reaction types, affective reaction types, schizophrenic reaction types, primary constitutional reaction types, and the psychoneurotic reaction types. Under each of the above headings, the authors describe the various psychiatric syndromes and provide ample illustrations with case abstracts. The discussion of treatment is brought up to date. Each section has an extensive bibliography appended relating to the subject matter of the particular section. The volume is concluded with a section on the psychopathologic problems of childhood by Leo Kanner of Johns Hopkins University. JAMES M. CUNNINGHAM

Diabetes and the Diabetic in the Community—By Mary E. Tangney, Philadelphia: Saunders, 1947. 259 pp. Price, \$2.75.

Since the survey of Oxford, Mass., by members of the U. S. Public Health Service indicated that the undiscovered diabetics of the United States added to those already under treatment may bring the total to 2,000,000 or more, a new concept of the magnitude and needs of the diabetes problem in our population has been presented.

The discovery of diabetes before the

onset of serious symptoms affords the best opportunity for early treatment and prolongation of life. The number of patients involved will tax the medical and nursing professions and require new and wholesale methods of teaching patients, as well as medical students and nurses. This new text of Miss Tangney is intended to satisfy the objectives outlined in the section on diabetes in the *Public Health Nursing Curriculum Guide* of 1942 as prepared by a joint committee of the National Organization for Public Health Nursing and the U. S. Public Health Service.

The book has many desirable features which deserve emphasis. First, the author possesses an intimate knowledge of the personal problems of diabetics, having known diabetes as a patient since childhood, and has had long experience with large groups of diabetic patients, first at the New England Deaconess Hospital in Boston and during later years as a nurse instructor for diabetic patients at the Hartford Hospital in Hartford, Conn. She stresses the teaching of diabetic patients who live in the community rather than nursing of patients confined to the hospital. The contents of the book are planned to present new aspects of the diabetes problem arising in the increasing prevalence of diabetes in the country, which is due in large measure to the advancing age and increasing duration of life of American citizens.

What is known about the etiology and prevention of diabetes is given with references to the authorities. The strictly medical data regarding the production of insulin in the body, glycosuria and blood sugar, testing the urine, administration of the insulin daily by patients, and the diabetic diet are well

presented. Separate chapters are devoted to the important complications of diabetes, including diabetic coma, arteriosclerosis and its clinical features, neuritis, nephritis, diabetes in childhood and adolescence, and particularly the problem of pregnancy in the diabetic mother. The newer data indicating that 25 per cent of the American population may be carriers of the diabetic tendency and the increasing preponderance of females among diabetics, particularly in later years, invite further investigation.

References to the literature are freely given. It is possible that the conclusion of certain authors that certain diabetics live as long as non-diabetics is not based on sufficient data, since the authors simply noted that the average age of patients studied at autopsy was about the same as that of non-diabetics. In this instance the effect of the duration of diabetes upon life expectancy did not seem to be sufficiently considered. The influence of genetic factors in diabetes is well presented in contrast to the secondary factors, such as obesity, infection, pancreatitis, and hemochromatosis.

Most useful are the chapters on diet, the teaching of diet, and the use of urine tests in relation to insulin dosage. Detailed treatment with hormones for pregnancy in diabetic mothers is given. Stibnestrol and progestin are advised on the authority of Dr. Priscilla White by intramuscular injection in small doses up to the 20th week and in larger doses during the succeeding weeks. This treatment is receiving further trial. The book is well printed and the few typographical errors hardly need be mentioned. It will help the student and graduate nurse immeasurably. The volume represents a heroic effort under great handicaps.

HOWARD F. ROOT

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Evils of Bed-Rest Overdosing—We Americans invented the deadly term "Early Ambulation." Glance at the title of this British doctor's dissertation (in small type below). That should be enough to make you promise yourself to read "The Art of Plain Talk" all over again.

ASHER, R. A. J. The Dangers of Going to Bed. *Brit. M. J.* 4536:967 (Dec. 13), 1947.

We're Glad This Is Settled—This comes under the head of idle curiosity for all but bacteriologists. It seems a researcher proposed that the flagella of bacteria are not organs of locomotion, just artifacts. (It never occurred to me, in my abysmal innocence, that anyone would question such an "obvious" phenomenon.) Well, these writers took another look at some flagellated bugs in an electron microscope and concluded that the tails have the significance you, too, always thought they had.

CONN, H. J., and ELROD, R. P. Concerning Flagellation and Motility. *J. Bact.* 54, 6:681 (Dec.), 1947.

"The Day of Dull Reading Must Pass"—Here is another paper on how to prepare and read a scientific paper, but there have been so many similar treatises written without measurable effect on our annual meetings that I doubt if it's worth while to call this one to your attention, Mr. Speaker-to-be.

FELTON, J. S. The Physician and His Public Speaking. *Indus. Med.* 16, 12:569 (Dec.), 1947.

Present Status of Dental Care—From among a half-dozen findings of a study of children's teeth in several Geor-

gia communities, this one stands out most uncomfortably in my memory: there is evidence that dental caries in permanent teeth may be increasing.

HAGAN, T. L. Dental Caries Prevalence and Tooth Mortality—A Study of 24,092 Georgia Children in Twelve Communities. *Pub. Health Rep.* 62, 51 (Dec. 19), 1947.

Two Conditions Determine Outcome—Under exceptionally favorable circumstances about a thousand "well" children were given health examinations in the presence of the mother, and every reasonable effort was made to have needed medical care given to defects discovered. Half the children who should have had remedial care didn't get it. You simply must read this discussion of the reasons for the failure—if you don't, you're as hopeless as the neglectful mothers.

HARDY, M. C. Follow-up of Medical Recommendations. *J.A.M.A.* 136, 1:20 (Jan. 3), 1948.

The Prospect Is Promising—After ten years, Dr. Parran's nine basic principles for the public health control of syphilis are reviewed in the light of the progress made during the intervening decade. More than ever before, control is recognized as a medical problem to be solved by wider application of efficient case finding and medical measures.

HELLER, J. R. JR. Venereal Disease Control During the Post-War Period. *J. Ven. Dis. Inform.* 28, 11:245 (Nov.), 1947.

Keeping the Record Straight—You'll want to know about the Fulbright-Taft "Health, Education and Security Department" Bill, and what it might do if enacted into law.

HIRSCHFELD, G., and WOOD, E. M. A cabinet

Department of Health, Education and Security. J.A.M.A. 136, 2:113 (Jan. 10), 1948.

We Need To Know—If you agree that intellectual humility is a characteristic to be fostered, then you'll want opportunities to match your innocence against the depths of understanding of the experts. This paper reviews some of the things we need to find out before we can get much further along in cancer control.

Ivy, A. C. Biology of Cancer. Science. 106, 2759:455 (Nov. 14), 1947.

Premie Salvage—You are hereby reminded that premature births are a leading cause of all deaths, and the first cause of infant mortality. There is also something to be done about it. In a second paper five doctors say that caudal analgesia cuts in half the neonatal mortality among premies.

Koch, L. A., *et al.* Reduction of Mortality from Premature Birth, (and) Hingson, R. A., *et al.* Newborn Mortality and Morbidity with Continuous Caudal Analgesia. J.A.M.A. 136, 4:217 (Jan. 24), 1948.

Mid-Victorian Public Health—Although a little late in the day, your attention is directed to a paper of real historic usefulness—the last of three lectures on public health in England. In social reforms we have usually tagged along, a generation or so behind that country, so you'll find in this record the genesis of some of the "pioneering" we have done. If you ever become historically minded, you will want to review this paper.

MacNalty, A. S. The History of State Medicine in England. J. Roy. Inst. Pub. Health & Hyg. 11, 1:9 (Jan.), 1948.

Promoting Better Nutrition—Judging nutritional adequacy is a complex job involving getting a dependable record, interpreting that record, and noting frank or subtle signs of malnutrition. My

layman's guess is that this is a pretty good paper for you to read.

McLaughlin, M. A Nutritional Appraisal Program. Pub. Health Nurs. 40, 1:15 (Jan.), 1948.

Help for an Old Difficulty—Observable differences in the morphology of the viruses of smallpox, vaccinia, and chickenpox visible in the electron microscope suggest that this new instrument may prove a useful tool in differential diagnoses.

Nagler, F. P. O., and Rake, G. The Use of the Electron Microscope in Diagnosis of Variola, Vaccinia, and Varicella. J. Bact. 55, 1:45 (Jan.), 1948.

Paper of the Month—Quote. Public health officials will probably take exception to some of the ideas set forth . . . Unquote. If you don't find pleasure mixed with your exceptions when you read this wide-ranging epidemiologic discussion, then you just don't respond to nice writing. This is really a "must" for you, whatever your job may be.

Rivers, T. M. Certain Public Health Aspects of Infectious Diseases. New England J. Med. 238, 2:37 (Jan. 8), 1948.

They Seem Convinced—BCG Vaccination is a safe and effective procedure for all age groups. By the use of the multiple puncture method complications are avoided. Tuberculin conversion reaction was rapid and universal. There's a lot more beside these three quotes that you should read.

Rosenthal, S. R., *et al.* BCG Vaccination in All Age Groups. J.A.M.A. 136, 2:73 (Jan 10), 1948.

Out of the Mouths Department—Ways to induce people to accept guidance, is too large a subject to be covered adequately in four pages, but it is one you need to think about frequently. So here is one quotation from this brief paper, jotted down in the hope that it will inspire you to dig deeper. "I

think the reason why children don't like to follow health rules is that they take too much time and limit their fun."

STRANG, R. Motivation in Health Education. *Pub. Health Nurs.* 40, 1:11 (Jan.), 1948.

To Assuage Public Resentment—
Almost too enthusiastic to permit of

being swallowed without a tiny grain of salt is this account of the medical society's effort to "Make Colorado FIRST in Health." If the program succeeds it will indubitably earn the capitals.

SWART, C. M. Revolutionary Doctors. *Survey Midmonthly* 83, 12:331 (Dec.), 1947.

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ADVANCES IN MILITARY MEDICINE (Two Vols.)

E. C. Andrus, D. W. Bronk, G. A. Carden, Jr., C. S. Keefer, J. S. Lockwood, J. T. Wearn, and M. C. Winterm'itz. Boston: Little, Brown & Co., 1948. 900 pp. Price, \$12.50 a set.

BEST'S SAFETY DIRECTORY OF 1948 (2nd Annual Ed.) Harry Armand, Editor. New York: Alfred M. Best, 1947. 494 pp. Price, \$5.00

BIOLOGY OF MELANOMAS. Special Publications No. IV. Roy Waldo Miner, Editor, Myron Gordon, Consulting Editor, Lothar Salin, Associate Editor. New York: New York Academy of Sciences, 1948. 466 pp. Price, \$5.00.

COMMUNICABLE DISEASE CONTROL (2nd ed.) Gaylord W. Anderson, M.D., and Margaret G. Arnstein, R.N. New York: Macmillan, 1948. 450 pp. Price, \$5.00.

EXPERIMENTAL DESIGNS IN SOCIOLOGICAL RESEARCH. F. Stuart Chapin. New York: Harper, 1947. 206 pp. Price, \$3.00.

A HISTORY OF MEDICINE. Douglas Guthrie, M.D. Philadelphia: Lippincott, 1946. 448 pp. Price, \$6.00.

THE INDUSTRIAL ENVIRONMENT AND ITS CONTROL. J. M. Dallavalle. New York: Piman Publishing, 225 pp. Price, \$4.50.

LEGAL ASPECTS OF MILK SANITATION. James A. Tobey, Dr. P.H. (2nd ed.). New York: Milk Industry Foundation, 1947. 133 pp. Price, \$5.00.

MEDICINE TODAY. THE MARCH OF MEDICINE, 1946. Number XI of the New York Academy of Medicine Lectures to the Laity. New York: Columbia University Press, 1947. 177 pp. Price, \$2.00.

MENTAL DEFICIENCY. A. F. Tredgold, M.D. (7th ed.). Baltimore: Williams & Wilkins, 1947. 534 pp. Price, \$8.50.

MOLECULES AGAINST MICROBES. E. S. Duthie. London, Eng: Sigma Books, Ltd., 1947. 156 pp. Price, 6s.

MONOGRAPHS ON THE PROGRESS OF RESEARCH IN HOLLAND. Chemical and Physical Investigations on Dairy Products. H. E. Iers, R.N. J. Sall, M. van der Waarden. New York: Elsevier Publishing, 1947. 215 pp. Price, \$4.00.

NEW APPROACH TO NUTRITION SERVICES IN STATE HEALTH DEPARTMENTS. Papers Presented at the Round Table of Nutrition and Public Health, 1946 Conference. New York: Milbank Memorial Fund, 1947. 108 pp. Price, \$75.

OCCUPATIONAL MEDICINE AND INDUSTRIAL HYGIENE. Rutherford T. Johnston, A.B., M.D., St. Louis: Mosby, 1947. 604 pp. 117 illus. Price, \$10.00.

PATHOLOGY OF NUTRITIONAL DISEASE. Richard H. Follis, Jr., M.D., Springfield, Ill: Thomas, 1947. 291 pp. Price, \$6.75.

PLANNING YOUR FAMILY. Public Affairs Pamphlet No. 136. Herbert Yabraes. New York: Public Affairs Committee, 1948. 32 pp. Price, \$20.

PRACTICAL FOOD INSPECTION (3rd ed.) In Two Volumes. Volume I—Meat Inspection. C. R. A. Martin. London, Eng: H. K. Lewis & Co., 1947. 316 pp. Price, 18s.

RADIO MANUAL. A GUIDE TO BROADCASTING FOR MOUTH HEALTH EDUCATION. New York: Oral Hygiene Committee for Greater New York, 1947. 320 pp. Price, \$4.00.

RODDY THE RAT. George S. Bote and Dorothy C. Stephens. Gainesville, Fla.: University of Florida, 1946. 68 pp. Price, \$15.

SAY IT WITH FIGURES. Hans Zeisel. New York: Harper, 1947. 250 pp. Price, \$3.00.

SOME NOTES ON THE PSYCHOLOGY OF PIERRE JANET. Elton Mayo. Cambridge, Mass:

- Harvard University Press, 1948. 132 pp. Price, \$2.50.
- STATISTICAL ABSTRACT OF THE UNITED STATES 1947. Compiled under the Supervision of Morris H. Hansen. Washington: Supt. of Documents., Gov. Ptg. Office, 1947. 1038 pp. Price, \$2.75.
- STUDIES ON SCHISTOSOMIASIS. National Institute of Health Bulletin No. 189. Washington: Gov. Ptg. Office, 1947. 212 pp. Price, \$.50.
- SULFONAMIDES AND ALLIED COMPOUNDS. Elmore H. Northery, Ph.D. New York: Reinhold Publishing Corp., 1948. 660 pp. Price, \$12.50.
- TEXTBOOK OF BACTERIOLOGY. R. W. Fairbrother, M.D. (5th ed.). New York: Grune & Stratton, 1948. 480 pp. Price, \$6.00.
- TUBERCULOSIS. Francis Marion Pottenger, A.M., M.D. St. Louis: Mosby, 1948. 598 pp. 105 illus. Price, \$12.00.
- TUBERCULOSIS NURSING MANUAL. Robert H. Riley, M.D., Director. Maryland: Maryland State Department of Health. 40 pp.
- YOUTH IN DESPAIR. Ralph S. Banay. New York: Coward-McCann, 1948. 239 pp. Price, \$3.00.
- THE FOLLOWING REPORTS HAVE BEEN RECEIVED
- ANNUAL REPORT OF THE BOARD OF HEALTH, TERRITORY OF HAWAII, 1947. C. L. Wilbar, Jr., M.D., President. 149 pp.
- ANNUAL REPORT OF THE COMMONWEALTH FUND (29th.). 1947. New York: The Commonwealth Fund, 1948. 63 pp.
- BOSTON HEALTH LEAGUE 1941-1947. Boston (261 Franklin Street), 1947. 11 pp.
- CITY OF BALTIMORE. 132nd Annual Report of the Department of Health, 1946. 366 pp.
- A DECADE OF DOING—1938-1948. New York: National Foundation for Infantile Paralysis.
- HEALTH OF THE SCHOOL CHILD. Report of the Chief Medical Officer of the Ministry of Education for the Years 1939-45. London: His Majesty's Stationery Office, 1947. 148 pp. 2s.6d.
- NEW BRUNSWICK DEPARTMENT OF HEALTH. 28th ANNUAL REPORT OF THE CHIEF MEDICAL OFFICER FOR YEAR ENDING OCTOBER 31, 1945 AND 29th ANNUAL REPORT FOR THE YEAR ENDING OCTOBER 31, 1946. Canada: New Brunswick Department of Health. 116 pp. each.
- OPERATION AND MANAGEMENT OF MILK PLANTS. Circular No. 260. Washington: Department of Agriculture, 1947. 58 pp.
- PUBLIC HEALTH IN MARYLAND 1946. Report of the Director. Baltimore: Maryland State Board of Health, 1947. 36 pp.
- REPORT OF THE COUNTY MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER FOR THE YEAR 1946. Sir Allen Daley, M.D. London, Eng: Staples Press, 1947. 86 pp. Price, 2s.0d.
- RESULTS OF TREATING BOVINE MASTITIS WITH SULFONAMIDES CONTAINING UREA. Technical Bulletin No. 946. Washington: Department of Agriculture, 1947. 17 pp.
- THIRTY-FOURTH ANNUAL REPORT, 1946. Civil Service Commission, City of Detroit, Mich. 67 pp.

ASSOCIATION NEWS

76TH ANNUAL MEETING

BOSTON, MASS., NOVEMBER 8-12, 1948

Members of the Association are already asking about hotel rooms in Boston. On or about April 1, a hotel reservation application form will be mailed to every member and the Housing Bureau in Boston will operate on and after that date. The *Journal* will also quote hotel rates beginning with the April number.

FELLOWSHIP IN THE AMERICAN PUBLIC HEALTH ASSOCIATION

The grade of Fellowship was established in the American Public Health Association in 1922. Professional workers in public health are eligible for election as Fellows under certain conditions and as an indication that they have achieved a recognized professional standing. As of January 1, 1948, the total membership of the Association was 11,124, including 1,913 Fellows, or 17 per cent of the total.

Questions are frequently asked regarding the requirements for Fellowship and the following statement outlines the provisions of the By-laws governing qualification and election.

Persons who have been members of the Association for at least two years and who have reached their 30th birthday are eligible to apply if, in their opinion, they meet the conditions of one or more of the six clauses in the By-laws defining "an established professional standing." These six possible approaches are as follows:

a. A person who has rendered acceptable service for two or more years in a responsible public health position and who has been awarded in course a degree of Doctor of Public Health, Doctor of Science in Public Health, Doctor of Philosophy in Public Health, Doctor of Medicine with at least one year of graduate study in public health in a University, Master of Public Health, Diploma in Public Health, or other equivalent

degrees, according to standards approved by the Executive Board of the American Public Health Association.

b. A person who has been awarded in course an academic or professional degree involving training in public health and who has been regularly engaged in health work for at least five years, having rendered meritorious service as a health officer or in responsible charge of work in either a public or private health agency.

c. A person who has done notable original work in public health or preventive medicine of a character to give him a recognized standing.

d. A person regularly engaged in health work for at least five years, who has given evidence of special proficiency, who has attained a recognized standing.

e. A teacher of public health or one of its constituent sciences who has attained distinction as an expounder of the principles of public health or its constituent sciences. Such a teacher shall have had at least five years' experience as a teacher of public health subjects. Any years of experience as defined in paragraphs "b" and "d" that the applicant may have had shall be considered the equivalent of the same number of years' experience as a "teacher."

f. A person not covered by the above, who has made substantial contributions to public health work in his chosen branch, who has attained a recognized professional standing.

Persons wishing to apply should request a Fellowship application blank from the American Public Health Association Membership Department, 1790 Broadway, New York 19, N. Y. Appli-

cations are accepted up to August 1 each year for consideration by the Governing Council at the fall meeting. It is important to make clear that members themselves should take the initiative in submitting such applications. Neither the Sections nor the A.P.H.A. administrative staff are authorized to solicit applications. This means that, although nearly 3,000 persons have been duly recognized with this grade of affiliation since 1922, there are other persons well qualified who have never initiated the process of applying for Fellowship. It should be clear that members should not await action by others if they wish to attain Fellowship. It is necessary and proper for them to take the first step.

An application for Fellowship requires sponsorship by two Fellows of the Section with which the applicant desires to be affiliated. These personal signatures are to be obtained by the applicant before submitting the completed application. The A.P.H.A. office will assist, on request, in determining the Section with which prospective sponsors are affiliated. Applications from persons not wishing to be identified with a particular Section and requesting unaffiliated Fellowship may be sponsored by any two Fellows of the Association.

When properly sponsored and otherwise completed, the application is sent to the A.P.H.A. office, after which the list of persons applying is published in the *American Journal of Public Health*, usually in the September issue, but in any case not less than 15 days before the date for the Annual Meeting. An established routine is followed for review by the Section Councils (unaffiliated applications are reviewed by the Executive Board) and by the Commit-

tee on Eligibility. This Standing Committee of the Association is made up of one Fellow from each of the 12 Sections, plus a Chairman elected by the Executive Board. This group is under instructions from the Governing Council to examine each application in accordance with the provisions of the clause of the By-laws chosen by the applicant, and to apply the criteria with precision in each case. Final election is by the Governing Council at the second meeting at each annual session.

The privileges of Fellowship include eligibility to serve as an officer of the Association or one of the Sections, Chairman of an Association or Section Committee (over one hundred in number), a member of one of the four Standing Committees, a member of the Governing Council or Executive Board, and the right to vote at the Annual Meeting for the elective members of the Governing Council and on amendments to the Constitution. Some Civil Service and merit system records depends upon Fellowship in the American Public Health Association as an achievement deserving recognition in applicants.

The dues of Fellows are \$12.00 annually, and include a subscription to the *American Journal of Public Health* and other services to which members are eligible. Life Membership is available at \$200, covering all future annual dues.

Applications for Fellowship to be considered at the 76th Annual Meeting in Boston, Mass., November 9-12, 1948, should be filed with the Association as soon as they are completed, and in any case not later than August 1. For further information address the Membership Department, American Public Health Association.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

- Adam N. Beattie, M. D., D.P.H., 451 Strathcona Ave., Kelowna, B.C., Canada, Director, Okanagan Valley Health Unit
- Herbert G. Cull, M.D., 2010 McClelland, Houston, Tex., Physician, Houston Health Dept.
- Matthew Dantow, M.B., D.P.H., Health Region No. 13, North Battleford, Sask., Canada, Regional Medical Health Officer
- Allan J. Fox, Town Hall, Main St., Greenfield, Mass., Agent, Board of Health
- Stillman J. Hathaway, M.D., Health Department, Court House, Chehalis, Wash., Health Officer, Lewis-Pacific District Health Dept.
- Alan D. Houser, M.D., New Paltz, N. Y., Apprentice Epidemiologist, State Health Dept.
- Edward X. Link, M.D., 213-15 So. 17th, Mattoon, Ill., Health Commissioner
- Archibald F. Mackay, M.B., D.P.H., 65 Simcoe Street, South, Oshawa, Ont., Canada, Medical Officer of Health
- Hon. Paul Martin, LL.D., House of Commons, Ottawa, Ont., Canada, Minister of National Health and Welfare
- Samuel Minowitz, M.D., M.P.H., 1 St. Pauls Court, Brooklyn 26, N. Y. District Health Officer, City Health Dept.
- Harriet N. Rogers, M.D., M.A., Box 106, Lucedale, Miss., Director, Southeastern Health District
- Silas C. Rutland, M.D., West Central Region, State Health Dept., Griffin, Ga., Medical Director
- Edward M. Thompson, M.D., M.P.H., 212 North Upper St., Lexington, Ky., Health Officer and Director of Field Training, Lexington-Fayette County Health Dept.

Laboratory Section

- Lawrence D. Blitzer, Y.M.C.A., 215 W. 23rd St., New York. N. Y., Bacteriologist, Synchem Corporation
- Horace A. Kelley, Apartado 16, Montemorelos, N. L., Mexico, Laboratory Technician, Montemorelos Hospital and Sanatorium
- William H. Mair, 101 Central Avenue, Westfield, N. J., Director, Clinipath Laboratories
- Clara V. McWhirk, Fitzgibbon Memorial Hospital, Marshall, Mo., Director of Laboratories
- Virginia L. Pipe, 5660 Kingsbury, St. Louis 12, Mo., Senior Assistant Bacteriologist, St. Louis Public Health Laboratory

- Bill J. Reed, Municipal Laboratory, Mason City, Iowa, Laboratory Technician
- Zana G. Skidmore, M.S., Oklahoma A & M College, Stillwater, Okla., Asst. Professor of Bacteriology
- Marie S. Slawson, 2135 N. E. 45th, Portland 13, Ore., Bacteriologist and Parasitologist, Emma M. Howe Medical Laboratory
- Benjamin Q. Ward, M.A., 110 Montgomery, Laramie, Wyo., Asst. Bacteriologist, Univ. of Wyoming
- Ruth Winchell, M.A., Rt. 1, Box 1755, Portland 6, Ore., Chemist, Emma M. Howe Medical Laboratory

Vital Statistics Section

- Dorothy H. Johnston, 1085-43rd St., Oakland, Calif., Senior Public Health Analyst, State Department of Public Health
- Mrs. Wilson B. Purser, 219 Millsaps Ave., Jackson, Miss., Secy., Vital Statistics Division, State Board of Health
- Edgar G. Titus, Sc.D., 128 State Capitol, Salt Lake City, Utah, Director, Division of Vital Statistics, State Department of Health

Engineering Section

- Charles R. Barden, M.S., 1414 Lavaca, Austin, Tex., Public Health Engineer, Texas Public Health Training Unit
- Paul Bierstein, World Health Organization, P.O. Box 1477, Addis Ababa, Ethiopia, Sanitary Engineer
- John Kam'nski, Sears, Roebuck & Co., Dept. 817, 925 S. Homan Ave., Chicago 7, Ill., Merchandise Testing and Development Laboratory
- Samuel C. Olmstead, City Hall, Moberly, Mo., Sanitation Inspector, Health Dept.
- Jacob Samarjian, 631 Bay St., Santa Monica, Calif., Sanitarian, Los Angeles County Health Dept.
- Millard E. Smith, C.E., I.I.A.A. c/o American Embassy, Lima, Peru, S. A., Chief Engineer and Associate Chief, Field Party, Institute of Inter-American Affairs
- Leon W. Weinberger, S.M., Graduate House, Mass., Inst. of Tech., Cambridge 39, Mass., Research Asst.
- George E. Welty, Ph.G., 1251 So. Bronson, Los Angeles 6, Calif., Principal Sanitarian, City Health Dept.

Food and Nutrition Section

- Helen M. Amos, 515 South 31st St., Omaha 5, Nebr., Student, Univ. of Michigan School of Public Health
- Dorothy M. Kiely, M.S., 406 Orange St., Wilmington, N. C., Nutrition Consultant, State Board of Health
- Ahbrohm X. Rossien, M.D., 8415 Beverly Road, Kew Gardens 15, N. Y., Consultant Gastroenterologist
- Malcolm R. Stephens, 1211 New Post Office Bldg., Chicago, Ill., Chief, Chicago Station, U. S. Food and Drug Administration

Maternal and Child Health Section

- Hedvig H. Holzer, M.D., 591 Morton St., Dorchester 24, Mass., Child Welfare Physician, State Dept. of Public Health
- Lula J. McNeil, Route 3, Box 455-A, Norfolk, Va., Public Health Nurse, State Dept. of Health
- Bertrand Primeau, M.D., 227 Aspinwall Ave., Brookline 46, Mass., Student, Harvard School of Public Health

Public Health Education Section

- Catherine Beermann, R.N., B.S., 77 Wheeler Ave., Westwood, N. J., Director, Northern Bergen Nursing Service
- Douglass R. Hayes, 1376 N. Kenmore St., Arlington, Va., Chief of Graphics, U. S. Public Health Service
- Sol. Levy, M.D., Eastern State Hospital, Medical Lake, Wash., Clinical Director
- Earle G. Lippincott, M.A., Russell Sage Foundation, 130 E. 22 St., New York 10, N. Y., Research Associate
- F. Mack Moore, P. O. Box 76, Cathedral City, Calif., Deputy Health Officer, Riverside County Health Dept.
- Amalia Rivera, Direccion General de San'dad, San Salvador, El Salvador, C. A., Asst. Health Educator, Division of Health Education
- Max Whitman, M.A., 51-63 Stuyvesant Place, Staten Island 1, N. Y., Health Education Asst., New York City Health Dept.
- Dora H. Young, M.A., State Capitol, Helena, Mont., Secretary, State Narcotics Education Commission

Public Health Nursing Section

- Frances M. Avery, R.N., 510 E. Kilbourn Ave., Milwaukee 2, Wis. Instructor, Marquette University College of Nursing
- Eva K. Belflower, R.F.D. No. 2, Tifton, Ga., Emergency Nurse, State Dept. of Public Health

- Agnes C. Cooley, 5307-64th St., Maspeth, N. Y., Student, New York Univ.
- Christie T. Corbett, 12 Fordonia Bldg., Reno, Nev., Director, Division of Public Health Nursing, State Dept. of Health
- Elizabeth G. Eckert, Neighborhood League, 119 W. Wayne Ave., Wayne, Pa., Supervisor of Nurses
- Elaine Gobin, R.N., M.S., 1221 Sherman St., Denver, Colo., Advisory Nurse, Division of Crippled Children, State Dept. of Health
- Charlotte Hasselbusch, 637 Ingraham St., N.W., Washington 11, D. C., Educational Director, Instructive Visiting Nurse Society
- Virginia M. Lloyd, R.N., 701 London St., Portsmouth, Va., Public Health Nurse, State Health Dept.
- Ruth G. McDonald, R.N., B.S., Apt. C, 2011 Flower, Bakersfield, Calif., Supervising Nurse, Kern County Health Dept.
- Anne R. Ohlbaum, 780 Grand Concourse, New York, N. Y., Director, Eastchester Public Health Nursing Assn., Tuckahoe, N. Y.
- Ione L. Ripley, American Embassy, Lima, Peru, Chief Nurse, Office of Inter-American Affairs
- Kathryn A. Robeson, M.A., 1949 McGraw Ave., New York, N. Y., Administrative Asst. and Consultant, Visiting Nurse Service of New York
- Frances E. Shelley, R.N., B.S., 810 Chalfonte Drive, Alexandria, Va., Public Health Nursing Consultant, U. S. Public Health Service
- Helen R. Swedburg, R.N., B.S., 824 Harris Ave., Woonsocket, R. I., Director, Woonsocket Public Health Nursing Assn.
- Louise B. Thomson, 207 Shepard St., Chevy Chase, Md., Supervisor, Instructive Visiting Nurse Society

Epidemiology Section

- Domingos Barbosa-Carvalho, M.D., M.P.H., Caixa Postal No. 47, Manaus, Amazonas, Brazil, Health Officer, Special Service of Public Health
- Sidney B. Clark, M.D., M.P.H., 1302-32nd Ave., San Francisco, Calif., Medical Officer, Acute Communicable Disease Service, State Dept. of Public Health
- Mary K. Dunlap, D.V.M., 2316 Ward St., Berkeley, Calif., Veterinarian
- John S. Hathaway, M.D., 109 College, New Haven, Conn., Asst. Director, Yale Dept. of Health
- Mildred A. Morehead, M.D., 44 Allandale St., Jamaica Plain, Boston, Mass., Student, Harvard School of Public Health
- Norman Plummer, M.D., 140 West St., New York 7, N. Y., Medical Director, New York Telephone Co.

Julius S. Prince, M.D., Wildcliff Road, New Rochelle, N. Y., Physician-in-Training, State Dept. of Health

School Health Section

Elsie F. Johnson, R.N., 1315 Seventh Ave., Worthington, Minn., School Nurse, Worthington Public Schools

Leo C. Kaye, Ed.M., 511 Sound Ave., Riverhead, N. Y., Camp Sanitary Aide, State Dept. of Health

Annie R. Moore, M.P.H., School Health Coordinating Service, P. O. Box 2091, Raleigh, N. C., Health Educator

Louis L. Shapiro, M.D., M.P.A., 135 Central Park West, New York 23, N. Y., School Medical Inspector, Board of Education

Helen A. Sharkey, 2102 Ageduct Ave., New York 53, N. Y., Student, New York Univ.

Dental Health Section

Betty Krippene, D.H., State Board of Health, Dist. No. 3, Court House, Fond du Lac, Wis., District Dental Hygienist

Julius M. Miller, D.D.S., 250 East 58th St., New York 22, N. Y., Acting Chief Oral Surgeon, Stuyvesant Polyclinic Hospital

Milton E. Nicholson, D.D.S., 609 Shields

Bldg., Pittsburgh 21, Pa., Lecturer in Public Health Dentistry, Univ. of Pittsburgh School of Dentistry

Charles E. Presnell, D.D.S., M.S.P.H., State Division of Health, Jefferson City, Mo., Director of Public Health Dentistry

Unaffiliated

Helen Feild, 1212 Broadway, New Orleans 18, La., Secy., Health Division, Council of Social Agencies

Hugh R. Jackson, M.S., 311 South Juniper St., Philadelphia 7, Pa., Exec. Director, Public Charities Assoc., of Pennsylvania

John A. Rowe, Ph.D., 4215 East 67th St., Kansas City, Mo., Consultant, Communicable Disease Center, U. S. Public Health Service

Frank Stevens, Tremonton, Utah, Principal, Bear River High School

DECEASED MEMBERS

Karl R. Bailey, M.D., Boston, Mass., Elected Member 1946, Laboratory Section.

Elizabeth C. Brown, Columbia, Mo., Elected Member 1938, Elected Fellow 1942, Laboratory Section.

Frank T. Powers, Glen Cove, N. Y., Elected Member 1934, Unaffiliated.

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

(Supplemental to list in February Journal)

POSITIONS AVAILABLE

Health Officer in one of the most desirable locations in Montana; population 30,000; salary \$6,000 to \$7,000, depending upon training and experience. Write Box A-1, Employment Service, A.P.H.A.

Executive Director for community health agency in suburban Philadelphia. Professional staff of twelve nurses and dentist. Generalized nursing service affiliated with local Boards of Health and Schools; Dental Clinic; Child Health Centers; Practical Nurse Registry. Nurse with academic degree plus supervisory and administrative experience in official and nonofficial public health nursing. Retirement plan, one month vacation, 5 day 39½ hour week, sick leave. Salary open. Write Mr. H. H. Perry, President, Community Health and Civic Association, 25 East Athens Avenue, Ardmore, Pa.

Public Health Nurse and a Physiotherapist. Metropolitan Area of Washington, D. C. Excellent working relations. Good salary. Apply to Mrs. Sarah Brooks, Director of Nursing Bureau, Arlington Health Department, 1800 N. Edison Street, Arlington, Va.

Bacteriological Technician to assist in Bacteriology Department of Research Division of large pharmaceutical and biological firm. College graduate and at least one year of experience required. Experience in immunology or chemotherapy desirable. \$55 per week to start. Regular increases. Paid vacation. Five day week. Write Box A-2, Employment Service, A.P.H.A.

Public Health Nursing Field Supervisor; B.S. degree with major in Public Health Nursing and theory and experience in supervision required. Salary: minimum \$3,000, higher depending upon qualifications. Interesting and growing program. Write: Director, Public Health Nursing Association, Des Moines, Iowa.

Qualified Bacteriologist, Serologists and Sanitarians wanted for positions in New Mexico Department of Public Health. Permanent tenure, vacations and

sick leave with pay. For application blanks and information write Merit System Supervisor, Box 939, Santa Fe, N. M.

Sanitarian for metropolitan county 300,000 population to assist in generalized sanitation program. Area includes rural as well as urban sanitation problems; offers excellent opportunity for activity in all fields of environmental health. Experience in general sanitation activities required. Salary \$3,315 to \$3,795. Retirement plan, liberal vacation allowance, sick leave, 5 day week. Mileage allowance 7¢. Must furnish own car. Write Wayne County Health Department, Eloise, Mich.

Public Health Nurses needed in Nevada. Permanent positions in rural counties and local county health unit.

Junior Public Health Nurses: (salary range \$2,160-\$2,640 annually); minimum of 6 months postgraduate public health nursing training.

Senior Public Health Nurse (salary range \$2,340-\$2,940 annually). One academic year of postgraduate training in public health nursing plus satisfactory experience in official agency. Mileage allowance 7½¢, if nurse owns car.

Supervisory Nurse for 6-7 counties (salary range \$2,580-\$3,300 annually plus travel allowance). Degree plus 1 year postgraduate training in public health nursing and two years' experience. All positions subject to Merit System examination. Write: Division Public Health Nursing, Nevada State Department of Health, 12 Fordonia Building, Reno, Nevada, for full details.

Director of Health for new combined city-county Health Department in Indiana. Challenging opportunity to reorganize and increase health program of considerable scope for capable and well trained man. Salary possibly up to \$10,000. Write Box A-4, Employment Service, A.P.H.A.

Research Microbiologist, as Chief of Division of Research and Investigations of State Health Department, N.E. Must be well grounded in bacteriology, immunology, and laboratory techniques of virus

diseases; ability to encourage research in other divisions. Salary \$4,620-5,820 plus \$180 cost of living increase. Annual increments of \$240 based on achievement. Write Box A-5. Employment Service. A.P.H.A.

Public Health Commissioner in Tuscarawas County, New Philadelphia, Ohio. Must have degree in public health. To serve in a county with a population of approximately 40,000. Beginning salary \$6,000 or more. Write Box A-3. Employment Service. A.P.H.A.

Physicians (several), experienced in medical care administration or equivalent; for Health Services Division of Welfare and Retirement Fund. Age 30-45; exception possible for otherwise well qualified applicants. Salary range \$3,000-\$12,000 dependent on training and experience. Write Box A-6. Employment Service, A.P.H.A.

City Health Officer. \$6,000-7,200 plus \$63.85 monthly cost of living adjustment. Practical experience in public health, graduation from medical school. Wisconsin license or eligibility. Write Personnel Division, City Hall, Madison 3, Wis.

Several vacancies **Nursing Division.** Public Health Supervisor, \$3,000-3,720; Senior Public Health Nurse \$2,640 to 3,360; Senior Bacteriologist \$2,820-3,540. Merit System. Vacation and sick leave with pay. Submit credentials and recommendations with first communication to: Floyd R. Town, M.D., Director, Bremerton and Kitsap County, Department of Public Health, Bremerton, Wash.

Bacteriologist, investigational work in pulp and paper fields involving bacteriological and mycological studies. Salary commensurate with experience and ability. Give all details in first letter. Write: The Institute of Paper Chemistry, Appleton, Wis.

National trade association requires **Department Head.** Preferably graduate sanitary engineer, experienced in state, county or city health departments. Some travel. Headquarters probably Chicago. Excellent opportunity for man with proper training and with initiative and good personality. Write fully education, experience, and references. Box E-2. Employment Service, A.P.H.A.

Supervising and staff **Public Health Nurses** needed in department of public health in modern agricultural county in southern California. Minimum N.O.P.H.N.

qualifications required. Salary range \$2,916-3,540; vacation and sick leave. Write Burke E. Schoensee, M.D., County Health Officer, El Centro, Calif.

Sanitarian with Public Health experience; B.S. degree in bacteriology or chemistry. Assist generalized environmental sanitation program in established department in east central Michigan; applicant must have car. Beginning salary \$3,000 plus travel allowance. Position offers excellent opportunity for self expression and selected applicant will be one of six carrying forward the programs in this area. Write Bay City Department of Health, Bay City Hall, Bay City, Mich. State qualifications and experience.

Medical Health Officer for City of Saskatoon. Salary range \$5,000-6,000. Successful applicant permitted to devote limited amount of time to lecturing at University of Saskatchewan on public health subjects. Applications giving particulars of age, qualifications, previous experience, and accompanied by copies of testimonials, are to be addressed to Andrew Leslie, City Commissioner, City Hall, Saskatoon, Saskatchewan.

Advisor to Dean of College of Medicine, Seoul National University in Korea. Qualifications: Male between ages of 28 and 55. Graduate of recognized medical college. Experience in medical education preferred. Knowledge of Korean conditions, manners, and customs is important. Korean language desirable but not required. Salary: \$5,905.20 base plus 25 per cent overseas allowance, making a total annual salary of \$7,381.50. Apply: Lt. Colonel Arthur W. Hodges, Jr., War Dept. Special Staff, Washington 25, D. C.

Public Health Nurse position. Generalized public health nursing. Civil Service requirements: one year of public health nursing at approved university; experience preferred. Salary range \$2,400 to \$2,800—\$120 increase per year. Three weeks vacation, sick leave 12 days per year, accumulative. Personal car, mileage 6¢ for travel on duty. Write to Adele Didricksen, R.N., Director Public Health Nursing, Ulster County Health Department, 61 Albany Avenue, Kingston, N. Y.

Bacteriologist—\$3,360. Three years' experience in clinical or laboratory diagnosis. Master's or Doctor's degree. Complete charge of Public Health laboratory, town of approximately 10,000. Apply to Bureau of Personnel, State Capital, Madison 2, Wis.

Public Health Nursing Supervisor for county unit in process of organization, degree and experience desirable. Salary \$3,000 and travel. Write to: Montgomery County Health Department, Hillsboro, Ill.

California County Health Department needs **Public Health Analyst**—Salary \$2,964-\$3,564. **Dental Hygienist**—Salary \$2,832-\$3,408. Travel allowance 7¢ per mile. Civil Service and Retirement systems. Population 200,000. Write: W. A. Powell, M.D., Health Officer, Health Department, Contra Costa County, Martinez, Calif.

Staff Nurse, preferably with some public health nursing experience. Area, both urban and rural, population appr. 33,000. Generalized public health service, well-baby clinics, bedside care, school nursing, tuberculosis clinics. Five day week, month vacation, all holidays, sick leave. Salary dependent upon qualifications. Write to Red Cross Nursing Service, West Essex Chapter, 14 Park Street, Caldwell, N. J.

Health Officer and Public Health Nurses for rural public health program coöperating with the North Carolina

State Board of Health and the University of North Carolina School of Public Health. This Health Unit serves as a field training center for Public Health personnel. The public health program operates under the State Merit System which regulates requirements and salaries. Write to O. David Garvin, M.D., District Health Officer, Chapel Hill, N. C.

Director of Health Education and Health Services in public school system in midwestern city of 100,000 population. Ability to develop health education program in public school system. Coördinate community resources. Direct health and safety education; medical, dental and nursing services; food services; school sanitation; physical sanitation. Salary \$5,000 depending on training and experience. Write Box A-7. Employment Service. A.P.H.A.

Assistant Executive Secretary (health education) voluntary health agency. North Eastern city. M.P.H., and some community experience required. Man or woman. Salary \$3,200-\$3,600. Opportunity to develop program in suburban areas. Write Box A-8. Employment Service. A.P.H.A.

Public Health Opportunities in Colorado

Dentist, as Director of Public Health Dentistry Section. Salary \$4,800-5,500.

Public Health Physicians:

1. Director, Local Health Services. Salary \$6,750.
2. Director, Preventive Medical Services. Salary \$6,750.
3. Director, Tuberculosis Control. Salary \$4,800-5,500.
4. Director, Venereal Disease Control Section. Salary \$4,800-5,500.
5. Director, Maternal, Child Health and Crippled Children Section. Salary \$4,800-5,500.

Apply at: State Civil Service Commission

314 State Capitol
Denver, Colo.

Fellowships for the Training of Health Educators

Fellowships leading to a Master's Degree in Public Health in the field of Health Education are again being offered this year to any qualified United States citizen between the ages of 22 and 40. Funds are available through a grant from the National Foundation for Infantile Paralysis.

Candidates must hold a Bachelor's degree from a recognized college or university at the time the application is filed, and must be able to meet the entrance requirements of the accredited school of public health of their choice. Proof of acceptance at such a school must be furnished before applications are submitted to the Fellowship Awards Committee for consideration. In addition to the Bachelor's degree, courses in the biological sciences, sociology, and education are required. Training in public speaking, journalism, psychology, and work in public health or a related field is considered desirable.

The fellowship consists of 8 or 9 months' academic work, which begins with the fall term in 1948, and three months of supervised field experience in community health education activities in a local health department. The academic training includes courses in public health administration, epidemiology, public health and school education, problems in health education, community organization, information techniques, and others.

Veterans are encouraged to apply, and will be paid the difference between their subsistence allowance under the G-I Bill of Rights and the monthly stipend of \$100 for single veterans or \$150 for married veterans. Employees of state or local health departments are not eligible, since federal grants-in-aid are provided through the states for such training.

Information and application blanks may be obtained by writing to the National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y.

Public Health Workers Needed for European Rehabilitation Program

We need two qualified public health physicians; six public health registered nurses, one chief nurse to organize programs; one health consultant capable of setting up training schools for practical nurses; two nurse educators to head these schools; three medical social workers; and two public health dentists. All personnel must enlist for eighteen months. They must have physical stamina, be adaptable and sympathetic. A knowledge of Yiddish is necessary. Interested applicants should apply to the Health Committee of Joint Distribution Committee, 270 Madison Avenue, New York 16, N. Y.

POSITIONS WANTED

Senior Serologist seeks position in southern California; 15 years' experience including 4 years as laboratory officer. Major Army United States. Write Box L-1. Employment Service. A.P.H.A.

Veterinarian with training in bacteriology, organic chemistry, and pathology; experience in public health work as a veterinary inspector for large Midwestern city; experience in clinical laboratory procedures; desires position in or outside United States requiring initiative and diligence. Write Box V-1. Employment Service, A.P.H.A.

Position in School Health Education or public health education wanted by woman with many years' experience in teaching and community organization in public health. Master's degree in public health. East or Middle West preferred. Write Box H-E-1. Employment Service. A.P.H.A.

Biological and Physical Chemist available for research, control, teaching. Extensive experience research, industrial development and control on pharmaceuticals, biologicals, bio-assays, also expert in animal surgery. Original analytical and physical-chemical methods. Former University professor, 60 publications; many in medical research; books. Executive ability. Age 35, married, children. Seeks responsible position Hospital Laboratories or Educational Institution, New York Metropolitan area preferred. Box L-2. Employment Service. A.P.H.A.

Sanitary Engineer, A.B., M.S., C.E., 3 years' experience in Public Health Engineering with Federal, State, and local

agencies. Army experience in water supply in the Pacific. Desires position in public health engineering. Write Box E-1. Employment Service. A.P.H.A.

Health Educator, B.S. in Education, New York University, M.P.H., Yale University Department of Public Health. Experienced in community organization with City Health Department; Instructor of Health Education in University. Interested in Health Education in the community or as School Health Coordinator. Write Box H-E-2. Employment Service. A.P.H.A.

Graduate Veterinarian with undergraduate and graduate work in dairy technology, experienced in both fields, desires position as sanitarian in a public health capacity or related work; suggestions solicited. Write Box V-2. Employment Service. A.P.H.A.

Physician 18 years of active practice in internal medicine and chest diseases (Pneumo-thorax treatment); desires position in tuberculosis control (institutional or field) or one requiring general clinical background. Eligible for New York license; available immediately; references sent on request; age 44, married, children. Write Box Ph-1. Employment Service. A.P.H.A.

Industrial Hygiene Chemist, M.S.; 13 years' experience in analytical chemistry. Seven years' experience with well known industrial hygiene laboratory. Familiar with wide variety of chemical methods. Present salary above \$5,000 but immediate increase in salary not as important as opportunity to advance and reasonable security. Write Box I-H-1. Employment Service. A.P.H.A.

Advertisement

Opportunities Available

WANTED—(a) Public health physician to direct medical program; executive ability required; advantageous if experienced in administering medical care program; salary dependent upon qualifications, ranging \$8,000-\$12,000; national organization. (b) Medical director; city of 100,000 located short distance from several large cities and university medical center; Middle West. (c) Student health physician to direct department, eastern university. (d) Public health officer; Korea; \$6,000, traveling expenses. (e) Assistant school physician; public school system considered one of most progressive in the country; enrollment of 25,000; Middle West. (f) Public health physicians for the following directorships: (a) Local health administration; (b) Maternal and child health; (c) Tuberculosis control; headquarters in fashionable winter resort town—West. **PH-1 Medical Bureau** (Burneice Larson, Director), Palmolive Building, Chicago 11.

WANTED—(a) Sanitary engineer to direct mosquito control program; four years' professional engineering experience including work in sanitary engineering required; around \$6,000; U. S. dependency. (b) Assistant director of health education; municipal health department; West. (c) Sanitary engineer; duties consist of surveying and outlining plans for sanitary facilities; water supply; mosquito and fly control;

Arabia. (d) Sanitary engineer to direct department serving population of 7,000,000; experience in water and malarial control required; M.A. degree and public health background essential; South America. (e) Health educator; city health department; university medical center, Middle West; around \$4,000. (f) Assistant professor of sanitary engineering; degree in sanitary or civil engineering; Master's degree advantageous; \$4,000-\$5,000. (g) Health educator to direct division of county community and council of social agencies; newly created position; \$4,000. **PH-2 Medical Bureau** (Burneice Larson, Director), Palmolive Building, Chicago 11.

WANTED—(a) Advisory nurse for generalized program; duties consist of supervising local agencies throughout state; \$3,660-\$4,300. (b) Assistant supervising public health nurse; county health department; southern California; \$3,000-\$3,560. (c) Two public health nurses; generalized program; attractive summer resort area; \$2,700 plus \$700 traveling expenses; Middle West. (d) Public health supervisors and staff nurses for positions in South America; knowledge of Spanish or Portuguese desirable. (e) Public health nurse of supervisory caliber with knowledge of Spanish to supervise health center in Latin America. **PH-3 Medical Bureau** (Burneice Larson, Director), Palmolive Building, Chicago 11.

Advertisement

Opportunities Wanted

Public health physician; M.S. degree, Public Health Medicine; seven years' public health administration; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Parasitologist; two years, entomologist in the West Indies; seven years on faculty of medical school, including three as head of department of parasitology; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Dentist; twelve years, private practice during which time has served as public health dentist on part-time basis; experienced in teaching; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Health educator; Master's degree in Education (Health and Physical Education); four years, health educator, national organization; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11.

Chemical engineer; B.S. in Chemical Engineering; year's graduate training in Sanitary Engineering, Harvard; seven years, communicable disease control, major part of work in malarial control; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health nurse; Master's degree, Public Health Nursing; field nurse, two years, and supervisor, four years, VNA; five years, supervisor, county health department; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

NEWS FROM THE FIELD

FIRST NATIONAL CONFERENCE ON FAMILY LIFE

The first National Conference on Family Life has been called in Washington May 6-8 at the request of 110 major national agencies. The movement which resulted in plans for this meeting began in 1944 when the American Home Economics Association first discussed the need for a conference on family life. The National Planning Association joined in efforts to bring together such a group. A general steering committee with the financial backing of the Woman's Foundation in June, 1946, resulted in an agreement by more than 100 coöperating groups to request the President that such a conference be held at the White House.

Eric Johnston, President of the Motion Picture Association of America, and Boris Shishkin, Economist of the American Federation of Labor, are Chairman and Vice-Chairman respectively of the 35 member Board of Directors.

The sponsoring agencies requesting the conference include the American Public Health Association and the National Health Council. The Technical Advisory Committee includes 52 leaders in health, education, social welfare, economics, and science, under the leadership of the program coördinator, Dr. Ernest G. Osborne of Columbia University.

The conference program is divided into three parts: Background Materials, which is largely statistical; Dynamics of Family Interaction; and Action Areas for Families and Organizations. The Chairman of the first section is Alexander Radomski who is the Assistant Program Coördinator of the National Conference on Family Life; of the second section, co-chairmen are Evelyn M. Duvall, Secretary of the National Council on Family Relations and

Reuben Hill, Professor of Sociology at Iowa State College. The third section, Health and Medical Care, is divided into 10 subsections, and is under the joint chairmanship of Haven Emerson, M.D., and Leona Baumgartner, M.D.; Coleman Woodbury of the University of Wisconsin heads the Housing Section.

The purpose of the Conference is to find specific ways in which Americans may work together to build their lives around a family core. It will deal with the importance of family living to democracy, the implications of housing, nutrition, child care, etc., for family stability, defining basic principles to help families understand and meet their needs in individual and group living, planning community resources including education for strengthening of families, and training professional workers in the field of family life.

The Conference is limited to 1,000 persons representing the 120 sponsoring agencies. The Secretary is Mrs. Clarice H. L. Pennock, and the national headquarters are at 10 East 40th Street, New York 16.

NATIONAL NUTRITION RESEARCH CENTER

The Medical School of Northwestern University has received from the Spies Committee for Clinical Research a grant of \$150,000 annually for 5 years to establish a national center for medical research in the field of nutrition at the University. Tom D. Spies, M.D., known for his work with synthetic folic acid, has been named Chairman of the new department and Professor of Nutrition and Metabolism.

Dr. Spies has been most recently Associate Professor of Medicine at the University of Cincinnati where, under the Spies Committee, he directed the University studies in nutrition in the Cincinnati General Hospital and in

the Hillman Hospital, Birmingham, Ala., which he organized in 1937. In his new capacity, he will continue to direct studies in Hillman Hospital.

ARKANSAS PUBLIC HEALTH ASSOCIATION

At a meeting in Little Rock in November, the organization of the Arkansas Public Health Association was completed. A Constitution and By-Laws were adopted, approximately 300 charter members enrolled and the following officers elected:

President—Edgar J. Easley, M.D., Director, Division of Venereal Disease Control, State Department of Health

Vice-President—Mrs. W. T. Dorrough, Executive Secretary, Arkansas Tuberculosis Association

Secretary-Treasurer—Roy M. Reid, Director of the Division of Public Health Education, State Department of Health

CINCINNATI PUBLIC HEALTH FEDERATION AWARDS

At the annual meeting of the Cincinnati Public Health Federation in December, awards of honor for distinguished service were made to William H. Muhlberg, M.D., and Bleeker Marquette. The awards consisted of a scroll, together with an engraved gold key, as tokens of the community's appreciation and gratitude.

Dr. Muhlberg is President of the Cincinnati Board of Health, of the Federation, and of the Anti-Tuberculosis League, and serves on many other community agency boards and was cited as "a staunch promoter and supporter of improvements in community organization and facilities for greater health protection and better medical care."

Mr. Marquette has since 1921 been Executive Secretary of the Public Health Federation and is also Executive Secretary of the Better Housing League and the Anti-Tuberculosis League. His citation reads in part: "Leader in the planning, organization, and development

of Greater Cincinnati's coordinated public health program."

DR. BUSTAMANTE, SECRETARY GENERAL, PAN AMERICAN SANITARY BUREAU

Miguel E. Bustamante, M.D., Dr.P.H., has been appointed Secretary General of the Pan American Sanitary Bureau. Immediately before going to Washington, D. C., he was Director of the Institute of Health and Tropical Diseases and Research Epidemiologist of Mexico, and Professor of Preventive Medicine and Hygiene in the School of Medicine.

Dr. Bustamante received his Medical degree from the National University of Mexico and his Doctor of Public Health degree from Johns Hopkins University.

In recent years, with Drs. Gerardo Varela, Ortiz Mariotte and Roch, Dr. Bustamante reported for the first time in a series of articles the presence in Mexico of Rocky Mountain spotted fever, its regional epidemiology and its transmission in the west and north central zones by the *R. sanguineus*, the characteristics of two strains and those of a fourth rickettsial entity found in the Michoacan State.

INDIANA'S NEW DEPARTMENT OF HEALTH BUILDING

Construction has begun on the new \$1,800,000 building for the Indiana State Department of Health. Located on the Indiana University Medical Center campus, it will be completed in January, 1949, and will have twice the space of the present building.

When the new building is completed, the old building will be deeded to the Medical Center for use as administrative offices and clinical laboratories.

THE THREADS OF RESEARCH IN CHILD LIFE

In November, 1947, the U. S. Children's Bureau called together 16 leaders in research in child life for a two day

conference in New York. Through group discussions, the conference considered what research in child life is now going on, in and out of the federal government; on what aspects of child growth and development and of community life in relation to children is research most needed; what the major obstacles to research are; what next steps should be taken; and what contributions the Children's Bureau can make.

In order to answer queries about the conference, the Children's Bureau has summarized some of the highlights. This includes a listing of 136 research projects currently being carried on in agencies outside the government as well as a list of Children's Bureau studies since 1912. This summary of the conference is available from the U. S. Children's Bureau, Washington 25, D. C.

POSTGRADUATE COURSE IN INDUSTRIAL MEDICINE

The Long Island College of Medicine announces its fifth Postgraduate Course in Industrial Medicine. Scheduled for the two week period, April 5-16, it is intended to provide physicians already in industrial practice or those planning to enter it, with information about the most recent developments in the field.

The courses will be given by 60 leaders in industrial medicine, authorities in allied fields, and members of the Medical School faculty. Tuition for the course is \$75. Address inquiries to Thomas D. Dublin, M.D., Department of Preventive Medicine and Community Health, 248 Baltic St., Brooklyn 2, N. Y.

ADVERTISING COUNCIL'S CHEST X-RAY CAMPAIGN

An earlier issue of the *Journal* (May, 1947, p. 635) reported preliminary plans for an educational campaign directed toward chest x-raying the entire adult population by the Advertising

Council in coöperation with the National Tuberculosis Association and the U. S. Public Health Service.

This campaign has now gone into its first major phase. The first network allocations were given the chest x-ray campaign during the week of January 12 and are being continued on an average of one week each month. Campaign guides, posters, car cards, and other materials have been prepared and sent out. Full information has been sent to all local tuberculosis associations and official health departments. The *NTA Bulletin* for January, 1947, gives details of the campaign as well as a description of the Advertising Council and its activities.

MR. SOLOW TO PAN AMERICAN UNION

In January, Anatole A. Solow began his new work as Housing and City Planning Specialist with the Division of Labor and Social Information of the Pan American Union in Washington, D. C. He will direct the Union's Housing and City Planning Information Service with particular reference to the official agencies and technicians of the Latin American countries.

Previously Mr. Solow was, since 1946, Research Associate of the Committee on the Hygiene of Housing of the American Public Health Association.

ATOMIC ENERGY EXHIBIT

The Brookhaven National Laboratory of the U. S. Atomic Energy Commission is holding a comprehensive exhibit on atomic energy from January 21 to April 5. Held in the American Museum of Natural History in New York City, it is intended to acquaint the public with some of the basic principles of atomic fission, the beneficial applications of nuclear energy, and the United States program in nuclear research and development.

Special group tours of the exhibit may also be arranged through the museum.

NATIONAL COMMITTEE ON LOCAL HEALTH UNITS

Recent issues of the *Journal* (Nov., p. 1502; Jan., p. 108) have reported on the Princeton Conference on Local Health Units and some of the activities flowing out of it. A meeting in New York in January brought further along plans for citizen participation.

After the Princeton Conference, the National Health Council, because of its special interest in this field, was asked to accept leadership in citizen participation in this program. It therefore called the January meeting in order that the agencies themselves might plan next steps. Forty-five of the national agencies represented at Princeton had representation at the January meeting. Among the outstanding features of the meeting was an agency by agency report on activities carried out since the Princeton Conference.

In addition to the items already reported in the January *Journal*, the National Congress of Parents and Teachers held a Health Conference on February 16 and 17 at which all their state health chairmen were briefed on ways by which they might forward the federal legislation sponsored by the National Congress as well as the community organization for extending minimum coverage or increasing the adequacy of present coverage.

Many of the agencies such as the Lions' Club, the American Home Economics Association, and the American Farm Bureau Federation have urged their local branches to study the results of the Princeton Conference in relation to their own community health needs.

Reports were made of articles to appear in various of the national agency journals as well as of plans to keep this matter constantly before state and local groups with appropriate educational material.

At the luncheon of the January meet-

ing Dr. Herman E. Hilleboe, New York State Health Commissioner, outlined briefly the plans for extending county health departments in the state. That the attitude of the local citizenry is the key to early and permanent progress was perhaps his outstanding point. He said that the help of citizens' groups was welcome and essential.

The conference discussed ways of carrying on the enthusiasm developed and furnishing the local agencies interested in the problem with suitable material. A number of regional conferences, for example, were suggested. The conference adopted ten resolutions as shown below and proceeded with the creation of a national committee in accordance with the mandate of Resolution Number 5. This committee is made up of the designated official representatives of each of the agencies that is interesting itself in this problem.

Resolutions Passed by the January 23 Conference

1. That each organization represented at Princeton be urged to approve officially, where possible, the principles of the Princeton resolution as soon as practicable and announce action with appropriate national publicity.

2. That the goal is to obtain complete coverage of all states and all communities by local full-time health units under competent professional direction.

3. That each organization be encouraged to develop a specific program of action adapted to its structure and character.

4. That to assure most effective results in obtaining complete coverage by full-time health units, it is essential that the activities of national agencies, although independent, at the same time be coördinated.

5. That the representatives of the organizations here gathered urge that the National Health Council, representing as it does the common interests of national agencies concerned with public health, be requested to create a National Advisory Committee on Local Health Units, composed of responsible representatives of interested organizations, such as those represented here and at the Princeton Conference, and such other organizations as may be determined subsequently.

6. That this committee, with the coopera-

tion of the above organizations, seek to develop a central program advisory service, materials and such other clearing house functions as may prove desirable.

7. That representatives at this meeting, in their individual capacities, recognize the necessity for federal assistance to states to complete the coverage of their respective populations and areas with full-time local health units under professional direction.

8. That the representatives at the meeting trust that the National Congress of Parents and Teachers will take primary responsibility for following through with the legislation proposed by the Association of State and Territorial Health Officers, and that such other organizations as were represented at the Princeton Conference, and which may so desire, will take action jointly with the National Congress of Parents and Teachers to support this legislation in principle.

9. That the national organizations be encouraged to begin stimulation of state and local action to obtain the necessary local health units. To this end, it is also suggested that appropriate graphically illustrated educational material be prepared nationally for distribution through local units of national organizations.

10. That each organization urge its state and local affiliates to work coöperatively with existing state-wide and local coöperating agencies or councils in order that there may be a pooling of interests, planning and action in securing the coverage referred to in recommendation 2. From this joint planning permanent organization for coöordinated planning may be developed in those places where such does not now exist.

NATIONAL NEGRO HEALTH WEEK

National Negro Health Week will be observed from April 4 to April 11. Its special objective for the current year is: "A Practical Health Program for Myself and My Family: Learn what you ought to know—Health Education; Do what you ought to do—Healthful Living."

The preliminary announcement sent out by the Committee lists a community organization plan and a day by day schedule for Health Week, as well as some 60 suggested sources of coöperation.

For further information, write Na-

tional Negro Health Week Committee, U. S. Public Health Service, Washington 25, D. C.

ANNUAL PARENTS' MAGAZINE MEDAL TO DR. ELIOT

The 1948 *Parents' Magazine* Medal for Outstanding Service to Children was presented in January to Martha M. Eliot, M.D., President of the Association and Associate Chief of the U. S. Children's Bureau in Washington.

In presenting the medal the speakers, George J. Hecht, publisher of *Parents' Magazine*, and Senator Saltonstall of Massachusetts, praised her work as Director of the Emergency Maternity and Infant Care Program and as Chief Medical Consultant of the International Children's Fund. Said Senator Saltonstall: "Dr. Eliot truly has become a leading authority on child care. You can almost say that whenever child health is mentioned, Dr. Eliot's name comes first in your mind."

INSTITUTE OF EXPERIMENTAL BIOLOGY AND MEDICINE

The U. S. Public Health Service has established an Institute of Experimental Biology and Medicine in the National Institute of Health in Washington. This research institute, combining the functions of the Division of Physiology and of the Pathology and Chemistry Laboratories, is designed to achieve greater coördination of scientific investigations.

William Henry Sebrell, Jr., M.D., Chief of the Division of Physiology, is the Director of the new Institute, serving also as Associate Director of the National Institute of Health.

Dr. Sebrell, an authority in the field of nutrition, has been with the Public Health Service since 1925. In 1940, he received the Mead Johnson Award of the American Institute of Nutrition for research on vitamin B-complex, and in 1946, was awarded the research medal of the Southern Medical Association.

In 1945, he spent 3 months in Europe as nutrition consultant to the U. S. Army's Military Government Public Health Staff, for which he was awarded the Legion of Merit.

PROFESSIONAL RESPONSIBILITIES

The following extract from an article appearing in the December 1, 1947, issue of *The Connecticut Technical Council, Inc.*, gives in compact form the *raison d'être* for the engineering professional societies.

OUR SOCIETIES

PROFESSIONAL RESPONSIBILITIES AND PURPOSES

All engineering societies have been brought into being by ideals for advancement, for improvement or for public service. An examination of these ideals as stated in purposes of various societies reveals a pattern of professional responsibility in six primary categories:

First Responsibility. To extend and advance engineering knowledge and art; to encourage original research to promote standardization of engineering specifications and methods of testing; to maintain a library; to confer honors and awards for outstanding work.

Second Responsibility. To maintain high aims and standards for the education of those who are to become engineers; to foster engineering education; to foster among engineering students the study of philosophy and history, traditions and achievements, duties and social functions of the engineering profession; to encourage the personal and professional development of young engineers.

Third Responsibility. To maintain high standards for entrance into the profession; to aid in adoption of a high standard of attainment for granting the legal right to practice engineering; to maintain high cultural and technical standards for admission to the society.

Fourth Responsibility. To increase the usefulness of the engineering profession; to cooperate with other engineering and technical societies; to advance the unity of the profession; to secure greater public understanding of the purposes of the profession; to secure equitable compensation for engineering services.

Fifth Responsibility. To maintain high standards of conduct between the engineer and his client, his employer, his colleagues, and the public; to maintain high professional standing; to protect the public against unqualified engineering practice.

Sixth responsibility. To minister to the public interest; to encourage a high standard

of citizenship among engineers; to encourage engineers to participate in public affairs; to cooperate with governmental agencies on engineering matters; to cooperate internationally on engineering matters.

The above principles were prepared after an analysis of the stated purposes of the various professional engineering societies.

DR. OSBORN IN CONNECTICUT 25 YEARS

In December, the Public Health Council of Connecticut and the staff of the State Health Department, celebrated the completion of a quarter of a century of service by the State Health Commissioner, Stanley H. Osborn, M.D. Dr. Osborn was presented with a traveling bag in appreciation of his many years of service. When he first became Commissioner in 1922, the department's staff numbered 50; expanded services have increased the staff to a current 300.

In point of service, Dr. Osborn is the second oldest State Commissioner of Health in the country. A. J. Chesley, M.D., of Minnesota, has served one year longer, having been appointed Secretary and Executive Officer of the Minnesota State Board of Health in 1921.

FIELD TRAINING PROGRAMS

The recent *Bulletin of Field Training Programs* lists the various programs of training available through the Communicable Disease Center, U. S. Public Health Service, Atlanta, Ga., for the year 1948. Field training for sanitary engineers, sanitarians — general and milk and food, insect and rodent control personnel and various laboratory workers are included. Most of the programs are given at the Center in Atlanta, Ga., although other centers in Savannah, Ga., Topeka, Kans., Troy, N. Y., Columbus, Ga., and Cincinnati, Ohio, are included. As in the past, tuition is free but no stipends are available from the Communicable Disease Center for traveling or living expenses during the course of study. R. A. Vonderlehr

is Medical Director in Charge, and E. S. Tisdale is Chief, Training Division of the Communicable Disease Center.

INDIANA'S FIRST BI-COUNTY HEALTH DEPARTMENT

The Boards of Commissioners of Floyd and Harrison Counties in Indiana with a combined 1940 population of 52,000, passed appropriations for setting up immediately a bi-county public health department. Its full-time medical Health Officer is W. E. Amy, M.D., formerly a practising physician.

Headquarters will be in New Albany. Currently, the staff will include two sanitarians and five nurses with two additional nurses planned for a later date.

A LOUISIANA CITY AND COUNTY CONSOLIDATE THEIR GOVERNMENTS

By a recent vote, the city of Baton Rouge and the parish (county) of East Baton Rouge consolidated their respective governments with a council of nine members. Unified departments of public works, purchasing, finance, and personnel will furnish parish-wide services to a population of more than 100,000.

The health services of city and parish had already been unified before this action. Schools and recreation will not be under the control of the council, the former being governed by a popularly elected council of seven members and the latter by a board created by special legislative act.

FIRST APPROVED HOSPITAL CONSTRUCTION PROJECT TO COMBINE HOSPITAL AND HEALTH SERVICES

The first project to be approved under the 1946 hospital construction act (P.L. 725) is for a combined hospital and health unit in Langdale, Chambers County, Alabama. The project, sponsored by the Chattahoochee Valley Hospital Society in Langdale, was ap-

proved by the Surgeon General on November 5, 1947. Langdale is an industrial community (about 2,000 textile mill employees) located in a rural county with a 1940 population of 41,000.

The plans as approved include 82 hospital beds which can be increased to 150 if needed and preventive and public health services. The hospital building will house an outpatient clinic and the county public health department. Total construction cost is estimated at \$1,700,000. Dr. C. C. Applewhite, who furnished the above information, observes that, "It is a gratification to us that the first approved project in the country and in District (U. S. Public Health Service) No. 4, combines in one structure facilities for preventive medicine as well as for treatment and care of the ill."

FIRST TRI-COUNTY UNIT IN OHIO

Beginning in January, Ohio's first tri-county health unit began operation. It is a consolidation of two already existing units, Delaware City-County and the bi-county unit of Madison and Union. The total population being served is about 70,000.

The Health Officer of the new tri-county health department is Wayne S. Ramsey, M.D., who has been with the U. S. Public Health Service since January, 1944. Previously, he had seen service in both world wars, with the Pennsylvania State and Alaska Territorial Boards of Health and with the Michigan Crippled Children's Commission.

DEDICATION OF M.I.T. LABORATORIES

The Massachusetts Institute of Technology recently dedicated the William Thompson Sedgwick Laboratories of Sanitary Science of the Department of Civil and Sanitary Engineering, with Dr. John B. Wilbur, Head of the Department, presiding.

Speakers included Professor Samuel C. Prescott, Arthur D. Weston, and Dean Gordon M. Fair of the Harvard School of Engineering. Professor W. E. Stanley described the new facilities and the work they will do. Murray P. Horwood, Ph.D., is in charge of the Laboratory of Sanitary Bacteriology and Research; Clair N. Sawyer, Ph.D., of the Laboratory of Sanitary Chemistry; and Professor Ariel A. Thomas, of the Laboratory of Sanitary Engineering.

NATIONAL ASSOCIATION OF SANITARIANS

The following officers were elected for the year 1948 at the 11th Annual Meeting of the National Association of Sanitarians in Salt Lake City in September, 1947:

President—Mitchell P. Mondala, Washington State Health Department

Vice-President—C. W. Clark, Oregon State Health Department

Jr. Past-President—E. R. Shields, Utah State Health Department

Treasurer—Charles H. Ziegler, City Health Department, Los Angeles

Executive Secretary—Roscoe C. Davis, California State Health Department

MASSACHUSETTS PUBLIC HEALTH ASSOCIATION APPOINTS EXECUTIVE SECRETARY

Elizabeth K. Caso has been appointed Executive Secretary of the Massachusetts Public Health Association. An instructor in nutrition in the Harvard School of Public Health, Mrs. Caso will serve the Public Health Association on a part-time basis. It is hoped that the employment of an Executive Secretary will increase the services the Association can render to its members, and make the agency a more potent influence for the improvement of public health administration in Massachusetts.

LIP READING SCHOLARSHIP

The Kenfield Memorial Fund, through the American Hearing Society,

is offering a scholarship of \$100 to a prospective hard of hearing teacher of lip reading who lives in the United States.

Applicants must have: personal characteristics necessary for successful teaching; ability to read lips and professional training in lip reading; a bachelor's degree or its equivalent. The prospective teacher who wins the scholarship may take the normal course from any normal training teacher or school or university in the United States offering a course acceptable to the Teachers' Committee of the American Hearing Society.

Applications must be filed between March 1 and May 1, 1948, with Miss Rose V. Feilbach, 2431-14th Street, N.W., Washington 9, D. C.

AMENDMENTS TO NEW YORK STATE SWIMMING POOL REGULATIONS

The December 15, 1947, issue of New York State *Health News* includes as a supplement an amendment to the *State Sanitary Code* covering swimming pools and bathing beaches. In preparing the material for the amendment the suggested revision of the Code was sent to several municipal and county health departments for criticism.

In addition to clarifying the previous section of the *State Sanitary Code* dealing with swimming pools and bathing beaches some subjects have been added and others expanded. Requirements on dressing and toilet rooms now require adequate shower bath facilities at artificial swimming pools where the source of bacterial pollution is the bathers themselves. The maximum number of bathers permitted to use such a pool is now based on the surface area of the pool rather than on water volume. Filtration must be provided at artificial pools when required by the local health officer or the State Commissioner of Health. Regulations covering the sanitary

quality of water and the techniques used in chlorination have been modernized, and measures for the safe handling of chlorine gas have been added. Requirements on bacterial quality of water at partly artificial swimming pools or at bathing beaches have not been specified because numerical bacterial standards for this purpose are not available. The local health officer or the State Commissioner of Health is given authority to prohibit bathing where a menace to the health of bathers is believed to exist.

NSPB MOVES TOWARD COMMUNITY COÖPERATION

At the December meeting of the Board of Directors of the National Society for the Prevention of Blindness, the following resolution prepared by the Society's Committee on Plan and Scope was approved:

It is the stated policy of the National Society for the Prevention of Blindness to participate in joint planning and coöperative action with other educational, health, and social agencies, both voluntary and official. It is recommended, therefore, that state, territorial, city and county prevention of blindness associations likewise coöperate with appropriate agencies in educational programs, planning for community health and welfare, and other activities.

NEW OFFICERS OF FLORIDA PUBLIC HEALTH ASSOCIATION

At its Annual Meeting held in Tampa, October 23-25, 1947, the Florida Public Health Association elected the following new officers to serve for 1948:

President—Wilson T. Sowder, M.D., Jacksonville
1st Vice President—Russell Broughman, Miami
2nd Vice President—Martha Stetson, St. Petersburg
Secretary—Fred B. Ragland, Jacksonville
Treasurer—Elsie Hyatt, Jacksonville

DR. SELLERS, GEORGIA HEALTH COMMISSIONER

In December, Thomas A. Sellers,

M.D., was appointed Georgia Health Commissioner by the State Board of Health, following the retirement of T. F. Abercrombie, M.D., who has been Commissioner since 1917. Dr. Sellers has been in the State Health Department more than a quarter of a century, during nearly all of that time as Director of Laboratories.

Dr. Abercrombie remains in the department as Director Emeritus and in an advisory capacity.

At the same Board meeting, John E. Ransom was made Director of the newly created Division of Hospital Construction. He has been serving in the department as hospital consultant, having formerly been Director of the Hospital Council of New York.

OREGON'S NEW DISTRICT HEALTH UNIT

Lincoln and Tillamook Counties, with a 1940 combined population of 27,000, have formed a district health unit under the law enacted by the 1947 Oregon legislature. The position of health officer had not been filled in December and the unit was operating with the temporary services of a part-time health officer.

Two other counties that had been operating on a coöperative basis—Washington and Yamhill—with 65,000 population, have also organized under the new law. Three other coöperative units including 7 counties are also expected to organize formally under the new law.

INTER-AMERICAN SANITARY ENGINEERING CONGRESS

The first Inter-American Sanitary Engineering Congress will be held in the University of Chile, Santiago, April 8-14. Joining with the Inter-American Association of Sanitary Engineering in sponsoring the Congress are the Chilean Ministries of Public Health and of Public Works, the Santiago Department of Water and Sewerage, the Pan American Sanitary Bureau, and the Institute of Inter-American Affairs.

Further information may be secured from Donald L. Snow, Acting Secretary, Inter-American Association of Sanitary Engineering, 2001 Connecticut Ave., N.W., Washington 8, D. C. Details on the United States manufacturers' exhibits are being handled by Arthur T. Clark, Water and Sewage Works Manufacturers Association, 170 Broadway, New York 7.

DR. SCHEELE APPOINTED SURGEON
GENERAL, U. S. PUBLIC HEALTH
SERVICE

It was announced at the White House on February 12 that Thomas Parran, M.D., Surgeon General of the U. S. Public Health Service since 1936, would be succeeded at the expiration of his term on April 6, 1948, by Leonard A. Scheele, M.D., now an Assistant Surgeon General of the U. S. Public Health Service and Head of the National Cancer Institute, Bethesda, Md.

Dr. Parran, who is completing his third term of 4 years as Surgeon General, was appointed to the post in April, 1936, by President Roosevelt. According to the report, Dr. Parran will resume his permanent status in the Service as Medical Director and has announced that he has no further plans after his retirement as Surgeon General.

Dr. Parran stated that the President was to be congratulated upon his appointment of Dr. Scheele who he said was "one of the outstanding figures in public health in the United States, possessing both the professional and personal qualifications to be a great Surgeon General. I wish for him long years of useful public service in this responsible position."

During Dr. Parran's 12 years as Surgeon General, many new programs have been developed by the Service, including Venereal Disease and Tuberculosis Control Programs, the National Mental Health Program, the National Cancer

Program, the National Hospital Survey and Construction Program and, during the war period, the Cadet Nurse Corps. In addition, an expansion of the National Health Institute and the Grants-in-Aid Programs were accomplished. Budgets of the Public Health Service during this period increased from less than 15 million to more than 100 million dollars a year.

Dr. Scheele, who is a native of Indiana, was born July 25, 1907 and is a graduate, in 1934, of the Wayne University School of Medicine, Detroit. He has been a member of the Regular Corps of the Public Health Service since July 10, 1934, and was on a European assignment with the Army during the war after service with the Office of Civilian Defense.

OFFICERS OF AMERICAN HOSPITAL
ASSOCIATION

The following officers of the American Hospital Association were elected at its annual meeting in St. Louis:

President—Graham L. Davis, Director, Division of Hospitals, W. K. Kellogg Foundation

President-Elect—Joseph G. Norby, Superintendent, Columbia Hospital, Milwaukee

First Vice President—M. H. Eichenlaub, Superintendent, Western Pennsylvania Hospital, Pittsburgh

Second Vice President—Ruth C. Wilson, Executive Director, Martine Hospital Service Association, Moncton, New Brunswick

Third Vice President—F. Ross Porter, Administrative Assistant, Duke Hospital, Durham

The officers reported on page 1639 of the December issue of this *Journal* should have been identified as officers of the American College of Hospital Administrators.

NEW OFFICERS OF THE SOCIEDADE
BRASILEIRA DE HIGIENE

At the annual election of officers of the Sociedade Brasileira de Higiene held on December 22, 1947, Dr. Mar-

colino Gomes-Gandau was elected *President* of the Society and Dr. Geraldo Paula Souza *Vice-President*.

PERSONALS

Central States

VIOLET DuBois,[†] has been appointed Health Educator of the Omaha City-Douglas County Health Department in Nebraska where she will also be on the teaching staff of Omaha University. Miss DuBois was formerly Assistant Director of Health Education, Nebraska State Health Department.

PAUL FUGAZZOTTO, Ph.D.,[†] has been appointed serologist in the Bureau of Laboratories, Indiana State Health Department. He was formerly with the Michigan State Health Laboratories, first in the Grand Rapids Laboratory working with PEARL KENDRICK, M.D.,* in her pertussis studies, and later at the Central Laboratory in Lansing.

FRED L. MAYES, M.D.,* has been appointed Health Officer of Wichita, Kan., effective June, 1948. Dr. Mayes has been Assistant State Health Officer of Kansas and Director of the Division of Local Health Administration, and is currently on leave studying for a Master's Degree in public health at the Harvard School of Public Health.

THURMAN B. RICE, M.D.,[†] who for some years has been Chairman of the Department of Bacteriology and Public Health, University of Indiana School of Medicine, has now been named Chairman of the new Department of Public Health.

Eastern States

FRANKLYN B. AMOS, M.D.,* has been appointed Director of the new Office of Professional Recruitment and Training of the New York State

Health Department. Dr. Amos has been with the department since 1935, as Assistant Director of local health administration since 1940.

WILLIAM A. BRUMFIELD, M.D.,* has been appointed Deputy Commissioner of Health of New York State succeeding JAMES E. PERKINS, M.D.,* who resigned to become Managing Director of the National Tuberculosis Association. Dr. Brumfield has been Director of the Division of Venereal Disease Control of the Department for the past 12 years.

JAMES P. DIXON, M.D.,[†] Philadelphia, Pa., became Director of Denver General Hospital on October 1. He has been administrative intern under LUCIUS R. WILSON, M.D., at the Episcopal Hospital in Philadelphia, and is a former fellow in public administration and hospital administration at the W. K. Kellogg and Rockefeller Foundations.

JAMES A. DOLCE, M.D., M.P.H.,* Chief of Division of the Local Health Administration, Connecticut State Health Department since July 1, 1945, has been appointed Deputy Commissioner of the Buffalo City-Erie County, New York Department of Health.

LYMAN C. DURYEA, M.D., M.P.H.,* who served for the past year as Medical Director of the Research Council on the Problems of Alcohol, New York, N. Y., has resigned to accept a commission with the U. S. Army. He has been assigned as Commanding Officer of the 269th General Hospital, Fitzsimmons General Hospital, Denver, Colo. JOSEPH HIRSH,* Associate Director of the Council, is serving as Acting Director.

CARL L. ERHARDT,[†] Assistant Director of the Bureau of Vital Statistics,

* Member A.P.H.A.

† Fellow, A.P.H.A.

Connecticut State Health Department since April 15, 1947, will return to the New York City Health Department as Director of the Bureau of Records and Statistics. Mr. Erhardt had previously been associated with the New York Bureau for 11 years.

STEPHANIE F. FORD,† on January 5 assumed the position of School Health Educator of the New York Tuberculosis and Health Association. Miss Ford was formerly with the public school system of Hamden, Conn.

PAUL R. GERHARDT, M.D.,† has been appointed Director of New York State Health Department's new Division of Cancer Control, effective in January. He succeeds MORTON L. LEVIN, M.D.,* who was named Assistant Commissioner for Medical Administration last October. Dr. Gerhardt comes to the Department from the West Virginia State Health Department where he has been Director of the Division of Cancer Control since April, 1944.

GERMAINE A. GUNTZER, M.D.,† has been appointed to the medical staff of Leahi Hospital, the 900 bed tuberculosis sanatorium at Honolulu, Hawaii. He has most recently been Medical Consultant for Veterans of the National Tuberculosis Association in New York.

CHARLES HAYDOCK,† Consulting Engineer, Philadelphia, Pa., has been appointed by GOVERNOR JAMES H. DUFF as a member of the Pennsylvania State Registration Board for Professional Engineers.

H. R. KILANDER, Ph.D.,† has resigned as Associate in Health Education of the National Tuberculosis Association, New York, N. Y., to become Associate in Health Education of the U. S. Office of Education, Washington, D. C.

DOMINICK J. LACOVARA, M.D., Ph.D.,† formerly resident psychiatrist at Mat-

teawan State Hospital, Beacon, N. Y., late in September, 1947, became resident psychiatrist of Craig House, Beacon, N. Y., a private sanitarium, and was appointed consulting psychologist to Matteawan State Hospital.

EUGENE L. LEHR, C.E.,† Housing Engineer with the Bureau of Sanitary Engineering, Connecticut State Health Department since August, 1938, has taken up his duties as town engineer and Superintendent of Public Works, Fairfield, Conn. This is a position created by the new charter adopted at the 1947 Session of the Connecticut General Assembly.

JOHN J. LENTZ, JR.,† who, since he left the Army and served with the Division of Medical Sciences of the National Research Council in Washington, D. C., has now joined the staff of Young and Rubicam, New York, N. Y., to be concerned with research for health and medical advertising.

CHARLES McCLAIN, who has been rehabilitation consultant of the National Tuberculosis Association, New York City, since 1944, has been named Director of the new rehabilitation department of Mont Alto Sanatorium in Pennsylvania.

JOHN F. McCORMACK, former Superintendent of Presbyterian Hospital, New York, N. Y., has been appointed Executive Vice-President of United Medical Service in New York City.

CHARLES L. NEWCOMB, Director of the Christmas Seal Sale of the National Tuberculosis Association for 18 years, retired December 31, 1947. Miss Frances Brophy, Associate, Seal Sale Service, has been appointed Acting Director.

CLELAND A. SARGENT, M.D.,† has been appointed Health Commissioner of Syracuse, N. Y., effective June 1, 1948, when the present Commissioner, H. BURTON DOUST,

M.D.,† retires. Dr. Sargent is at present a District Health Officer of the New York State Department of Health.

RALPH SIKES, M.D.,* former Health Commissioner of Norwalk, Conn., is Health Commissioner of Yonkers, N. Y., succeeding BERWYN MATTISON, M.D.,† who recently became Buffalo City-Erie County Health Commissioner.

NORMAN SURVIS, M.D., New Rochelle, N. Y., has been appointed Director of the Division of Pediatrics of the Westchester County Health District, White Plains, N. Y., succeeding DOROTHY WORTHINGTON, M.D.,* resigned.

MARGARET WOLCOTT, R.N., M.P.H.,† has been appointed Director of Nurses of the Cortland County (N. Y.) Health Department. Since 1931, Miss Wolcott has been with the New York State Department of Health, having been assigned to the Cortland County Health Department as Supervising Nurse in 1943.

Southern States

CHANGES IN FLORIDA HEALTH PERSONNEL:

JOHN ROSS HAGUE, M.D.,† formerly of Washington, D. C., has been appointed Health Officer of the Indian River, St. Lucie and Okeeshobee Counties Health Unit, with headquarters at Fort Pierce.

M. LEWIS GRAY, M.D., formerly Health Officer of the Jackson and Washington Counties Health Unit is now Health Officer of the Broward County Health Department with headquarters at Fort Lauderdale. He succeeds WILLIAM C. HATCHETT, M.D., who resigned due to ill health.

ROBERT H. HEAD, M.D., has been

appointed Health Officer of the Jackson and Washington County Health Departments, with headquarters at Marianna.

CHARLES G. CHAPLIN, M.D., has been appointed Health Officer of the Jefferson County Health Department with headquarters at Monticello. Formerly on the staff of Englewood Hospital, Chicago, Ill., he succeeds B. L. ARMS, M.D., who is retiring.

WILLIAM G. C. HILL, M.D., Director of the Putnam and Flagler County Health Departments has resigned his position.

FRANCIS M. COY, M.D., succeeded HARRY W. HOLLINGSWORTH, M.D., on February 2 as Director of the Highlands, Glades, and Hendry County Health Units.

CARL J. HEISSER,† has resigned his position as Medical Statistician in the Medical Statistics Division, Bureau of Medicine and Surgery, Navy Department, Washington, D. C., to accept the position of Superintendent and Registrar of the Bureau of Vital Statistics of the Toledo, Ohio, Department of Health.

MARK DEXTER HOLLIS,† recently Executive Officer in the Office of the Surgeon General, has been appointed Chief of the Sanitary Engineering Division of the U. S. Public Health Service, with the rank of Assistant Surgeon General. He was formerly Director of the Service's Communicable Disease Center in Atlanta where he developed a program for malaria and typhus control.

CLARKE W. MANGUN, JR., M.D.,† is the new Director of Tuberculosis Control Division of the Kentucky State Department of Health. Formerly in the same position in the Florida State Department of Health, he has most recently attended the Columbia University School of Public Health, New York, N. Y., where he received

* Member A.P.H.A.

† Fellow, A.P.H.A.

his Master of Public Health degree in June, 1947.

GRADIE R. ROWNTREE, M.D.,* Deputy Director of Public Health, Louisville-Jefferson County, Kentucky Health Department, resigned on January 1 to become Medical Director of the C. T. Dearing Printing Company. WILLIAM F. LAMB, M.D., M.P.H.,† formerly Assistant Director in charge of communicable diseases succeeded him as Deputy Director of the Health Department.

AGNES SCHULZ became nutrition consultant for the Oklahoma State Department of Health, on January 1, 1948. She succeeds MAURINE MEIER LEIGHTON, resigned.

CHARLES A. SMITH, M.D., was named Director of the Mental Hygiene Division, Oklahoma State Department of Health, on December 1. Dr. Smith is now Assistant Professor of Psychiatry and Neurology of the University of Oklahoma School of Medicine.

MARTHA PETTIT VAN METER,† became Acting Director of the Division of Public Health Education of the Kentucky State Health Department in October, 1947.

Western States

HERBERT BAUER, M.D.,† has resigned as San Luis Obispo County Physician for a year's study in public health on a fellowship granted by the National Institute of Health, Washington, D. C. Dr. Bauer will study at the School of Public Health, University of California.

MARTIN D. BAUM, D.V.M., M.P.H.,† formerly City Veterinarian and Director, Division of Milk and Meat Inspection, City Health Department, Los Angeles, Calif., has been appointed Public Health Veterinarian, U. S. Public Health Service, assigned to Colorado State Department of Public Health, Denver, Colo.

HELEN HORKAVI,† was appointed Tuberculosis Nursing Consultant of the Arizona State Department of Health beginning December 1, 1947. She has served in the Pima County Health Department in Tucson, Ariz., and for the past 3 years as Director of Public Health Nursing, Marquette University, Milwaukee, Wis.

ROLAND H. LODER, M.D., M.P.H.,* became the Health Officer of Weld County, Colorado, effective January 1. For 10 years previously, he had been Director of Maternal and Child Health of the Nebraska State Health Department.

CLARA WOLFE, R.N., will serve as Educational Director for the Veterans' Administration in Oregon having resigned as consultant nurse for the Oklahoma State Department of Health.

Other Areas

L. W. FITZMAURICE, M.D.,* Director of Medical Services, Kingston, Jamaica, has recently been elected a Fellow of the Royal Sanitary Institute of London, England.

SÉRVULO LIMA, M.D.,† has resigned from the Serviço Especial de Saude Publica, Rio de Janeiro, Brazil, and MARCOLINA GOMES-CANAU, M.D.,† has succeeded him as Superintendent.

NEIL P. MACPHAIL, M.D., received the 1948 Richard P. Strong Medal for outstanding service in tropical medicine at the annual dinner of the American Foundation for Tropical Medicine in New York on January 8. Dr. MacPhail is surgeon and sanitarian of the United Fruit Company, stationed in Quirigua, Guatemala.

F. MALO-JUVERA, M.D., M.P.H.,† has been promoted from Chief of the Division for Training of Health Personnel to Technical Adviser to the Undersecretary, Ministry of Public Health and Welfare, Mexico, effective January 1.

American Journal of Public Health and THE NATION'S HEALTH

Volume 38

April, 1948

Number 4

The Health Officer's Bookshelf*

HUNTINGTON WILLIAMS, M.D., DR. P.H., F.A.P.H.A.

Commissioner of Health of Baltimore, Md.

Dr. Oliver Wendell Holmes cast a divine spell in writing "The Chambered Nautilus" and saved many thousands of lives by publishing his essay on "The Contagiousness of Puerperal Fever." The good doctor loved his medical library and the wisdom hidden away in some of its old-time folios. They gladdened his eye and he cuddled them. He bought them even beyond the verge of extravagance. "These books," he said, "were very dear to me . . . A twig from some one of my nerves ran to everyone of them."

NEARLY every health officer enjoys his work or he would not be a health officer. If he can feel as Oliver Wendell Holmes did about his books, so much the happier will he be; but it is not essential. His duties soon teach him that the health department needs certain books as daily desk-side tools. Experience may deepen the perspective so that the bookshelf at his hand expands to something to be cherished for being more than merely a tool kit.

No two public health workers will ever pick the same list of "must books." Heaven forbid. Life is a twenty-four hour proposition. There may well be three sections in the health officer's bookcase; one beside his desk in the office, one by a good reading lamp at home, and a small bedside shelf for half a dozen favorites.

So now to a consideration of some twenty or thirty or more books that the

large or even the small health department might wish to see upon its shelf.

1. *Rosenau, M. J. Preventive Medicine and Hygiene* (6th ed.), Appleton-Century, N. Y., 1935. A veritable encyclopedia that is trustworthy as a friend. It may be turned to for standard knowledge or to meet the emergency that keeps cropping up when a health officer is expected to provide his community with an official statement, and when he has never had to answer *that* question before. Indeed indispensable. And perhaps there may be a new edition.

2. *Papers of Charles V. Chapin, M.D.* The Commonwealth Fund, 41 East 57th St., N. Y. 22, 1934. An inexpensive gold mine which includes some of the best of the invaluable papers by the great Superintendent of Health of Providence, R. I., for the period 1884-1931. They deal with communicable disease control, epidemiology, and vital statistics, and made an immortal of the author, for single-handed he abolished the fetish of fumigation that goes back in history

* Special Review Article prepared at the request of the Editorial Board.

to Homer and the *Odyssey*. His earlier classic is *The Sources and Modes of Infection* (2nd ed.), Wiley, N. Y., 1912. Not unlike these writings of Chapin are the *Papers of Wade Hampton Frost, M.D.* The Commonwealth Fund, N. Y., 1941. Both Chapin and Frost are the intellectual heirs of John Snow whose volume on cholera (London, 1855) was republished by the Commonwealth Fund in 1936, and of William Budd whose *Typhoid Fever* (London, 1873) was reprinted by the Delta Omega Society and the American Public Health Association in 1931.

3. *The Control of Communicable Diseases* (6th ed.), 1945. An Official Report of the American Public Health Association. This 149 page pocket-size pamphlet is now recognized nationally and internationally as authoritative on the moot points of isolation and quarantine, sources and modes of infection, and control procedure. An inexpensive booklet (35 cents) that is turned to daily in a thousand health departments and provides the very best consensus of opinion.

4. *Anderson, Gaylord, and Arnstein, Margaret. Communicable Disease Control* (2nd ed.), Macmillan, N. Y., 1948. A very sound and up to the minute guide when a health officer or public health nurse is perplexed by such an everysummer-day question as "What can be done to prevent poliomyelitis?"

5. *Topley and Wilson's Principles of Bacteriology and Immunity*. Revised by G. S. Wilson and A. M. Miles (3rd ed.), two volumes. Williams & Wilkins, Baltimore, 1946. Considered by many health officers, laboratory workers, and communicable disease hospital administrators to outrank most other like volumes. From the London School of Hygiene and Tropical Medicine.

With Topley and Wilson's *Principles* may well be mentioned some recent writings by F. M. Burnet, M.D. of Melbourne, Australia, such as his *Bio-*

logical Aspects of Infectious Disease, Cambridge University Press (England), 1940. The struggle for existence between man and the microorganisms here discussed is to some extent reminiscent of the writing and the thinking of Charles V. Chapin and William H. Park.

6. *Top, Franklin H. Communicable Diseases (A Handbook)* (2nd ed.), Mosby, St. Louis, 1947. A good book with 95 text illustrations and 13 color plates.

7. *Winslow, C.-E. A. The Evolution and Significance of the Modern Public Health Campaign*. Yale University Press, 1923. In spite of the fact that this 65 page lecture is out of print, it is hoped temporarily, it is perhaps the best brief historical review of what the health officer's work is all about. The booklet is hard to put down until the reader finishes it. It is difficult to keep from referring to it, and its footnotes abound in references to other like publications of top rank.

Among them, *facile princeps*, is *English Sanitary Institutions* by Sir John Simon, London's first Medical Officer of Health, who was appointed just a century ago. This Simon volume (London, 1890 and 1897) is hard to come by, unless you learn the ways of the British booksellers and their catalogues. William H. Welch in his Sedgwick Memorial Lecture in 1924, *Public Health in Theory and Practice*, a historical review, says "Something of the story of the various influences, movements, and events which culminated in this great sanitary awakening is told by Winslow in his Yale address, but every student of public health should read again and again the complete story as told so fascinatingly and authoritatively by Sir John Simon in his *English Sanitary Institutions*." (Simon pronounced his name "sea móan," because of his French ancestry.)

In the Winslow lecture appears a pro-

cession of our great public health pioneers, Edwin Chadwick, William Budd, Lady Montagu and Jenner, John Howard, Lemuel Shattuck, Stephen Smith, the founder of the American Public Health Association; Pasteur, W. T. Sedgwick; Biggs, Park and Welch, C. V. Chapin, Trudeau, Lillian Wald, Clifford Beers and Sir Arthur Newsholme. Beware of this thin tome (if you can find a copy) unless you are ready to be further intrigued into the study of the history of public health! The greater part of this dramatic segment of human history can be found in the same author's later volume, *The Conquest of Epidemic Disease—A Chapter in the History of Ideas*, Princeton University Press, 1943. It closes with a bibliography of "References" that you will by-pass at your own peril.

Another Winslow book, *The Life of Hermann M. Biggs*, Lea and Febiger, Philadelphia, 1929, is the biography of America's prime health administrator-statesman. With Welch and others, Biggs brought bacteriology to the U. S. A. and his life tells the story of the modernization of public health on the basis of this new science.

8. *Mustard, Harry S. An Introduction to Public Health* (2nd ed.), Macmillan, N. Y., 1944. A valuable text for health officer, physician, public health nurse or layman, written by a master health officer now serving America's largest city in that capacity. The state or county health officer will wish to study another of Dr. Mustard's many publications; *Rural Health Practice*, The Commonwealth Fund, N. Y., 1941. This comes from first-hand experience for the author was formerly a county health officer.

9. *Hiscock, Ira V. Community Health Organization* (3rd ed.), The Commonwealth Fund, N. Y., 1939. A valuable time-tested summary of what is needed in any community in the way of public health service. Helpful for the health

department that wishes to check its current status; or for the board member, official or nonofficial, in the public health field. Will there be a fourth edition?

Among Dr. Hiscock's long list of helpful writings no health officer will wish to miss the volume he edited entitled *Ways to Community Health Education*, The Commonwealth Fund, N. Y., 1939. It is one of the best books of its kind, built out of the actual successful experience of some dozen or more health departments and agencies in teaching the public how to keep well. Fully illustrated and practical. Watch out for a re-issue or new edition, or both. Another good book on this subject may be mentioned here, *Health Education of the Public* by W. W. Bauer and T. G. Hull (2nd ed.), also well illustrated, Saunders, Philadelphia, 1942.

10. *Newsholme, Sir Arthur. Medicine and the State*. Williams & Wilkins, Baltimore, 1932. A truly remarkable volume. The author was long a local health officer in England and Chief Medical Officer of the (national) Local Government Board before the establishment of the British Ministry of Health in 1919. His career was crowned by broad international studies, practical thinking, teaching, and copious writing. The book is basic philosophy for present-day efforts in America to establish sound programs of medical care, social medicine or what you may prefer to call it. The insurance dollar comes down from above (protecting the well-to-do) to meet the tax dollar coming up from below (serving the relief client). When sound administration permits their junction the problem may be solved.

It seems that the American health officer, whether he likes it or not, is going to be drawn closer and closer to the administrative problems of medical care. There is growing up a vast literature on this general subject. A good recent volume by Franz Goldmann attempts to

give a composite picture of public medical care as a social movement. The title is *Public Medical Care—Principles and Problems*, Columbia University Press, N. Y., 1945. It closes with a valuable bibliography of "References."

As a health officer's interest broadens into these newer concepts of public health administration, he may wish to go back to the British Ministry of Health publication, sometimes called a modern "magna carta for public health," the *Interim Report on the Future Provision of Medical and Allied Services*, (Cmd. 693) May, 1920. He will find an American counterpart in the U. S. Public Health Service *Public Health Bulletin No. 292* entitled *Health Service Areas: Requirements for General Hospitals and Health Centers*, Washington, 1945. He will wish to know of the *Report of the New York Academy of Medicine Committee on Medicine and the Changing Order*, The Commonwealth Fund, N. Y., 1947, and of other published studies of this committee that has since 1943 been investigating the subject of adequate medical care for the nation. And he may enjoy a fairly recent and challenging book on the practice of health in contrast with the practice of medicine as offered in a Family Club-Health Center combination in London just before World War II, namely, *The Peckham Experiment* by I. H. Pearce and L. H. Crocker, George Allen and Unwin, Ltd., London, 1943.

11. Smillie, Wilson G. *Public Health Administration in the United States* (3rd ed.), Macmillan, N. Y., 1947. A new edition, published in December, 1947. The frontispiece gives a vivid and thought-provoking statistical picture of "Our Aging Population" under which one reads "These changes in our population will require a complete reorientation of health and welfare activities." Apparently the health officer must wake up and stay awake.

Geriatrics, the "new word," appears

in the chapter on adult hygiene, where heart disease, cancer, diabetes and like problems are discussed briefly. Some of these matters recur in the chapter devoted to the voluntary health agencies, and reference is made in that chapter to the volume published in 1945 by S. M. Gunn and P. S. Platt entitled *Voluntary Health Agencies—An Interpretive Study*. Smillie's chapters on health administration in the federal government and on the national health program give a clear picture of the recent reorganizations under the Federal Security Agency and include references to the Hill-Burton hospital construction act, and the mental health act.

12. Tobey, James A. *Public Health Law* (3rd ed.), The Commonwealth Fund, N. Y., 1947. An old standby and friend to the health officer, serving a double purpose in the interpretation of law to the health officer, and of public health to the lawyer and the judge. The Foreword is by Charles V. Chapin, and there are chief sections on the public law and on administration, the powers and duties of health departments, and liability. Page-by-page pertinent court-case references appear in the footnotes.

13. *Physicians' Handbook on Birth and Death Registration*. U. S. Bureau of the Census (9th ed), 1943. This is a modest little gem of a 94 page government pamphlet. It contains the International List of Causes of Death with index and is perhaps the simplest and most helpful introduction to vital statistics that can be found. The selected bibliography will be difficult to resist and much of the appendix material will delight the health officer when he first sees it. It may well become his habit to place a copy in the hands of every physician who practises within his jurisdiction. (State and local health officers kindly omit duplication.) Copies are supplied gratis by the Bureau of the Census. Keep an eye out for the Sixth

Decennial Revision now in preparation for apparently there will be added an International List of Diseases as well as the standard List of Causes of Death.

14. *Gardner, Mary Sewall. Public Health Nursing* (3rd ed.), Macmillan, N. Y., 1936. The book is well known and valuable for its endeavor to serve as a general outline of public health nursing. Beside it on the shelf might stand *The Public Health Nurse and Her Patient* by Ruth Gilbert, published by The Commonwealth Fund, N. Y., 1940, where the author brings into the picture the important matters of mental hygiene and behavior. Another helpful volume in this field is the *Manual of Public Health Nursing* (3rd. ed.), Macmillan, N. Y., 1939, prepared by the National Organization for Public Health Nursing.

15. *Spock, Benjamin. The Pocket Book of Baby and Child Care*. Pocket Books, Inc., N. Y., 1946. An inexpensive (35 cents) authoritative common-sense guide for parents, integrating the physical and emotional aspects of child care.

Printed works on mental hygiene are innumerable. Perhaps a good clear non-technical introduction would be *The Substance of Mental Health* by George Preston, M.D., Farrar and Rinehart, N. Y., 1943, in which a state commissioner of mental hygiene gives brief practical views on how one comes by good mental health and how it may be passed on to others.

16. *Chadwick, Henry D., and Pope, Alton S. The Modern Attack on Tuberculosis* (2nd ed.). The Commonwealth Fund, N. Y., 1946. This new edition of a well known handbook contains fresh material on recent developments in administrative practice and control procedures, and has a bibliography.

17. *Handbook on Nutrition*. A Symposium. American Medical Association. Chicago, 1943. Some will say that this may be the best single volume which is readily accessible and covers the many

different parts of the general subject of nutrition.

18. *Vonderlehr, R. A., and Heller, J. R., Jr. The Control of Venereal Disease*. Reynal and Hitchcock, N. Y., 1946. As up-to-date as a printed text can hope to remain in this changeable and complicated special sector in disease control. The authors are well known U. S. Public Health Service staff members, and the Foreword is by Thomas Parran.

An earlier U. S. Public Health Service bulletin which is valuable but in need of revision is *The Principles of Venereal Disease Control* by Nels A. Nelson, Supplement No. 17 to *Venereal Disease Information*, Washington, 1942. Beside the many other publications of the U. S. Public Health Service on venereal disease control, the health officer will wish to know that a like series emanates from the American Social Hygiene Association, 1790 Broadway, N. Y., and may wish to secure from the latter source the looseleaf *Digest of Laws and Regulations* governing the venereal diseases in the several states, and a similar digest of state and federal laws dealing with prostitution.

19. *Ehlers, Victor M., and Steel, Ernest W. Municipal and Rural Sanitation* (3rd ed.). McGraw-Hill, N. Y., 1943. Perhaps as good a single volume on general sanitation as may be found.

For public health laboratory work *Standard Methods for the Examination of Water and Sewage* (9th ed.), American Public Health Association, N. Y., 1946, is essential; and also *Standard Methods for the Examination of Dairy Products* (8th ed.), American Public Health Association, N. Y., 1941; a ninth edition is in preparation; and *Diagnostic Procedures and Reagents* (2nd ed.), American Public Health Association, N. Y., 1945.

In its special field, *Milk and Food Sanitation Practice* by H. S. Adams, The Commonwealth Fund, N. Y., 1947,

is a good text with illustrations, bibliographies and helpful appendix material. G. M. Dack also has a helpful book entitled *Food Poisoning*, University of Chicago Press, Chicago, 1943.

20. *Sappington, C. O. Essentials of Industrial Health*. Lippincott, Philadelphia, 1943. The literature on industrial hygiene is extensive and possibly if one volume is to be on the bookshelf, this broad-range text with illustrations may be a good selection.

21. *Wood, Edith Elmer. Introduction to Housing. Facts and Principles*. U. S. Housing Authority, Superintendent of Documents, Washington, D. C. (about 1940). Illustrated. This is an excellent and authoritative pamphlet on basic housing facts and principles which are of concern to every community determined to clear its slums and provide decent homes for families of low income.

Any health officer interested in housing will wish to have on his bookshelf *Housing for Health*, a series of papers presented under the auspices of the Committee on the Hygiene of Housing of the American Public Health Association, N. Y., 1941. In this 221 page pamphlet there is much basic public health and philosophy from an active minded Association committee. In the appendix appears the committee's "*Basic Principles of Healthful Housing*" in which are listed thirty specific characteristics of housing whose direct influence upon health has not been successfully challenged. The "Basic Principles" have also been reprinted separately by the Association (2nd ed.), 1946.

22. *Steiglitz, Edward J. The Second Forty Years*. Lippincott, Philadelphia, 1946. A medical master approaches the problems of geriatrics and the biology and health of growing old. A nontechnical discussion of a public problem no health officer can ignore.

23. *Sydenstricker, Edgar. Health and Environment*. McGraw-Hill, N. Y.,

1933. A challenging document on health in relation to geography, and economic, social and occupational environment.

24. *Zinsser, Hans. Rats, Lice and History*. Little, Brown, Boston, 1935-1941. With crackling humor the author writes a biography of typhus. A wise and witty record of a battle over a span of 1,500 years and down to the time of DDT. Most health officers know that they may not safely or officially ignore the rat or the louse or the flea. This book will make their tasks more pleasant.

Zinsser's dying autobiography *As I Remember Him* is written as if in the third person, and was first published in June, 1940, by Little, Brown, Boston. A remarkable book which describes the life and philosophy of a physician and bacteriologist whose researches took him to the far corners of the earth.

25. *Freeman, Allen W. Five Million Patients*. Scribner, N. Y., 1946. A varied and human record of forty years in public health by a true friend to our profession who never once departs from "the third person" in this autobiography of the health officer-professor.

HISTORICAL WORKS, REFERENCE VOLUMES, PERIODICALS AND OTHER PUBLICATIONS

Before leaving the more particular for the more general volumes that might adorn a health officer's bookshelf, it is well to call attention to the book reviews that appear in each issue of the *American Journal of Public Health* and to the invaluable 29 page pocket-size *Bibliography on Public Health and Allied Subjects* that may be had for the asking and is published annually (25th ed., September, 1947) by the American Public Health Association, 1790 Broadway, N. Y. 19. It is indexed by subjects and ends with a special list of *Basic Books for Public Health Workers*. History. Reference has been made to

the history of public health but the following titles may here be added: Garrison, F. H. *An Introduction to the History of Medicine* (4th ed.), Saunders, Philadelphia, 1929; Vallery-Radot, R. *The Life of Pasteur*, translated by Mrs. Devonshire, Constable and Co., London, 1902 and 1921; Ravenel, M. P. (Editor), *A Half Century of Public Health*, American Public Health Association, N. Y., 1921; Smith, Stephen, *The City That Was*. Frank Allaben, N. Y., 1911; Wong, K. C. and Wu, Lien-Teh. *History of Chinese Medicine*, Tientsin Press, Tientsin, China, 1932 (Do you know the story of Chang Chung-ching, the Hippocrates of China and its greatest physician, who served as mayor of Changsha at about 196 A.D., and who is remembered chiefly because of his ten volume Essay on Typhoid?); the *Bibliography and Reference Notes*, in the December, 1943, issue of *Baltimore Health News*, which follow the article "Baltimore's Health Service 150 Years Old"; Duran-Reynals, M. L. *The Fever Bark Tree*. Doubleday, N. Y., 1946, in which the historic pageant of quinine is set forth in vivid color against a world-wide backdrop of malaria from the time it killed Alexander the Great down to Bataan and Corregidor and the chemical synthesis of quinine by R. B. Woodward and W. E. Doering at Harvard; and perhaps one of the most readable collections of brief biographies of *Pioneers of Public Health* (under that title), by M. E. M. Walker, Oliver and Boyd, London, 1930. Here we find staccato phrases such as: Edward Jenner, "vaccine clerk to the world"; Edwin Chadwick "among the best abused men of his time," of whose famous report of 1842 on the *Sanitary Condition of the Labouring Population of Great Britain* "ten thousand copies . . . were sold and distributed to the public"; William Farr, failing to become Registrar General of England; and Sir John Simon in a subordinate

position under the poor-law staff!—re-signing in full vigor from brilliant scientific and administrative service, but preserved to write the classic *English Sanitary Institutions*. In the Simon essay Mrs. Walker quotes from Lord Palmerston's famous reply of October 19, 1853, to the Edinburgh Presbytery's appeal for a great religious fast to stay the cholera. In it Lord Palmerston indicates his feeling that a fast is not suitable, but rather the purification of the poorer portions of the towns, to free them from the sources of pestilence which otherwise would remain "in spite of all the prayers and fastings of a united but inactive nation."

Reference volumes. Certain reference texts are needed in any health department, and the bookshelf may well include: a large *Webster's Dictionary*, Merriam, *Dorland's American Illustrated Medical Dictionary* (20th ed.), Saunders, 1944; the *American Medical Directory* (17th ed.), American Medical Association, 1942 (a new edition is soon to appear); *The World Almanac*, N. Y., 1948, or perhaps even better the new *Information Please Almanac—1948*, (2nd year), address 444 Madison Avenue, N. Y. 22; *Administrative Medicine*, edited by Haven Emerson, Thomas Nelson, N. Y., 1941; *A Manual of Style*, University of Chicago Press, Chicago, 1938 or later (an invaluable guide for the preparation of written or printed material, planning, composition, usages, type specimens), and beside the *Manual of Style* for written or printed material may rest a companion volume, *The Public Speakers' Treasure Chest*, by Herbert V. Prochnow (5th ed.), Harper, N. Y., 1942 (a text prepared for the man or woman "who must occasionally make an address, introduce a speaker, or preside at a meeting," which contains sound guidance on the preparation and delivery of a speech, and is chiefly a rich storehouse of selected quotations, biblical and other-

wise, phrases, similes, definitions, facts, humorous stories and jests that may often be of great aid and comfort not only to the speaker but to his audience); *Reports on Population*, Vol. 2 (for any given state), *Characteristics of the Population*. U. S. Bureau of the Census, 1940 (and other Census Bureau publications, national, state, and local population series, and housing series); and the 11th edition of the *Encyclopaedia Britannica* (29 volumes, India paper), Cambridge University Press, N. Y., 1910-1911. This is perhaps the last of the genuine "British" editions and can be purchased second-hand for about \$30, which is a treasure-bargain for the non-owner.

Standard medical texts are best selected according to taste. Two may be mentioned: *Osler's Principles and Practice of Medicine* by Henry A. Christian (16th ed.), Appleton-Century, N. Y., 1947; and *Holt's Diseases of Infancy and Childhood* (11th ed.), Appleton-Century, N. Y., 1939. And speaking of Osler, do not overlook his *Aequanimitas* (1904), *The Alabama Student* (1908), *The Evolution of Modern Medicine*, Yale University Press, 1921; not to mention the two-volume biography of Osler by Harvey Cushing.

Legal reference works that are essential are: The latest editions of the state public health law and any state sanitary code or state board of health regulations, any pertinent city or other local charter and its public health section; any city or other local code of health ordinances, including those on nuisance control, milk control, or housing, and related regulations. Good references to national legislation on public health both in the United States and Canada appear in the 3rd edition of Tobey's *Public Health Law*, and for the United States in Smillie (No. 11 above).

PERIODICALS AND OTHER PUBLICATIONS

No health department can do without

current periodical literature. Among the journals one may consider first the one in which this article appears, then the *Journal of the American Medical Association*, and particularly its annual hospital issue (as, April 12, 1947), then the *Canadian Public Health Journal* with its series of practical and stimulating articles, the *Bulletin* of the Pan American Sanitary Bureau, *Public Health Nursing*, *Hygeia*, and perhaps the *Journal of Industrial Hygiene and Toxicology*. But the question will still remain: Do we read and study the articles, editorials, and book reviews as we should?

Among other publications of great value a fair number will come to the health department for the asking. Most health officers know the gentle art of getting on a mailing list and sending for a reprint. There are the periodicals of federal, state, and local health agencies, official and nonofficial. First the weekly *Public Health Reports*, and occasional *Supplements* (such as the *Directory of State and Territorial Health Authorities*, 1947 which came in as this article was being written, and a like listing of local health officers, both revised periodically) of the U. S. Public Health Service, and its *Venercal Disease Information*, its *Industrial Hygiene Newsletter*, and its series of special *Bulletins*; then *The Child*, published monthly by the U. S. Children's Bureau, and many special bulletins from this source; the weekly *Health News* of the New York State Department of Health, Albany, N. Y. (truly a continuous post-graduate correspondence course in itself), the monthly *Bulletin* of the National Tuberculosis Association, and *Cancer News* published each month by the American Cancer Society, Inc. To these may be added the very worth while monthly *Think* which is generously distributed by International Business Machines Corporation, Think Magazine, 590 Madison Avenue, N. Y. 22. "And," as the Irishman would say:

"others too numerous to mention."

In reply to a plea for assistance in preparing this booklist, a former president of the American Public Health Association has written "And in closing may I suggest one volume which perhaps does not appear on a lot of health office shelves but its use in providing

succinct ideas, phrases and expressions for publicity and public health education purposes" is of greatest excellence, "so I hope that when I have the opportunity to visit your office . . . I shall find it on your shelf, namely the Holy Bible, both Old and New Testaments." To which, Amen.

Examinations for Permanent Corps, U. S. Public Health Service

Examination for appointment to the Regular Corps of the U. S. Public Health Service for the grades of Assistant Sanitary Engineer and Senior Assistant Sanitary Engineer will be held in June, 1948. About 15 appointments are to be made. Application forms and additional information can be obtained from the Surgeon General, U. S. Public Health Service, Washington 25, D. C. Applications must be filed with the Surgeon General prior to June 1, 1948.

Applicants for the Assistant grade must be at least 21 years old and United States citizens, must possess a degree in engineering, and must have had at least 7 years of education (ex-

clusive of high school) and professional training or experience, at least 2 years of which shall have been of a professional nature in public health or a related field.

An applicant for the Senior Assistant grade must meet the requirements for the Assistant grade and have in addition 4 more years of education and professional training or experience. A total of at least 6 years shall have been of professional training or experience in public health.

The starting yearly salary, with dependents, for the Assistant grade is \$3,811 and for the Senior Assistant \$4,351.

Current Status of Immunization Procedures

Vaccination Against Smallpox *

R. S. MUCKENFUSS, M.D., F.A.P.H.A.

Bureau of Laboratories, New York City Health Department, New York, N. Y.

PROTECTION against smallpox by cutaneous inoculation with the virus of cowpox, is the oldest and probably the most effective method of specific disease prevention. The essential facts concerning vaccination are so well known that a reference to recent reviews by Robinson;¹ by Ross,² and by Eley³ suffices with regard to the essentials of the preparation and characteristics of smallpox vaccine and the complications affecting its use.

In April, virulent smallpox appeared in New York City under circumstances that made it impossible to tell how widely it was seeded or to be sure that all contacts had been located. This outbreak has been described elsewhere at this meeting by Commissioner Israel Weinstein.⁴ The decision was made to vaccinate as many residents of the city as possible, and it was estimated that more than 6 million vaccinations were performed.

Mass vaccination on such a scale was a unique experience, and presented a few problems that are not usually encountered. This paper is based on that experience.

Type of Reaction—A fairly representative sample of results is available as a result of the foresight of Dr. Margaret W. Barnard, who instructed the

district health officers to follow up the results of vaccination in health centers. Records of over 60,000 vaccinations were made. These are not yet analyzed, but this is being done and will be reported in detail by Dr. Morris Greenberg before the New York Academy of Medicine. It may be stated with certainty, however, that well over half of those vaccinated showed either primary or accelerated reactions. This is taken as evidence that the susceptible population was sufficient to make a major epidemic possible.

Although some reactions were fairly severe, resulting in loss of time from work, there were no complaints to the Health Department. Perhaps the fact that a sore arm indicated the need for vaccination accounted for the lack of complaints.

The supply of vaccine constituted a major problem. If scheduling over a period of a number of days were possible, this would have been comparatively easy of solution. However, rapid dissemination of news and advice by newspaper and radio resulted in a sudden crowding of clinics and physicians' offices. On the day when the situation was most acute, I had on my desk orders for over 3 million vaccinations. Smallpox vaccine is a perishable product and it is obvious that it is impossible to maintain a reserve of this size without accepting prohibitive losses.

The problem was met by increasing manufacture as rapidly as possible as

* Presented at a Joint Session of the Epidemiology, Health Officers, Laboratory, Maternal and Child Health, and School Health Sections of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 9, 1947.

soon as the diagnosis of the first cases was made. Vaccine was distributed in 1 ml. vials, sufficient for 50 or more vaccinations, accompanying each vial with 50 sterilized toothpicks for use as applicators and 50 sterilized needles. As soon as the decision for general vaccination was made, arrangements were made by Mayor O'Dwyer to borrow all available surplus from the Army and Navy, and these supplies were replaced after vaccination in New York City was completed.

Vaccine was purchased in 1 ml. vials, and applicators and needles were packaged and sterilized in the laboratory. It was necessary for the entire laboratory staff to devote all available time to the packaging of needles and applicators. For a time supplies were so short that it was necessary to ask clinics to sterilize and reuse needles.

Standard packages in capillary tubes, suitable for office use, were not available in sufficient quantity to meet the needs of physicians. However, all such packages were made available to physicians and were not sent to clinics.

It is possible that the problem of supply might become critical if smallpox were introduced simultaneously into several thickly populated areas of the country.

Generalized vaccinia did occur, and 36 cases were reported to the Department of Health. Twenty-two of these cases occurred in children who had not themselves been vaccinated but who acquired vaccinia by contact from other members of the family. Two of these children died. Although vaccinia by

contact in eczematous children has been well described^{5, 6} it is not often mentioned in textbooks. It should be emphasized that the presence of a case of eczema is a contraindication to vaccination of any member of the household.

Post-vaccinal encephalitis was reported, and all reports were investigated. Forty-two cases met reasonable criteria for this diagnosis, an incidence of approximately 1 per 150,000. Of 8 deaths reported, 4 were demonstrated at autopsy to be meningitis, tumor, or thrombosis. The other 4 have been examined by pathologists in the city, and the pathological changes characteristic of post-vaccinal encephalitis have not been found. Thus, the diagnosis cannot be considered proved in these cases.

SUMMARY

In vaccinating over 6 million people, the problem of supply was met by emergency packaging. The rate of occurrence of unavoidable complications was so low as to constitute a negligible danger as compared to the danger of a major smallpox epidemic.

REFERENCES

1. Robinson, E. S. Method of Preparation and Use of Smallpox Vaccine Virus. *Virus and Rickettsial Diseases*. Boston: Harvard Univ. Press, 1940, p. 201.
2. Ross, R. A. Generalized Vaccinia. *ibid.* p. 217.
3. Eley, R. C. Neurologic Complications of Vaccination. *ibid.* p. 226.
4. Weinstein, Israel. An Outbreak of Smallpox in New York City. *A.J.P.H.*, 37, 11:1376-1384 (Nov.), 1947.
5. Graves, Gaylord W., and Dowman, Cordella. Accidental Smallpox Vaccination and Eczema Vaccinatum. *New York State J. Med.*, 37:1833-1837, (Nov. 1), 1937.
6. Ellis, Francis A. Eczema Vaccinatum; Its Relation to Generalized Vaccinia. Report of Two Cases. *J.A.M.A.*, 104:1891 (May 25), 1935.

Current Status of Immunization Procedures

Pertussis *

JOSEPH A. BELL, M.D.

Senior Surgeon, Division of Infectious Diseases, National Institute of Health, Bethesda, Md.

THE current status of pertussis immunization may be taken arbitrarily to cover the developments of the past 10 years. Ten years ago there were many who were skeptical of the protective value of pertussis vaccine, but since then many studies have been reported, all of which have contributed in a large or small way to our knowledge of pertussis immunization. All these studies cannot here be reviewed, hence the discussion will be limited to the general public health use of pertussis vaccine and in so far as possible it will exclude those phases of the subject which are of basic concern to the private practising physician.

It is generally recognized that both the health officer and the private practising physicians are jointly responsible for the health of the individual and the health of the community. Their obligations differ in that the private physician is basically responsible for the health of his individual patient whereas the health officer is basically responsible for the health of the community.

This difference in basic obligations leads to a diverse use of pertussis vaccine. The private physician seeks to induce and maintain the highest practicable protection against pertussis for his

patient. The kind of vaccine he will use, the size of dose, the number of doses, the intervals between doses, and the age at which he will give the vaccine may vary considerably depending upon the specific situation and the individual need of his patient. He will encounter many individual situations in which he will be obligated to use vaccine in a manner for which scientific proof of value is not available. The public health officer, on the other hand, has a different aim. He seeks to induce and maintain a level of immunity in the general population which, within practical limits, will prevent or ameliorate a substantial proportion of the suffering, inconvenience, disability, and loss of life which occur in the community as the result of pertussis. His public obligation requires that in routine practice he should use only vaccine products which have been adequately demonstrated to confer protection, and that he should use these products in a manner which has been adequately shown to have value in fulfilling his basic obligation to the community.

There have been many studies on pertussis vaccine but they differ from each other in many respects. They utilize different methods of preparation of the vaccine, different dosages, different intervals between doses, and different study procedures. The study procedures differ as to environmental groups studied, as to adequacy of observation, in

* Presented at a Joint Session of the Epidemiology, Health Officers, Laboratory, Maternal and Child Health, and School Health Sections of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 9, 1947.

method of selection and treatment of controls, and in criteria for evaluating protection against pertussis. Thus, it is impossible to make direct comparisons between the various studies, and one cannot arrive at a satisfactory conclusion as to which is the best product and what is the best method of administration.

Considering each study separately, however, one can safely conclude that certain vaccine products have given substantial protection against clinical pertussis and that other products have no demonstrated value. Unfortunately there is as yet no known quick and effective way of determining for certain that a particular vaccine preparation will be effective. A relatively new mouse protection tests has been developed which looks promising for this purpose. The ultimate value of this new test must await epidemiological trial to determine whether mouse protection parallels human protection. It is recognized that cholera and typhoid vaccines are accepted for public health use on the basis of a mouse protection test, but here the nature of the test is somewhat different and further developed than for pertussis, and the use of these vaccines is not as widespread as that indicated for pertussis vaccine.

The vaccines which have been shown to have value in field trials in the general population may be classified as fluid vaccines, alum-precipitated vaccines, and mixed vaccines. Of the fluid vaccines, there is good evidence that the fluid vaccine prepared as described by Dr. Kendrick has given substantial protection against clinical pertussis. Three or four doses of this product, representing a total of 70 to 80 billion organisms, and given at weekly intervals between doses, to young children 6-35 months of age, have demonstrated value. The difference in the method of preparation of this vaccine and that described by Dr. Sauer is probably of no great

importance to their effectiveness for general use.

Of the alum-precipitated vaccines, there is good evidence that the A-P pertussis vaccine prepared as described by Dr. Harrison and his associates will give substantial protection against clinical pertussis. Three doses of this product representing a total of 30 billion organisms given with a 1 and 3 week interval between doses to children 6-35 months of age have demonstrated value. Also, two doses of this product representing a total of only 20 billion organisms and given with a 4 week interval between doses to children 2-35 months of age, have given demonstrated protection. The A-P vaccine has been shown to be effective in young children when given at 2-5 months of age.

Of the alum-precipitated mixtures of diphtheria toxoid and pertussis vaccine, an A-P mixture of pertussis vaccine and diphtheria toxoid prepared as described by either Dr. Kendrick or by Dr. Bell has similarly been shown to confer substantial protection against clinical pertussis. Three doses of this product, representing a total of 30 billion organisms and given with a 1 and 4 week interval between doses, gave protection against pertussis. The three doses of the A-P mixed product gave good protection against diphtheria as measured by blood-antitoxin titrations. Furthermore, two doses of the A-P mixed product, containing a total of 20 billion organisms and given with a 4 week interval between doses, gave substantial protection against clinical pertussis when administered at either 2-5 months of age or at 6-23 months of age. The two doses of the mixed product incidentally gave better protection against diphtheria than an equivalent amount of comparably given A-P diphtheria toxoid as measured by the Schick test.

Reactions reported due to the above mentioned products have not been of sufficient significance to contraindicate

their use. It is important to recall, however, that these products have not yet been used on the scale that diphtheria toxoid and smallpox vaccine are now employed. Long experience with other and similar vaccines has shown that their benefit far outweighs their dangers. This seems likely with pertussis vaccine.

It is believed that health officers have sufficient evidence to permit the use of any of the above mentioned products. It is highly desirable that pertussis immunization should begin early in life, as the peak of deaths reported from this disease is at 2 months of age. Certain dangers attend the general use of any injection of any kind at this very young age. The death rate from all causes during the first few months of life is comparatively high;

thus widespread use of any vaccine during the first few months of life requires caution lest some of the deaths due to usual causes may be wrongly attributed to the vaccine.

In summary, there remains no reasonable doubt but that certain pertussis vaccine preparations have been adequately shown to confer substantial protection against clinical pertussis when given to the general population in a manner suitable for public health use. It is believed there is sufficient evidence at hand to warrant public health officers' consideration of pertussis vaccine for general routine use. Such routine general use of pertussis vaccine should be limited to the products which have been shown to be effective in fulfilling the health officer's obligation to the community.

Grants for Research in Human Reproduction

The Committee on Human Reproduction of the National Research Council, acting for the National Committee on Maternal Health, Inc., announces research grants in the field of reproduction. Applications to become effective July 1, 1948, will be received until May 1, 1948; those to become effective October 1, 1948, will be received until August 1, 1948.

The committee will consider support of biological, clinical, economic, medical, psychological, and sociological research dealing broadly with the field of human reproduction in general and with respect to specific problems including maternal

and fetal physiology, the factors controlling conception, the physiology of fertilization and conception, and sterility. For the year 1948-1949, the committee will place specific emphasis upon investigations of the factors controlling conception, fertility, and sterility, but other fields of endeavor will be supported if projects of special significance are presented. In subsequent years, changing emphasis may be anticipated.

Applications should be addressed to Committee on Human Reproduction, National Research Council, 2101 Constitution Avenue, Washington 25, D. C.

Current Status of Immunization Procedures

Typhoid Fever *

RUFUS L. HOLT, COLONEL, M.C.

*Commandant of the Army Medical Department, Research and Graduate School,
Army Medical Center, Washington, D. C.*

SINCE 1940 the Army ¹ has routinely used the polyvalent TAB vaccine as we are fully aware of the fact that monovalent typhoid vaccine will not protect against massive doses of *Salmonella paratyphi* and *S. schottmuelleri* and that under field conditions we could expect to suffer from outbreaks produced by these organisms.

The military services have known for some time that doses of vaccines prepared from our strains of *Eberthella typhosa* and *S. schottmuelleri* would produce antibodies against each other and that this characteristic lessened the likelihood of *S. schottmuelleri* infections under field conditions. The *S. paratyphi* fraction in our vaccine does not produce protective antibodies specific for either of the other organisms used in the vaccine, nor do the *E. typhosa* and *S. schottmuelleri* vaccines produce specific antibodies for *S. paratyphi* sufficient to protect. Experimental evidence has shown this to be true even though all three strains share the XII antigen of the Kauffmann and White schema. The homologous immunity produced by *S. paratyphi* is good but we have had more outbreaks of para A fevers than is the case with para B.²

After considerable investigation it was decided to adopt strain 58 as our typhoid antigen. It was and is secured from a carrier in Panama. It is culturally and biochemically typical, produces smooth colonies, is highly virulent, and is antigenically complete with a high content of Vi antigen. Most if not all commercial producers now use this strain. Hundreds of freshly isolated strains have been checked against strain 58 and there is no evidence that any of them are superior for vaccine production. Strain 58 protects as well against all strains we have received as does any other strain with which we are familiar.¹ Presently used strains of *S. paratyphi* and *S. schottmuelleri* were selected following similar trials and are constantly under check in the same manner. We are not satisfied with the presently used strain of *S. paratyphi* but have not been able to find a better one.

It is not likely that we will secure better strains of *E. typhosa* or para B nor that immunogenic powers can be enhanced much as a result of further purification of the vaccine. It is much more likely that we shall attack the problem by fractionation of the organisms. It is well established that an essential immunizing fraction is a polysaccharide which can be secured by acid or enzymic hydrolysis of the acetone-insoluble portion of the organisms.³ So far, attempts to isolate antigenically

* Presented at a Joint Session of the Epidemiology, Health Officers, Laboratory, Maternal and Child Health, and School Health Sections of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 9, 1947.

active fractions which are entirely free of nitrogen have been unsuccessful.

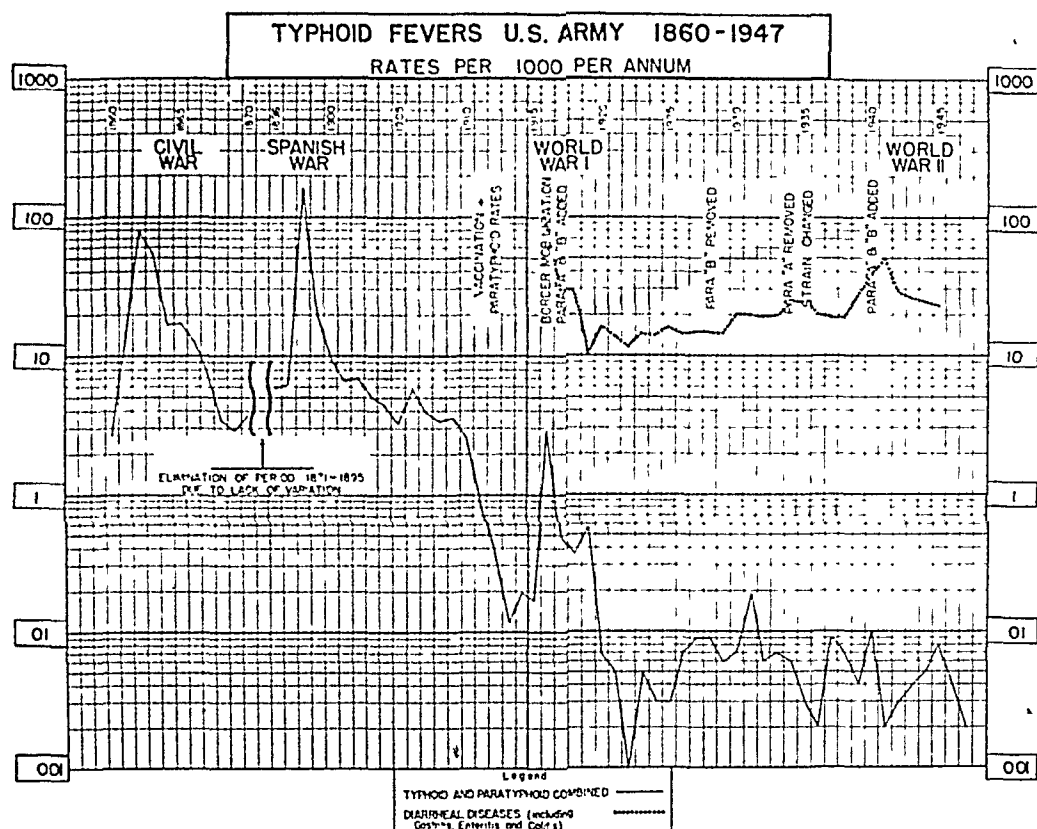
Reactions following use of the present type of vaccine can be lessened somewhat by modification of the dosage pattern and without detectable lowering of the immunity produced. Exhaustive research definitely indicates that three doses of 0.5 ml. subcutaneously, with intervals of 7 days between doses, actually produce higher titers of protective antibodies than is the case with the standard dosage. There were fewer and less severe reactions from this modified dosage and we are of the opinion that this means of initial immunization should be adopted.⁴ Intracutaneous administration of small amounts of vaccine as an initial immunizing procedure is not advisable except in the old and debilitated, but such a method as a booster dose is acceptable and produces an increase of immune bodies equal to, or in excess of, that produced following the subcutaneous injection of 0.5 ml. For initial sensitization and antibody production one must use at least a series of doses of 0.5, 0.5, and 0.5 ml. of the vaccine.⁵ The agglutinin rise is comparable to the rise in mouse-protective titers but the level of the titer of agglutinins ordinarily drops more rapidly and may disappear while considerable amounts of protective antibodies are still present. The amount of protection afforded by proper inoculation of typhoid vaccine varies widely with the individual as well as with the antigenic quality of the vaccine administered. It is probably safe to say that protective immunity against ordinary hazards of infection can be expected to result, and that such immunity will continue for about one year, after which booster doses should be administered.⁶ In rare cases no detectable immunity ensues and none can be developed.

While we secure antibodies as a result of the injection of antigenic fractions of bacteria other than Vi we

depend upon Vi antibody to prevent the contraction of disease due to *E. typhosa*. We are now working on the possibility of fortifying our vaccine by the addition of Vi antigen from an *Escherichia coli* strain the antigenic pattern of which varies markedly from that of *Eberthella typhosa*.⁷ This organism has no antigen in common with *E. typhosa* with the exception of the Vi fraction. We have been able to secure as good immunity to typhoid organisms in small animals by the use of this heterologous Vi antigen as was obtained by the use of Vi antigen obtained from *E. typhosa*. Toxicity experiments in man indicate that it will be safe to use it for immunity production and thus perhaps eliminate most if not all of our reactions. Much work remains to be done before it can be recommended as a replacement for the typhoid fraction of the vaccine. We know little of the production of antibodies in man, but it would appear that Vi antigen acts as a protective substance for the invading typhoid organism and that in the absence of Vi antibody the other immunity mechanisms cannot function. O antigens produce antibodies whose chief if not sole function is to neutralize endotoxins released at the time the organisms disintegrate. If, as we believe, this is the case, then Vi antigen alone may be an acceptable substitute for the present typhoid vaccine. From this belief stem our present efforts to produce a vaccine with a high immunizing power and a low reaction rate.

We do not believe that oral administration can compare with the subcutaneous method, and do not advise its use under any conditions.

As a result of vaccination with TAB vaccine we not only lower the case rate but we also lower the mortality rate. This latter feature was again emphasized last year by Syverton and others⁸ in the report of an outbreak originating in Okinawa. There were no deaths in 24



cases, 3 typhoid and 21 para A cases. Although the symptomatology and physical findings are essentially the same as in cases occurring in the unvaccinated, the mortality appears to be markedly reduced. The duration of the disease does not appear to be affected.

The role of carriers in the production of typhoid is most important, especially since they are the source of most if not all of our explosive outbreaks. It is our firm conviction that carrier rates have been reduced in proportion to the reduction in case rates and that they now constitute an extremely small percentage of our military population.

That protection does result from typhoid vaccination can hardly be denied in face of the experience gained in the two world wars.^{9, 10}

The statements made on Army experience cover a period of about forty

years and are based on a total of at least 30 million inoculated individuals.

The chart * presented covers the level of typhoid infection in the Army during the Civil War, the Spanish-American War, World War I, and World War II. It will be noted that in the latter case the figures are shown as they apply to the Army at home and abroad. These figures are released to the public for the first time on this occasion. The strength of the Army is still restricted information, but it can be said that we had only a few hundred cases of typhoid among several million troops during a period of five years.

* Chart was prepared by Brig. Gen. George R. Callender, MC, to include figures for 1941. Figures for 1942-1947 were added by the author.

REFERENCES

1. Callender, George R., and Luippold, George F. The Effectiveness of Typhoid Vaccine Prepared by

the U. S. Army. *J.A.M.A.* 123:319-321 (Oct. 9), 1943.

2. Longfellow, Don, and Luippold, George F. Supplement to Immunization to Typhoid Fever (No. 17 Monographic Series *Am. J. Hyg.*, by J. F. Siler, et al.). Baltimore: Johns Hopkins Press, 1941.

3. Wakeman, F. B. A Specific Somatic Polysaccharide as the Essential Immunizing Antigen of the Typhoid Bacillus. *Mil. Surgeon*, 84:318-452 (Apr.), 1939.

4. Luippold, George F., Longfellow, Don, and Toporek, Milton. The Effect and Effectiveness of Three 0.5 ml. Doses of TAB Vaccine. *Am. J. Hyg.* 45:355-362 (May), 1947.

5. Luippold, George F. Intracutaneous versus Subcutaneous Vaccination for Initial Immuniza-

tion. *A.J.P.H.*, 34:1151-1162 (Nov.), 1944.

6. Longfellow, Don, and Luippold, George F. Revaccination and Duration of Immunity. *A.J.P.H.*, 30:1311-1317 (Nov.), 1940.

7. Luippold, George F. The Suitability of Vi Antigen as an Auxiliary Immunogen for Typhoid Vaccine. *A.J.P.H.*, 36:15-25 (Jan.), 1946.

8. Syverton, J. T., Ching, Richard E., Cheever, F. S., and Smith, Ancil B. Typhoid and Paratyphoid A in Immunized Military Personnel. *J.A.M.A.*, 131: 507-514 (June 8), 1946.

9. Siler, et al. *Immunization to Typhoid Fever*. Baltimore: The Johns Hopkins Press, 1941, pp. 12-24.

10. Unpublished reports covering experience with typhoid fever in World War II, Office of the Surgeon General, U. S. Army, Washington, D. C., 1947.

Best Sellers in the Book Service for March

An Appraisal Method for Measuring the Quality of Housing: A Yardstick for Health Officers, Housing Officials and Planners.

Part I. Nature and Uses of the Method, 1945.....	\$1.00
Part II. Appraisal of Dwelling Conditions, 1947. 3 vols.....	5.00
The Control of Communicable Diseases. 6th ed. 1945.....	.35
Diagnostic Procedures and Reagents. 2nd ed. 1945.....	4.00
Fundamentals of Immunology. Boyd. 2nd ed. 1947.....	6.00
Manual of Determinative Bacteriology. Bergey, et al. 6th ed. 1948.....	15.00
Milk and Food Sanitation Practice. Adams. 1947.....	3.25
Public Health Law. Tobey. 3rd ed. 1947.....	4.50
Standard Methods for the Examination of Water and Sewage. 9th ed. 1946.....	4.00
Standard Methods of the Division of Laboratories and Research of the New York State Department of Health. Wadsworth. 3rd ed. 1947.....	10.00
Topley and Wilson's Principles of Bacteriology and Immunity. Wilson and Miles. 3rd ed. rev. 1946. 2 vols.....	12.00

Order from the Book Service
AMERICAN PUBLIC HEALTH ASSOCIATION

Current Status of Immunization Procedures

Tetanus, and Exotic Diseases of Military Importance *

ARTHUR P. LONG, LT. COL. M.C., U.S.A., F.A.P.H.A.

Infectious Disease Control Branch, Office of the Surgeon General, Washington, D. C.

ACTIVE immunization against tetanus, advocated for use in human beings about twenty years ago, has now been widely accepted.¹ The experience with tetanus immunization in the British and American Armies has been quite completely summarized elsewhere.^{2,3} In reporting British experience, Boyd² concluded that the incidence of tetanus in African and European campaigns was negligible. He attributed this result largely to active immunization with tetanus toxoid, although it was the British practice to administer a prophylactic dose of antitoxin (3,000 International Units) as soon as possible after an injury rather than a stimulating dose of toxoid as was done for American troops.

In the United States Army but 12 cases of tetanus are known to have occurred during the period 1942 through 1945. Only one of these developed among the approximately one-half million troops reported to have been wounded. Of the 12 cases, 6 were in individuals with no active immunization, 2 in soldiers who had been basically immunized but had received no post-injury toxoid, and 4 in those whose records indicated that they had received the basic immunization plus the emergency stimulating dose at the time

of injury. Five fatalities occurred, 2 of them among the 4 who had received the full course of toxoid. In the United States Navy, a total of 4 cases was verified, only 1 occurring in an individual receiving the prescribed toxoid prophylaxis.⁴ Taking into consideration the number of individuals involved, the incidence of tetanus was essentially the same in the Army and Navy groups.

In the Japanese Army and Navy, where routine immunization was not practised, it was reported that from 1940 through 1944 tetanus occurred in about 10 per 100,000 wounded men, an incidence greatly in excess of that experienced in the American Army. A report from the unimmunized German Ground Forces in Normandy indicated more than 80 cases of tetanus, though none occurred among the immunized Luftwaffe personnel. During the Manila operation, over 400 cases and more than 300 deaths from tetanus in civilians were reported. Viewing this total experience, there can be no question that active immunization with toxoid is an effective means for the prevention of tetanus even under the severe conditions imposed by wounds and injuries incident to military operations.

The risk of tetanus in civilian populations under normal conditions is even more difficult to assay than that in military groups. There is no question, however, but that a certain risk does exist. The mortality rate from tetanus following injuries (including tetanus neon-

* Presented at a Joint Session of the Epidemiology, Health Officers, Laboratory, Maternal and Child Health, and School Health Sections of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 9, 1947.

also be available for the ensuing season.

A proposed vaccination procedure involves the administration of three doses of 1 ml. each, the first two 1 week apart and the third approximately 30 days later.

REFERENCES

1. Ramon, G., Zoeller, C. *Ann. Inst. Pasteur*, 41: 803, 1927.
2. Boyd, J. S. K. Tetanus in the African and European Theaters of War, 1939-1945, *Lancet*, 1: 113-119, Jan. 26, 1946.
3. Long, Arthur P., and Sartwell, Philip E. Tetanus in the United States Army in World War II, *Bull. U. S. Army Medical Dept.*, 7 (Apr.), 1947.
4. Casteel, B. D., Lt Comdr., MC, Preventive Medicine Division, Bureau of Medicine and Surgery, U. S. Navy, personal communication.
5. Edsall, Geoffrey, Active Immunization, *New England J. Med.* 235: 256-265, 298-305, 328, 336 (Aug. 22, 29; Sept. 5), 1946.
6. Pillemer, Louis, Grossberg, D. B., and Wittler, Ruth. The Immunochemistry of Toxins and Toxoids. II. The Preparation and Immunologic Evaluation of Purified Tetanal Toxoid, *J. Immunol.* 54: 213-224 (Nov.), 1946.
7. McBryde, A., and Poston, M. A. Immunization with Tetanus Toxoid, *J. Pediat.*, 28: 692-696 (June), 1946.
8. Topping, N. H., and others, Studies of Typhus Fever, National Institute of Health *Bull.* 183: 13, Federal Security Agency, U. S. Public Health Service, 1945.
9. Sawyer, W. A., Meyer, K. R., Eaton, M. D., Bauer, J. H., Putnam, Persis, and Schwenker, F. F. Jaundice in Army Personnel in the Western Region of the United States and its Relation to Vaccination against Yellow Fever, *Am. J. Hyg.*, 39, 3 (May), 1944, *ibid.* 40, 1 (July), 1944.
10. Walker, Douglass W., Some Epidemiological Aspects of Infectious Hepatitis in the U. S. Army, *Am. J. Trop. Med.*, 25, 2 (Mar.), 1945.
11. Anderson, Charles R., and Gast-Galvis, Augusta. Immunity to Yellow Fever Five Years after Vaccination, *Am. J. Hyg.*, 45: 302-303 (May), 1947.
12. Yellow Fever Areas Delineated by Expert Commission on Quarantine, UNRRA *Epidemiological Information Bull.*, Vol. 1, No. 16.
13. Sabin, A. B., et al. Development of Noninfective Vaccines against St. Louis and Japanese B. Types of Epidemic Encephalitis. Report of Basic Data. *J.A.M.A.*, 122: 477 (June 19), 1943.
14. Smadel, J. E., Randall, Raymond, and Warren, Joel. Preparation of Japanese Encephalitis Vaccine, Chick Embryo Type Dried, for the U. S. Army, 1947, *Bull. U. S. Army Medical Dept.*, Nov., 1947.

Courses in Laboratory Diagnosis of Parasitic Diseases

The U. S. Public Health Service in February completed the first of three refresher courses to be given during 1948 on the laboratory diagnosis of parasitic diseases by the Laboratory Division of the Communicable Disease Center in Atlanta. Two later courses will be given from July 12 to August 20, and October 11 to November 19.

This training is open to all grades of employed laboratory personnel. Although priority must be given to the laboratories of state and local public health departments, applicants from hospitals and

private laboratories will be accepted if vacancies occur. There will be no tuition or laboratory fee, but travel and living expenses must be paid by the worker or his employer.

Applications should be made as early as possible since acceptance notifications are made approximately two months before the course begins. All inquiries should be addressed to R. F. Reider, Surgeon (R), Assistant Chief, Laboratory Division, Communicable Disease Center, 291 Peachtree Street, Atlanta, Ga.

It has been determined by blood-antitoxin-level determinations in soldiers* that this regime results in adequate protection after the initial series of toxoid injections and that for a period of at least 4 to 5 years after the single stimulating dose the circulating antitoxin level can be effectively raised within 1 week by the so-called emergency or booster dose. Findings in adults, who received fluid toxoid, are essentially the same as those of McBryde and Poston⁷ in children following immunization with the alum-precipitated agent. These workers demonstrated satisfactory responses to booster doses 4 and 5 years after completion of the basic series. Further experience will be required to determine just how long this period of responsiveness will ultimately prove to be.

EPIDEMIC TYPHUS FEVER

The vaccine currently used for protection from epidemic typhus fever is a suspension of formalin-killed epidemic typhus rickettsiae and soluble antigen obtained by cultivation of the organisms in the yolk sac of fertile hens' eggs.⁸ It is administered in 2 subcutaneous doses of 1 ml. each given with an interval of 7 to 10 days between doses. Additional stimulating doses of 1 ml. each are considered desirable every 4 to 6 months in the presence of the disease. At the present time, while there is no serious epidemic typhus situation in the world, this vaccination is considered desirable for those who are to travel or reside in east or southeast Europe, Asia, and Japan. Since epidemic typhus is known to occur in Mexico and certain sections of Central and South America, individuals traveling to these areas might also be well advised to be vaccinated against typhus if freedom from louse in-

festation cannot be assured. It is emphasized that epidemic typhus vaccines contain epidemic louse-borne typhus antigen only and hence cannot be expected to produce protection from the endemic or murine type of the disease. However, a vaccine for protection against this form of the disease is now available.

CHOLERA

It is now the general consensus that in areas where cholera is frequently encountered, vaccination with the best vaccine available should be practised in addition to the usual measures to prevent ingestion of the cholera vibrio. The vaccine obtainable in this country and currently used, when indicated, for military personnel, consists of a suspension of 8 billion phenol-killed cholera vibrios per ml. The organisms used are of the Inaba and Ogawa strains which are considered to be as fully virulent and antigenic as any obtainable at this time. Vaccination is accomplished by the subcutaneous administration of two doses of 0.5 and 1 ml. each with an interval of 7 to 10 days between injections. Subsequent stimulating doses of 1 ml. each are given at 4 to 6 months intervals in the presence of serious danger of infection. Experience in the American Army with this procedure added little to previous evaluations. The disease was present in epidemic or semi-epidemic proportions in a number of areas where troops were stationed, and only 13 cases occurred among them. These were in vaccinated personnel. No cases occurred among United States Forces in India although some were experienced in unvaccinated allied forces in the same area.

PLAGUE

The vaccine used is a suspension of 2 billion formalin-killed virulent plague bacilli per ml. The spacing and size of dosage, as well as the administration of

* The antitoxin titrations referred to were performed by Dr. M. V. Veldee and associates at the National Institute of Health, Bethesda, Md., and Dr. J. Howard Mueller, Department of Bacteriology and Immunology, Harvard Medical School.

torum) in the civil population of the United States was in the neighborhood of 0.7 per 100,000 for each of the three years 1936 through 1938. A breakdown of this incidence by age groups indicates that the period of childhood (up to age 15) holds the greatest hazard, and young adult life (age 25-34) the least. Tetanus neonatorum contributes heavily in the first year of life, the mortality rate for this period being 7.8 per 100,000. The next highest rate (1.2) was for the 5 to 14 year group. The special hazard to those subject to more than the usual risk of exposure to tetanus, such as farmers, horsemen and others whose activities increase the likelihood of injuries contaminated with tetanus spores is well recognized. For this group as well as for children, active immunization with tetanus toxoid would appear to be warranted, although the disease hardly represents a sufficient problem to require this procedure as a general public health practice.

The choice of immunizing agents lies essentially between fluid toxoid and the alum-precipitated preparation. The primary considerations in making this choice have been reviewed recently in some detail by Edsall.⁵ Both types are highly effective as demonstrated by the results in the United States Army and Navy; the Army using fluid toxoid and the Navy, alum-precipitated toxoid. Three doses of the fluid type are required for the basic immunization while two of the alum-precipitated agent will suffice. Since the addition of alum to an antigen may act to increase its sensitizing properties as well as to enhance its antigenicity, the possibility of reactions of sensitivity to repeated doses of alum toxoid is to be considered. However, the new methods for processing toxoids reported by Pillemer and his coworkers,⁶ may serve to minimize the likelihood of such reactions. In any event, it is extremely important that whichever type of toxoid is used be as free as possible

of non-toxoid constituents which might produce undesirable reactions. On theoretical grounds at least, fluid toxoid, because of its more rapid absorption, would appear to be the agent of choice for the emergency or booster dose at time of injury. However, there is no indication that the alum-precipitated material is not effective for this purpose. Combined antigens, such as diphtheria and tetanus toxoid or this combination plus pertussis vaccine, are now available. The utilization of such combinations appears reasonable if adequate doses of the individual antigens can be provided without resulting in undue reactions, local or systemic. It is to be recalled, however, that protection from pertussis is required at an early age when an optimal response to diphtheria toxoid may not be obtained.⁵ For the stimulating dose, tetanus toxoid alone, rather than in combination with other antigens, is preferred in order to minimize local and systemic reactions, particularly if stimulation is required in adolescent or adult life.

As indicated before, in using fluid toxoid, three doses of 1 ml. each, administered at intervals of 3 to 4 weeks, are required and with the alum-precipitated agent, two doses of $\frac{1}{2}$ to 1 ml. 4 to 8 weeks apart. In United States military usage, this basic preparation was followed at the end of the first year by a single stimulating dose of 1 ml. During the first part of the war, another stimulating dose was administered to all Army personnel departing for a theater of operations unless such departure was within 6 months subsequent to a previous dose. For the last three years, however, no more toxoid has been given after the first stimulating injection unless indicated by the occurrence of a wound or other injury which might result in tetanus. No antitoxin is administered for prophylaxis unless some doubt is entertained as to previous active immunization.

demonstration school of nursing where from 4 to 19 per cent of the students developed demonstrable tuberculous lesions and several died in the 1920's and early 1930's, no death has occurred in many years; only 2 students have developed lesions large enough to be demonstrated by x-ray inspection in the past 5 years, and the infection attack rate among nonreactors over the entire period of school years has decreased from as high as 100 per cent to less than 5 per cent. In 1928 33 per cent of all students entering the university reacted to tuberculin, and only

6.4 per cent in 1946. In the largest city the incidence of tuberculous infection among grade school children decreased from 47.3 per cent in 1926 to 7.7 per cent in 1944.

Eradication of tuberculosis at the grade school age level has been achieved in many schools. It is in store for many others. The epidemiological procedures that have produced these accomplishments are applicable anywhere. They require persistence, patience, and strenuous work. Moreover, they constitute the only known method by which tuberculosis can be eradicated.

Relationship of Tryptophane to the Incidence of Dental Caries*

NAOMI C. TURNER, Ed.M., AND GEORGE E. CROWELL, D.M.D.

Forsyth Dental Infirmary, Boston, Mass.

THE possibility that bacteria are a causative factor in dental caries has received major attention since the days of Miller. However, Miller's original experiment, in which saliva and bread pabulum led to decalcification of tooth structure, lends itself to two interpretations: (1) the multiplication of bacteria with the production of decalcifying acids; (2) the direct action of salivary enzymes on starch leading to decalcifying acids as a product from starch via a certain type of human enzyme system. These acids may in some manner be associated with the eventual disintegration of tooth structure *in vivo*. The bacterial approach has been emphasized, largely perhaps, because of the timing of Miller's work with the discoveries of Pasteur and the development of the germ theory of disease. It is to the relatively neglected enzyme system of the individual's own saliva and its action in the breakdown of starch as related to dental caries to which we would like to direct your attention.

Before presenting the evidence from our own studies, may we cite the work of two other investigators which suggests that salivary amylase may be one of the factors in the onset of the carious process. Victor Dietz¹ found that in initiating the carious process in a tooth *in vitro* by use of bread pabulum and saliva, with agitation, the saliva

must come from a mouth whose teeth show caries. Fosdick² found that the saliva of a caries-susceptible individual withdrew 11.1 mg. of calcium from 4 gm. of powdered human tooth enamel after 4 hours' agitation at room temperature; whereas, the saliva of caries-immune individuals withdrew no calcium under the same conditions.

In 1944, Turner and Crane³ reported a correlation between the dextrinizing time of saliva working on starch and the amount of caries in the mouth of the individual. Rampant caries was associated with rapidly dextrinizing saliva while freedom from caries was associated with slowly dextrinizing saliva. Since this time, additional evidence of this relationship has been secured. Some workers have reported similar results.⁴ Others have not found the correlation.⁵ This is not strange since the conditions of testing must be thoroughly rigid as to freshness of saliva, concentration of solutions, proportion of reagents, and also as to temperature. All must be regulated to satisfy the range of amylase activity.

After recognizing the existence of a relationship between the mode of starch breakdown and the degree of dental caries, a survey of the literature and particularly a consideration of the studies of Wohlgemuth⁶ in 1908, suggested the desirability of testing the effect of individual amino acids on the dextrinizing time of saliva working on starch. This also seemed logical because it had been shown that a diet high in protein

* Presented before the Dental Health Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 7, 1947.

and low in carbohydrate⁷ has a retarding effect on dental caries.

Individual amino acids were added separately at 0.01 molar concentration to fresh saliva which was then mixed with starch solution. Some of the amino acids, notably glutamic acid, drove the dextrinizing time in the direction of salivas associated with caries. Tyrosine was without effect. Only tryptophane, among the amino acids tried, prolonged the dextrinizing time to a length comparable with the dextrinizing time of the salivas associated with freedom from caries. Indole and pyrrole produced similar results. Their structural similarity to tryptophane is well understood.

Since tryptophane significantly delayed the dextrinizing time of saliva working on starch, on the spot plate,⁸ it became of interest to watch its effect after ingestion. Preliminary studies indicated that the ingestion of crystalline tryptophane does, in fact, alter saliva's action on starch in the direction of a lengthening of the dextrinizing time. Early in these ingestions a drop in blood sugar was noted. This tendency we have confirmed with several groups. The desirability of further study of a possible relationship, of interest to the diabetic, is apparent.

For a moment, we will leave our consideration of tryptophane, for a further consideration of the nature and meaning of the dextrinizing test. *In vitro*, it was possible to run the scale of dextrinization from colorless, to purple (some-

times through green) to brown—forward and backward according to whether an oxidizing agent such as hydrogen peroxide or a reducing agent such as sodium hydro-sulfite was added. This finding suggested the possibility that, in the correlative factor, we might be dealing with highly oxidative versus more reductive salivas.

With this in mind several additional tests were devised. This step seemed desirable since the dextrinizing test used was tedious, exacting as to conditions, and difficult for some workers to duplicate. Further, we might by additional tests establish something more concerning the correlative feature.

These tests and their results are described in two previous articles.^{9, 10} We need not burden you with their detail. Suffice it to say that they indicated further that the correlative factor between saliva and caries may be associated with a biological oxidation-reduction process. They also indicated that acid production from the action of saliva on starch may have real significance for the carious state. With these tests we are able to distinguish two types of saliva with the characteristics shown in Table 1.

Characteristics one and three above remind us of the classical description of α and β amylase.¹¹ You will recall α amylase as that amylase which, with starch, quickly fails to give a blue or purple color with iodine and yet which is slow in the production of reducing material. On the other hand β amylase

TABLE 1

I. Caries associated saliva

1. Fast dextrinizing time, i.e., fresh saliva with 1% corn starch solution soon fails to give a blue or purple color with iodine.
2. Slow decolorization of preformed starch blue (redox + 300 \pm 10; pH 7 \pm 0.3), showing high oxidative capacity.
3. Low production of reducing material as measured with "clinitest" procedure.
4. High production of acid from starch in 2 hour incubation at room temperature as measured with 0.01 N NaOH, and phenolphthalein as indicator.
5. Low content of tryptophane or similar indole containing molecule.

II. Caries-free associated saliva

1. Slow dextrinizing time, i.e., fresh saliva with 1% corn starch solution gives purple color with iodine for longer periods of time.
2. Rapid decolorization of preformed starch blue (redox + 300 \pm 10; pH 7 \pm 0.3) showing high reductive capacity.
3. High production of reducing material as measured with "clinitest" procedure.
4. Low production of acid from starch in two hour incubation at room temperature as measured with 0.01 N NaOH, and phenolphthalein as indicator.
5. High content of tryptophane or similar indole containing molecule.

with starch gives a blue or purple color with iodine for a longer period of time and yet relatively quickly produces reducing substance. We seem to have a distinct difference in the mode and pathway of starch breakdown by these two amylases. Similarly, in the two types of saliva the intermediate products from starch degradation and their disposition may be at variance.

This battery of confirmatory tests was especially useful when a small group of young adults, who reported 7-10 cavities in the previous 6 months, volunteered to ingest crystalline tryptophane for a test period of 3 months. Such a small, medically controlled pilot study seemed desirable before a more extensive clinical trial of the effect of tryptophane.

A physician's examination and laboratory tests of urine, saliva, and blood preceded and followed the tryptophane ingestions. The latter were adjusted to body weight and regulated as to frequency by direct salivary test for tryptophane. Eight individuals constituted the pilot group. Four ingested tryptophane and four served as controls. There was no significant change in blood pressure or in body weight for either group. The average blood sugar drop for the pioneer group was held to nine points.¹² It is necessary to keep in mind this blood sugar drop and to regulate the dosage carefully in order to avoid hypoglycemia. Probably hemoglobin also

should be watched during tryptophane ingestions until such time as the evidence on this point is clear. The results of this pilot study are summarized in Table 2 which also gives average figures for the many "rampant caries" and "caries-free" individuals previously studied.

We see here that after the ingestion of tryptophane, acid production from starch is lessened in a 2 hour period at room temperature; and there is a corresponding increase in the production of reducing material. Decolorization of preformed starch blue is hastened and our evidence with this small group suggests a beneficial effect on the caries rate, but we do not regard our evidence as sufficiently extensive to report on this phase of the study.

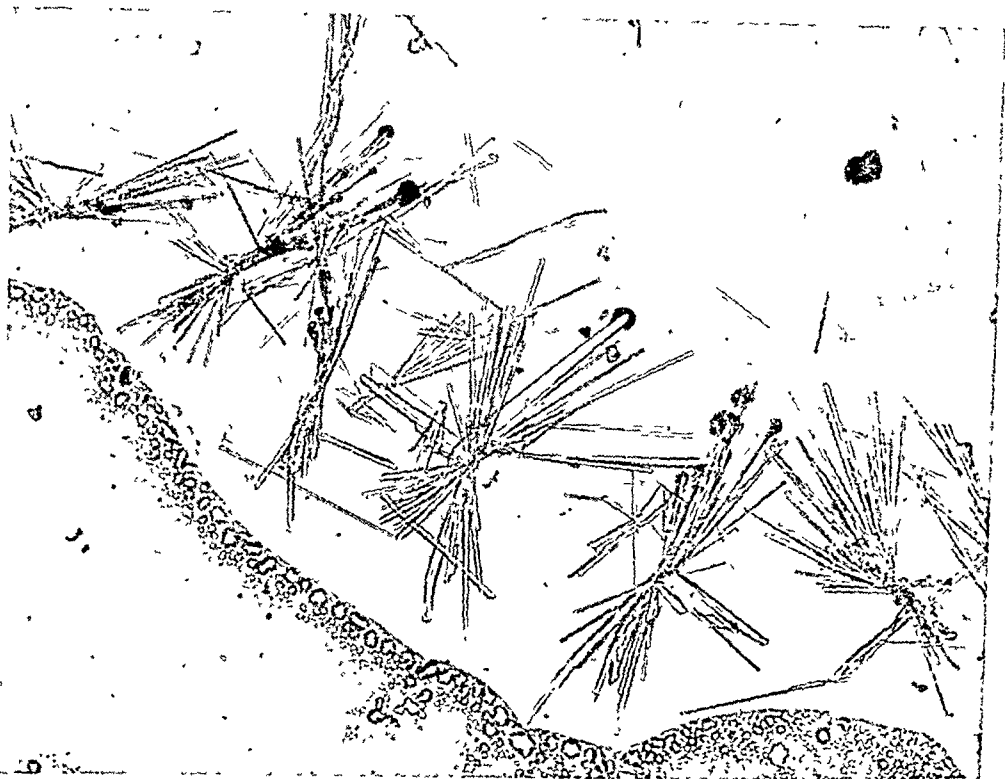
There are interesting theoretical implications in the fate of carbohydrates under tryptophane ingestion. It has been shown that starch is a source of both oxalic acid^{13,14} and glyoxal.¹⁵ Among chemists tryptophane's tendency to condense with aldehydes is well known. In this tendency may lie the explanation of the possible value of tryptophane as a caries deterrent. Given an enzyme system in which tryptophane is an adjunct, one might expect that, in the aldehyde stage of starch degradation before the additional oxidative step leading to acid production, tryptophane would condense with the aldehyde, thus preventing the aldehydes from being

TABLE 2
Pilot Study

	0.01 N Acid per ml. saliva and starch	Reducing sub- stance as meas. by Clinitest	Decolorization Time	Rampant Decay
CONTROLS				
Beginning	0.35 ml.	—	33.5 min.	All
End	0.375 ml.	0.083%	31 min.	All
PIONEERS				
Beginning	0.225 ml.	0.094%	42 min.	All
After Tryptophane	0.088 ml.	0.312%	5 min.	1 of 4 *
RAMPANT CARIES	0.323 ml.	0.163%	23 min.	All
CARIES-FREE	0.04 ml.	0.309%	5.2 min.	None

* The individual whose caries rate was not appreciably decreased had recently had poliomyelitis, and the salivary tryptophane was not built up to the optimal level until the end of the experiment.

Tyrosine Sheaves from Saliva



further oxidized to give acid forms capable of interference with calcium metabolism. In other words tryptophane may modify the direction of enzyme action, and alter the product, promoting the storage of carbohydrate rather than its further oxidation to acids.

There may be a hormonal relationship. The possibility that tryptophane may be related to hormones has been presented by Sherman.¹⁶ He says, "It has come to be realized that nutritionally essential amino acids may function not merely as 'building stones' but also in more individual and specific ways as precursors of hormones, e.g., a shortage of cystine or lysine results in suspension of growth with surprisingly little, if any, injury; whereas an animal subjected to a correspondingly drastic shortage of tryptophane not only stops growing but soon shows signs of torpidity, lack of tone, or actual illness."

Since it is known that vitamins are often the prosthetic or carrying group for enzyme systems while their specificity may be due to a protein group, we may have a glimmer here of an interesting interrelationship.

Whatever the final explanation of the action of tryptophane in starch metabolism may be, it is interesting to note accumulating evidence which indicates, as does our work with tryptophane, that dental caries is a systemic manifestation:

1. The complex, specialized cell structure of the tooth is subject to many physiological changes.

2. Carious lesions may follow systemic infections. (We have some preliminary evidence of amylase changes following certain of the communicable diseases.)

3. Hypoplasia may be due to disturbance during pregnancy and early childhood.¹⁷

4. Dietary effect on the rate of dental caries.

5. Interruption in enamel formation upon parathyroidectomy.¹⁸

6. Decrease in caries rate during food rationing of war period in Scandanavia, Holland and England.¹⁹

In the course of microscopic examination of crystalline materials from the acid hydrolysis of saliva, it was interesting to observe an abundance of tyrosine. This microscopic finding was readily confirmed chemically with Millon's reagent. We speak of the presence of tyrosine and the possible presence of di-iodo-tyrosine because in it may lie an explanation of fluoride's well known amylase inhibitory effect.²⁰ Tyrosine being an hydroxy-phenyl molecule is subject to ready substitution by the halogens. The routine order of halogen substitution from lowest to highest you will recall as I, Br, Cl, F. Since fluoride forms more stable complexes than do the other halides, we might find here an explanation of its amylase inhibitory power.

SUMMARY

Before closing, we should perhaps summarize the data showing a relationship between tryptophane and caries.

We have found significant and consistent differences in the ways in which caries-associated saliva and non-caries-associated saliva act upon starch. The former contains little tryptophane. It is more oxidative and produces a large amount of acid with starch but only a small amount of reducing substances. The latter contains appreciable amounts of tryptophane. It is more reductive and produces little acid but large amounts of reducing substances.

The ingestion of tryptophane changes the caries-associated type of saliva so that it is similar to the non-caries-associated saliva in the characteristics mentioned. Such changes were noted, following the ingestion of tryptophane, by the small group of the pilot study, namely:

1. Lessening of acid production from starch by saliva in a 2 hour period at room temperature.
2. Increased production of reducing substance under like conditions.
3. Hastened decolorization of preformed starch blue.
4. Lengthened dextrinizing time.
5. An apparent reduction in the caries rate, which finding, however, was with too small a group to be statistically significant.

It is believed that tryptophane, as part of a larger molecule, may function here to condense with aldehydes during starch degradation, thus lessening acid production out of starch and possibly leading to less interference with calcium metabolism both locally and systemically.

NOTE: We acknowledge with gratitude the medical supervision of the Pioneer Group by Dr. Pricilla White.

REFERENCES

1. Dietz, Victor H. *J. Dent. Research* 22, 6 (Dec.), 1943.
2. Fosdick, L. S., Hansen, F. C., and Epple. *Canad. J. Am. Dent. A.* 24:1275-1280, 1937.
3. Turner, N. C., and Crane, E. M. *J. Dent. Research*, 23:413-416, 1944.
4. Florestano, H. J., Faber, J. E., and James, L. H. *J. Am. Dent. A.*, 28:1799, 1941.
5. Bergeim, Olaf, *J. Dent. Research* 24, 3-4 (June-Aug.), 1945.
6. Wohlgenuth, *Biochem. Ztscher.*, 9, 1, 1908.
7. Boyd, J. D., Drain, C. L., and Nelson, M. V. *Dietary Control of Dental Caries, Am. J. Dis. Child.*, 38:721, 1929.
8. Turner, N. C., *J. School Health*, Mar., 1945.
9. Turner, N. C., Crowell, C. E., *J. Dent. Research* 26, 1 (Apr.), 1947.
10. Turner, N. C., Crowell, G. E., *J. Dent. Research*, 26, 5 (Oct.), 1947.
11. Sumner and Somers *Enzymes*, Academic Press, 1943.
12. Turner, N. C., Crowell, G. E., *New England J. Med.* 236:5 (Jan. 30), 1946.
13. Gruzewska, Z. *J. de Physiol. et de Path. Cen.*, Paris, 14:32-41, 1912.
14. Loeper, M. Maurice, *Nutrition* (French Journal) 3:1, 1933.
15. Caldwell and Hixon, *J. Biol. Chem.* 123, 595, 1938.
16. Sherman, H. C. *Chemistry of Food and Nutrition*, MacMillan, 1946.
17. Toverud, Kirsten Utheim and Toverud, Guttorm, *Acta Paediat.*, Vol. 12, Sup. II.
18. Agnew, R. Gordon. *Am. Dent. A. Convention*, Aug., 1947, Boston, Mass.
19. Toverud, Guttorm. *Am. Dent. A. Convention*, Aug., 1947, Boston, Mass.
20. Rockwood, E. W. *J. Am. Chem. Soc.*, 51, 228, 1919.

Hospital-Health Center Programs in Latin America*

RICHARD J. PLUNKETT, M.D., M.P.H.

*Director, Health and Sanitation Division, The Institute of Inter-American Affairs,
Washington, D. C.†*

LATIN America has a distinguished medical heritage that only recently has begun to be appreciated in the United States. With a history of the earliest hospitals in the Western Hemisphere, the southern republics are today participating in a strong modernization movement resulting in some of the finest hospitals and health centers in the world.

Fully 160 years before the first hospital in our colonies opened on Long Island, N. Y., Latin America had many institutions for the care of the sick. It is believed that the first hospital in the Western Hemisphere was the San Nicolas, built in Santo Domingo before 1503.¹ It had 2 stories, and in addition to the main ward, small wards for consumptives and prostitutes. Its personnel included 1 medical director, 1 manager, 1 intern, 6 servants, and 1 chaplain. Other hospitals in the Dominican Republic, Cuba, Puerto Rico, and Panama preceded the oldest hospital at present functioning in the Americas, the Jesus Nazereno, which was founded in Mexico City by Cortez about 1523. Cortez also provided a hospital for skin cases such as leprosy and carate, and Mexico had the first American asylum for the insane, organized in about 1566. The early con-

quistadores everywhere took prompt action in providing hospitals. Royal decrees urged opening of hospitals, asylums, and homes in the new world and these were established both by government representatives and by religious orders. Funds for construction and operation were supplied by Ferdinand and Isabella and the Hapsburg monarchs.

Almost from the beginning there was a tendency to have separate institutions for the different races, and even sexes and professions, such as sailors, soldiers, priests, etc. It was only following self-government in these countries that the segregation of the various races in hospitals of their own ceased. It is still true, however, that a great variety of different kinds of hospitals exists in all of the countries. It is usual to find, in addition to general services, hospitals for tuberculosis, mental diseases, leprosy, infectious diseases, skin diseases, venereal diseases, malaria, cancer, heart diseases, maternity, surgery, and orthopedics. There are many institutions for only men, women, children, armed forces, civil servants, police, social insurance members, or industrial groups.

The existence of early hospitals was generally precarious and they suffered from lack of personnel and equipment. They were generally supported by legacies, lotteries, taxes, and, more recently, government appropriations. In contrast to the situation in the United States where hospitals are largely pri-

* Presented before the Health Officers Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 10, 1947.

† Now Associate Editor, *The Journal of the American Medical Association*.

Hospital-Health Center Programs in Latin America*

RICHARD J. PLUNKETT, M.D., M.P.H.

*Director, Health and Sanitation Division, The Institute of Inter-American Affairs,
Washington, D. C.†*

LATIN America has a distinguished medical heritage that only recently has begun to be appreciated in the United States. With a history of the earliest hospitals in the Western Hemisphere, the southern republics are today participating in a strong modernization movement resulting in some of the finest hospitals and health centers in the world.

Fully 160 years before the first hospital in our colonies opened on Long Island, N. Y., Latin America had many institutions for the care of the sick. It is believed that the first hospital in the Western Hemisphere was the San Nicolas, built in Santo Domingo before 1503.¹ It had 2 stories, and in addition to the main ward, small wards for consumptives and prostitutes. Its personnel included 1 medical director, 1 manager, 1 intern, 6 servants, and 1 chaplain. Other hospitals in the Dominican Republic, Cuba, Puerto Rico, and Panama preceded the oldest hospital at present functioning in the Americas, the Jesus Nazereno, which was founded in Mexico City by Cortez about 1523. Cortez also provided a hospital for skin cases such as leprosy and carate, and Mexico had the first American asylum for the insane, organized in about 1566. The early con-

quistadores everywhere took prompt action in providing hospitals. Royal decrees urged opening of hospitals, asylums, and homes in the new world and these were established both by government representatives and by religious orders. Funds for construction and operation were supplied by Ferdinand and Isabella and the Hapsburg monarchs.

Almost from the beginning there was a tendency to have separate institutions for the different races, and even sexes and professions, such as sailors, soldiers, priests, etc. It was only following self-government in these countries that the segregation of the various races in hospitals of their own ceased. It is still true, however, that a great variety of different kinds of hospitals exists in all of the countries. It is usual to find, in addition to general services, hospitals for tuberculosis, mental diseases, leprosy, infectious diseases, skin diseases, venereal diseases, malaria, cancer, heart diseases, maternity, surgery, and orthopedics. There are many institutions for only men, women, children, armed forces, civil servants, police, social insurance members, or industrial groups.

The existence of early hospitals was generally precarious and they suffered from lack of personnel and equipment. They were generally supported by legacies, lotteries, taxes, and, more recently, government appropriations. In contrast to the situation in the United States where hospitals are largely pri-

* Presented before the Health Officers Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 10, 1947.

† Now Associate Editor, *The Journal of the American Medical Association*.

vately managed and supported, hospitals in Latin America are now mainly governmental (national, state, or municipal) institutions, often largely financed by lotteries. Treatment is nearly always free. Since the end of the 19th century there have been rapid strides in modernization and all of the Latin American countries are today increasing the numbers of hospitals and beds and providing up-to-date equipment.

The hospital and health center unit is ideally suited to the extension of health services through the other American republics because of the need for decentralization which exists in many areas. Health services usually stem from the federal level and are frequently concentrated in the large cities. Dissemination of health knowledge and preventive work is not as frequently the responsibility of state, county, and local organization as is the case in the United States. The problems of both curative and preventive medicine in Latin America include all of those of the United States and are further complicated by certain rather typical factors. While the low salary scale for health workers is characteristic of the United States as well, the ubiquity of the part-time health worker is far greater in the southern countries. Where health centers are established, the case loads are high for they commonly serve at least 90 per cent of the population in the surrounding area.

The chief causes of death in Latin America as a whole are tuberculosis, diarrhea and enteritis, heart diseases, the pneumonias, and cancer, although in certain areas malaria and intestinal parasites head the list.² Disease problems include all those of the United States with tuberculosis and malaria frequently assuming epidemic proportions. In addition there are exotic diseases such as typhus fever, plague, yaws, schistosomiasis, filariasis, pinta, onchocerciasis, Chagas's disease, bartonellosis,

leishmaniasis, and yellow fever. Among diseases common in the United States, malaria, intestinal parasites, the dysenteries, venereal diseases, smallpox, tuberculosis, and typhoid fever, as well as malnutrition, appear to be far more prevalent in many areas of Latin America than in any part of this country. For example, the report of the Minister of Health of one country states that malaria is prevalent in 80 per cent of the country; 98 per cent to 100 per cent of the population suffer from intestinal parasites, and 90 per cent of the people suffer from malnutrition. In another country, tuberculosis death rates exceeding 700 per 100,000 population have been reported.

The high prevalence of fatal and debilitating disease inhibits industrial expansion in many regions. To promote health and efficiency throughout the hemisphere international agreements have been executed between the United States and each of 18 of the other American republics for a coöperative health and sanitation program. The United States supplies funds and personnel through the Institute of Inter-American Affairs, an agency of the Department of State. The participating Latin American countries provide personnel, materials, services, and in some instances, as much as 10 times the amount of funds assigned by the United States for operations within that country. Over 1,700 projects have been carried out, including training of health workers locally and in the United States; health education; sanitation, including water supplies, sewage disposal, and malaria control; and provision of improved health facilities and services through health centers, hospitals, laboratories, nursing schools, etc.³

In Chimbote, Peru, which has one of the finest harbors on the West Coast and promise of a great industrial future, the Peru-United States Cooperative Health Service has built and operated a

hospital-health-center unit, staffed by personnel trained and supervised by United States doctors, nurses, and sanitary engineers.

To existing hospitals in 4 major cities of Paraguay, the Paraguay-United States Cooperative Health Service attached health centers, with laboratory, pharmacy, and x-ray facilities for joint use of the hospital and health center. Plans were developed with advice from the Hospital Facilities Section of the U. S. Public Health Service. These health centers, like others established throughout Latin America, include a records and statistical section, a public health nursing section; headquarters for sanitary inspectors; clinics for control of tuberculosis, skin diseases, venereal diseases, dental hygiene, and maternal and child health; health education; a privy construction program, and a home gardening program.

Guatemala has launched a program for survey and construction of a network which comprises the latest developments for joint action to provide its communities with hospital care, public health measures, and social welfare under one roof.⁴ The ancient Mayas of Guatemala produced a scientific treatment of bone fractures and dislocations. They also treated infections with moldy ground corn meal which, applied to the affected parts, was reported to obtain a satisfactory cure in most cases. This may be considered to be an empirical use of antibiotics.

In this country of amazing inherited medical knowledge, modern scientific ways and means of promoting health are being extended by the government, which has formulated a project for the survey, planning, and construction of a complete hospital network generally known as "The National Hospital Plan." Resolutions of a hospital congress held in Quezaltenango resulted in recommendations to the government of the republic to include a hospital con-

struction program as a part of a definite government policy. The recommendations call for a type of institution that will offer a combined service of preventive and curative medicine for the various communities. A preliminary survey revealed the need of a construction program of 34 units to add to the existing hospitals which now serve the population of about 3,500,000. Each unit is to house facilities for the care of the sick and injured, a health center and medico-social service. The political division by provinces has been disregarded with reference to the planning of this network and a new map of the republic has been developed comprising sanitary zones according to the density of the population, incidence of disease, climatic conditions, industrial and agricultural development, and communication facilities. Plans have been completed for a type of 30 bed hospital and health center which provides for construction with Guatemalan funds under the supervision of Institute of Inter-American Affairs personnel.

Similar units are now being built in the towns of La Union⁵ and Santiago De Maria⁶ in El Salvador. Salvadoran authorities are now in agreement in favor of combining small hospitals and health centers. It is believed that this will reduce construction costs, costs of administration of 2 buildings and organizations, and eliminate the necessity of duplicating much equipment and many services such as laboratories and x-rays. Several closely related functions of the outpatient department of the hospitals and of the health center can be combined. This is particularly true of the diagnosis and ambulatory treatment of tuberculosis and venereal diseases, and of the operation of prenatal and post-partum clinics and well and sick child clinics. Similar units are being planned for the many other countries, including Brazil, Chile, Honduras, Mexico, and Peru.

In conclusion it may be said that the organizational and administrative hospital and health center problems of Latin America are basically similar to those of the United States. The provision of adequate service is more frequently hindered in the southern countries by the extensive use of part-time personnel; by the shortage of nurses; by the tremendous case loads; and by the high prevalence of many diseases, both fatal and debilitating. For almost 4 centuries public moneys have been spent in these countries to build and support hospitals and outpatient clinics for treating the sick. It may be said that, comparatively, only very recently has there been governmental responsibility for prevention of disease. This is in contrast to the pattern of appropriation of public funds in the United States which were generally used more for the prevention and control of disease than for treatment.

In Latin America today there is a strong trend toward attacking health problems by prevention. In the United

States there is growing recognition of the need of public funds for establishing hospitals. Consequently from approaches which may be considered diametrically opposite, the United States and Latin America have come to recognize a possible solution in a hospital and health center combination to serve as headquarters for both curative and preventive services for the community.

REFERENCES

1. Moll, Aristides A. *Aesculapius in Latin America*. Philadelphia: Saunders, 1944, p. 435.
2. Death Rates for Ten Leading Causes: Latin American Republics for Specified Years, 1937-1943. Ms. National Office of Vital Statistics, Washington, D. C.
3. Dunham, George C. Coöperative Health Program of the American Republics. *A.J.P.H.*, 34: 8:817 (Aug.), 1944.
4. Gotaas, Harold B. The Inter-American Coöperative Health and Sanitation Program. *Boletín de la Oficina Sanitaria Pan-americana*, 25:10:904 (Oct.), 1946.
5. Lamela, Felix. Guatemala Builds. *Mod. Hosp.*, 67:6:70 (Dec.), 1946.
6. Project Agreement S-H.HC-I, "Construction of a Hospital and Health Center in La Union." July 28, 1947. Ms. Division of Health and Sanitation, The Institute of Inter-American Affairs.
7. Project Agreement S-H.HC-II, "Construction of a Hospital and Health Center in Santiago de Maria." July 28, 1947. Ms. Division of Health and Sanitation, The Institute of Inter-American Affairs.

Transfer of Annual Census of Patients in Mental Institutions

The Bureau of the Census of the U. S. Department of Commerce has made an annual census of patients in mental institutions, since 1926, through its Institutional Statistics Unit. Recently, Federal Security Administrator Oscar Ewing announced the transfer

of this function to the Mental Hygiene Division of the U. S. Public Health Service. It will be carried on in an Institutional Statistics Unit in charge of Dr. Henry D. Sheldon who was in charge of the work in the Bureau of the Census.

The Pattern of Industrial Hygiene in the United States*

WILLIAM T. INGRAM, M.P.H., F.A.P.H.A.

Engineering Field Associate, American Public Health Association, New York, N. Y.

INDUSTRIAL hygiene is a term which has expanded in meaning during several years of rapid development. Perhaps it is now outmoded when applied to one specialized program offered by public health agencies. Industrial hygiene is rapidly becoming one of the functions of general good health practice which must be integrated with several other health functions in order to affect the health and well-being of that segment of population with which it purports to deal.

Today 400 professional persons in 58 state, territorial, or municipal health departments are engaged specifically in preventing disease and protecting the health of a labor force approximating 60 million persons. If consideration is given to the obvious in health practice (a focus of professional eyes on the health of the adult and the improvement of his living and working environment) then the number of professional personnel thus engaged must be increased manifold. On this basis those working on preventable diseases and environmental sanitation contribute something worth while to the health of the worker, *per se*, as well as to his or her family. Thus, one might say that all health agencies are participants in a program of adult health. Such an approach establishes a segmentation of health work by age groups for directed emphasis. Then the practices employed are those ap-

plicable in accordance with the nature of the adult health problems arising in any community, group of communities, state, or nation.

Eight years ago, W. Scott Johnson¹ stated that it was essential to decide two points before the administrator could intelligently propose a program: (1) What does industrial hygiene include? (2) What is the nature and extent of the industrial hygiene problem? Mr. Johnson made no serious error when he answered the first question by saying that the preservation of the health and welfare of the worker in its broadest sense was rapidly being accepted as the scope of industrial hygiene. Certainly today this thesis has wide acceptance.

ADMINISTRATIVE PATTERNS

There is a third question which Mr. Johnson discussed, namely: How can a state health department bring to all the employed the benefits of proven means of prevention and control of disease and sickness on a state-wide basis? That question has no single answer and still poses a vexing administrative problem.

Why is there no one pattern which places industrial health service administratively? Variations in state laws have a material bearing on the situation. Time and method of the origin of the working division are factors. Attitude of those in policy-forming positions in state government is very important. Immediate objectives of the program are variable. Personnel shortages affect

* Presented before the Industrial Hygiene Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 7, 1947.

the placement of the unit. Salary scales may introduce limitations on securing and holding competent personnel. Until these and other such factors are resolved, there will always be variability.

In addition, there are some undesirable factors such as personal, inter-bureau, or inter-departmental jealousies which compete with sound planning. These elements are destructive to the program and should be approached decisively and objectively to obtain a meeting of minds. There are notable examples of states in which coöperative effort between persons, bureaus, and departments has resulted in a commendable effort to the advantage of all concerned.

There seems to be little divergence of opinion as to the professional interests which are needed to carry out the details of an industrial hygiene program. These are physicians, engineers, chemists, nurses, sanitarians, and medical, chemical, and biological technicians. But there are differences of opinion as to who should do what. Major patterns appear in the several states with minor variations.

Pattern One:

The separate unit has a director who may be either physician, engineer, or chemist. Functional responsibility divides the unit work into medical and engineering sections. The physician handles medical and clinical investigations of occupational disease, and serves as a liaison between industry and the various services offered as a part of the general preventive medical services of the state department of health.

The engineer handles all contacts dealing with the environmental control of industrial hazards, conducts field studies, and collects samples as needed. The engineer serves as a liaison between industry and the various services offered as a part of the general environmental control programs of the state health department.

The laboratory is separate from other state laboratories and is devoted exclusively to the medical, biological, and chemical laboratory needs of the unit. Administratively the laboratory is responsible to the director, but

functionally may be used directly by the engineer for engineering investigations, and by the physician for medical laboratory work.

Nursing consultation is carried on under general supervision of the director with as much coördination as possible with the engineering interests of the unit.

Units following this pattern have operated during the war and even now without the medical director, or with nominal medical direction furnished by a physician on the staff of the health department. The unit under this pattern comes under the administrative direction of the state health officer.

Pattern Two:

This unit pattern is essentially the same as that of Pattern One with these exceptions. The engineer may or may not be an assistant director of the unit. The unit is placed under the general direction of a bureau or section of preventable diseases, or may be in a department other than the health department. Nursing consultation may or may not be directly under the unit director. There may or may not be liaison with industry through the unit physician or engineer.

Pattern Three:

The unit is not separate but is a division of the bureau or section of environmental sanitation. The engineer is the administrative head of the unit, and the physician either may be in an assistant director capacity, responsible only for functional work of a medical nature, or may be in some medical section and have a consultative relationship to the unit. The laboratory is more apt to be a part of the public health laboratory service of the state department but may be combined with sanitary laboratory service handling water, milk, or food. Nursing services are provided directly in the unit, although the nursing staff may be technically responsible to the nursing supervisor.

Pattern Four:

This type of unit is unique and, depending on the point of view, reflects what may be considered as compromise, coördination of effort, or the outcome of irreconcilable attitudes on the part of individuals, bureaus, or departments.

It may be a separate unit or established under medical or engineering administration. The director may be either physician or engineer. Then functional activities are carried on by physicians, engineers, and nurses who possibly work in the same office, but may be respon-

sible for their actions to their respective professional heads. The laboratory is a part of the department laboratory service. Occasionally other health services, such as dentistry, have assigned consultants to work with industrial populations. In at least one instance the engineer is employed by the Industrial Accident Commission and works with the industrial hygiene unit of the state health department.

The four patterns are all recognizable in the state industrial hygiene services. It is true that they may not be functioning fully according to pattern. Personnel shortages have made it impossible to fill several of the medical positions, and nursing positions. There is a distinct lack of industrial hygiene engineering personnel. Fortunately, these shortages are not usually coincident. Where the engineer is lacking the physician has carried on, and more frequently the medical director is lacking, and the engineer carries the program of the unit.

Today there are 38 industrial hygiene units in 34 states which function as separate divisions or bureaus of health departments while two function similarly in labor departments. Ten state units, 3 territorial units and the District of Columbia unit function as a section or service in the division of sanitary engineering. Four state units form a part of a division of preventive medicine or preventable diseases. Seven states have district or branch offices. There is 1 county unit in California. There are 7 city units as follows: 2 in Missouri, and 1 each in California, Michigan, Ohio, Maryland, and New Jersey. Rather than discuss the individual names of states and local units at length, reference is made to the latest published compilation of Governmental Industrial Hygiene Services in State, Local and Territorial Jurisdiction prepared by Victoria M. Trasko, Statistician, Industrial Hygiene Division, U. S. Public Health Service.² There have been funds budgeted for industrial health work in Delaware, Nevada, and

the Virgin Islands as of 1947, but no actual program yet exists. New Mexico has requested an investigation, and a U. S. Public Health Service survey to determine the program is now in progress. Thus, all states have industrial hygiene services in existence, budgeted, or under consideration.

Mention has been made of industrial health services which may be offered specifically by local health departments. It is of further interest to note the services that are being rendered even though no specific unit has been created. According to returns from 236 local units completing the American Public Health Association's *Evaluation Schedule*³ questions relating to industrial health, 224 departments are prepared to offer industrial health consultative services from one source or another. Fifty departments work coöperatively with the state industrial hygiene unit and 15 have their own facilities. One hundred and fifty departments depend on the state health department and 4 on the state department of labor. In 5 departments, industry itself is providing some type of service. Twelve cities reported no service of any sort. Table 1 is presented to show the breakdown according to community population served and source of service.

TRENDS IN SERVICE

It has been mentioned that emphasis has been placed on a complete program of adult health which includes the worker in industry, but does not neglect the fact that he and his family are participants in the overall community health program. Either alone or with coöperation from state units, industrial workers are receiving through local health departments not only protection from diseases peculiar to their occupation, but are being used as focal points to improve case finding for tuberculosis, venereal disease, and other diseases which are community problems. Nurs-

TABLE 1

Industrial Hygiene Service Available through Local Health Departments

<i>Community Popula- tion Served by Health Department</i>	<i>Total Reporting No.</i>	<i>Number of Units Reporting Service by</i>					
		<i>State Health Dept.</i>	<i>Local H.D.</i>	<i>Combined State and Local H.D.</i>	<i>State Labor Dept.</i>	<i>Industry</i>	<i>None</i>
100,000 or over	49	25	4	16	1	2	1
50,000-99,999	54	38	1	10	2	1	2
25,000-49,999	95	64	7	17	1	1	5
Less than 25,000	38	23	3	7	0	1	4
Total	236	150	15	50	4	5	12

ing services, too, in factory and home are coördinated in some instances. Health education services are reaching into industry on matters of community interest as well as those of the occupation itself.

Engineering services, too frequently split between those applying to occupational hazards due to air pollution and those more commonly expressed as community problems, are receiving a more rational approach in several states. It has been difficult in the past to recognize that environmental sanitation in the community and in industry were one and the same thing, subject only to degree of problem and method of approach. The hazard, whether borne by air, water, sewage, or food, might have its effect both in community and industry. The trend now is to recognize the common problems and treat them as such through broader programs of industrial sanitation.

Statistical details regarding the specific character of activities have been prepared by Miss Trasko and it is suggested that the paper "In Industry's Service"² be read if detailed information of this character is desired.

It is interesting to note that environmental control is on the increase (61 per cent of 1946 services), while surveys and consultations on programs of medical care are on the decrease (6 per cent of 1946 services). Nursing services have remained fairly constant (6 per cent of 1946 services).

SPECIFIC PROJECTS

There are a number of interesting, informative, and worth-while projects, specific in character, which have been conceived and carried out by industrial hygiene units throughout the nation. If an attempt were made to review all of these, it would be most boring. However, some of the outstanding examples are recounted to bring the present breadth of industrial health work into better focus.

1. The Tennessee Industrial Hygiene Service has inaugurated a State Industrial Hygiene Conference to promote a medium of expression on the mutual problems of industry in that state. Other states are also fostering the same idea.

2. The Georgia School of Technology has recognized that the complexity of modern plants has created the need for a new branch of engineering work known as industrial engineering.⁴ This field involves the planning, organizing, improving, managing, and operation of the various processes required for the production of all types of manufactured products. Men are now being graduated from Georgia Institute of Technology, whose presence in industry should be conducive to better understandings and discussions of industrial sanitation needs to protect health in both plant and community.

3. Many states, including Texas and Tennessee, are compiling standards for measuring industrial environmental protection. The Texas standards include

drinking water, toilet facilities, washing facilities, eating facilities, allowable safe limits of concentration of certain toxic materials, lighting and ventilation.

4. California and Texas have recently had programs of industrial hygiene training for sanitarians.

5. In Oregon, the Portland Superintendent of Schools, high school teachers, and members of the Division of Industrial Hygiene, Oregon State Board of Health, have combined their thinking to produce a teaching outline of a course in industrial hygiene designed to acquaint high school students with such problems.

6. The Baltimore Health Department is exposing hazards in new industrial buildings by arrangement with the department of public works for review of plans by the Industrial Hygiene Division before approval is granted.⁵

7. The Division of Adult and Industrial Health, New Jersey Department of Health, has been the first to start a state-wide industrial sight conservation program. The project includes visual screening, job analysis for minimum visual requirements, color illumination, eye safety studies, and an educational program.⁶ This unit also has embarked on a program enlisting the coöperation of local health departments. A bulletin, *A Community Industrial Health Survey*, has been prepared and given wide distribution. Supporting survey service was offered industry through its local health department. Many communities have taken advantage of this service and have requested surveys.⁷

8. The Mississippi Industrial Hygiene Division, Board of Health, has launched a coöperative state-wide physical examination program of all workers in coöperation with the State Medical Society. The objectives are : (a) an evaluation of the health status of the individual workers of the state, (b) determination of the extent of occupational diseases among the employed popula-

tion, and (c) case finding of tuberculosis, venereal diseases, and cancer.⁸

9. The Division of Industrial Hygiene, Indiana Board of Health, has a medical service program for all state health department employees.⁸ This is an actual service to the employees and serves as a laboratory for the division to try out various reporting forms and other ideas for the organization of plant medical service.

10. North Dakota has given special attention to a determination of health hazards to which agricultural workers may be exposed. Preliminary surveys are being made in coöperation with district health departments.

DISCUSSION

The writer has had occasion in the last 8 months to visit or correspond with state and local health department representatives and with officers of the U. S. Public Health Service. These contacts have led naturally to some opinions on the part of the writer which are based on what was seen, heard, and read. They are set forth here with no idea of criticism, but rather to stimulate the constructive and objective thinking on administrative lines which is so necessary to the establishment of sound approaches and planning.

1. There are wide variations between states regarding the philosophy of approach to industrial hygiene administration. The patterns mentioned are compounded into certain essential common points from which departures are made to meet some localized situation, viewpoint, philosophy, or law.

2. Not one of the patterns appears to be so superior that others should be abandoned in its favor without serious thought.

3. There does not appear to be any valid argument by which one might say that the unit director must be a physician or must be an engineer. Both, by virtue of their professional backgrounds

in public health, are qualified for directive responsibility and both have demonstrated administrative ability in practice. The differences appear to lie in other elements such as mental and personal characteristics.

4. The predominance of functional work appears to be in matters pertaining to environmental control.

5. There are examples of situations in which it appears that full health department liaison is not all that it should be. Neither the medical man nor the engineer can reach his objectives alone, nor can either prevent other operative sections of a health department from pursuing activities requiring industrial contact. For instance, the physician should be on such terms with other departmental medical interests that the tuberculosis case finding program of the bureau or section of preventable diseases is coordinated with the industrial health program rather than being in competition with it.

The engineers in industrial hygiene and environmental sanitation must be so closely tied together that an industrial cross connection survey or a food sanitation program can be carried on without internal bickering and without duplication of effort or complete omission of essential service. The successful industrial hygiene service cannot become a small health department within a health department. Good administrators have recognized this point and are conscientiously striving to prevent its occurrence.

6. There are some dangers in the de-emphasis of industrial health sections. Certainly in all state departments a section on industrial health is desirable whether it be alone or placed under one of the main administrative branches. In the smaller local health units it is a moot question whether or not the work should be assigned specifically, as long as the services are rendered.

7. State industrial health services

have developed and expanded statewide. However, state units can and should make more use of local health departments in gathering basic control information. Perhaps the local departments cannot afford the luxury of technical field and laboratory equipment, but the problems of industry can become far better known and dealt with if local participation and interest are encouraged.

8. Salaries for all professions engaged in industrial health work are below those which will attract and hold responsible and well trained personnel. It is a rarity where salaries are adequate for all professions in the same unit. As an indication of these salary levels 6 medical director positions in widely separated states average a monthly salary range of \$474 to \$584. The minimum entrance salary of the 6 is \$420 and the maximum \$500. Nine top engineering positions selected at random average a monthly salary range of \$339 to \$426, while the minimum and maximum entering salaries are \$250 and \$420, respectively. Similarly, 5 chemist positions chosen at random indicated an average monthly range of \$259 to \$321, and the minimum and maximum entrance salaries were \$185 and \$330. It is difficult to justify these salary levels for such positions of responsibility. It is little wonder that industrial hygiene positions are vacated and go unfilled month after month.

9. In spite of what may seem to be a number of obstacles, there is evidence that better industrial hygiene and adult health programs are being developed in more health departments throughout the country. Contributions of clear thinking and objective action have been and will continue to be valuable.

Let each marshal his health forces and converge on his problems with the administrative pattern best suited to his needs. But let him be sure that it is satisfactory from all points of view,

practical from a working standpoint, and efficient in effecting gains for community and industrial health.

ACKNOWLEDGMENT—The writer is appreciative of the coöperation of the Chief and Staff of the Division of Industrial Hygiene, U. S. Public Health Service, in making numerous data and other information collected by the Division available for review and use.

REFERENCES

1. Johnson, W. Scott. An Administrative Approach to Industrial Hygiene. *A.J.P.H.* 30, 7:806 (July), 1940.

2. Trasko, Victoria M. In Industry's Service. *Occup. Med.* 3, 4:392 (Apr.), 1947.

3. Committee on Administrative Practice. American Public Health Association. Unpublished data.

4. Groseclose, Frank F. Industrial Engineering. *The Research Engineer* (Mar., 1947). Baltimore Hazard Prevention Program Begins with Blueprints. *Industrial Hygiene Newsletter* 7:7 (July), 1947.

6. Division of Industrial Hygiene, U. S. Public Health Service. Correspondence with the writer.

7. Townsend, J. G. Your Role in the Nation's Health Program. Unpublished paper presented at Interstate Industrial Hygiene Conference, Pittsburgh, Pa., May, 1947.

8. Spoylar, Dr. Louis W. Health Service for Official Agencies at the State Level. *Proceedings of the Eighth Annual Meeting of the American Conference of Governmental Industrial Hygienists* (Apr., 1946).

A State-wide Survey of Typhus Fever in Florida*

E. R. RICKARD, M.D., M.P.H., AND E. G. RILEY, M.D., PH.D.

*Director, Typhus Fever Studies in Florida; State Epidemiologist,
State Board of Health, Jacksonville, Fla.*

DURING the past decade the incidence of murine typhus fever has increased in the United States, until in 1944 a total of 5,338 cases was reported to the various state health departments. It is likely that 1944 was a peak epidemiological year, as the number of reported cases dropped off slightly to 5,167 in 1945 and more markedly to 3,367 in 1946. While it is possible that the increased number of cases reported in recent years may be due in part to better recognition of the disease by clinicians, and in spite of the recent epidemic recession, murine typhus fever still may be classified as an important major preventable disease in the southern United States.

Various investigators,¹⁻⁴ have reported that murine typhus is essentially a disease of the most southerly states and of the southernmost portion of these states. An exception to this observation has been noted in the State of Florida where although considerable typhus has been reported, principally in the 4 major cities of the state, the disease did not seem to have had the same widespread prevalence as in the neighboring states immediately to the north.

Accurate knowledge of the true incidence of any preventable disease⁵ as well as knowledge of the circumstances under which the disease is contracted

are almost indispensable starting points in the orientation of measures aimed at combating disease. For this reason the Florida State Board of Health in co-operation with the Rockefeller Foundation has recently completed a state-wide survey of murine typhus fever in which were investigated all possible known or suspected human cases having their onsets during the years 1944, 1945, and 1946.

METHODS EMPLOYED IN THE SURVEY

Following a preliminary reconnaissance of several months by an epidemiologist, typhus or suspected typhus cases were interviewed by trained lay field investigators working under close medical supervision. An average of 3 lay investigators, supervised by 2 physicians, conducted the survey during the period from July, 1946, to July, 1947. The sources of information leading to the cases were as follows:

Officially reported cases

Positive or suspicious Weil-Felix agglutination reports (titer 1:160 or more) from state laboratories

Information obtained in the field such as verbal reports from physicians or families or neighbors of patients; hospital records; and positive or suspicious reports from hospital or private laboratories

Death certificates

Either the patient or some immediate member of the family who was familiar with the circumstances of the illness was interviewed. Standard case history forms were made out for all interviews,

* Presented before the Epidemiology Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 8, 1947.

in which the following information was obtained: usual personal data to identify and localize the patient; a clinical description of the disease with notes on onset, fever and subjective symptoms, type of rash if present, duration of illness, and more important laboratory findings. Information was also obtained concerning the possible source of infection with notes on places frequented, trips taken, and exposure to rats or fleas during the 3 weeks prior to the onset of illness. Investigators questioned the patient or family as to the presence of rats at the home, place of work, and places frequented, and in most instances personally inspected the place where infection most probably occurred in order to record their own opinion of the apparent degree of rat infestation. At the close of each interview the investigator made note as to his opinion of the probable place of infection.

In all instances diagnostic classification of the case was determined by the medical directors of the survey after consideration of available clinical and laboratory data. Cases obviously not typhus, or in which other diagnoses seemed reasonably certain, were excluded from the series as were cases with negative serology taken at a time when serology would be expected to be positive. Likewise, cases believed to have been infected outside of the state were not included. The diagnosis of typhus was based on the following 3 principal characteristics of the disease:

Constitutional symptoms including chills, fever, sweats, headache, body pains, and malaise sufficiently severe to confine the patient to bed for a period of at least 10 days.

Typical typhus rash, macular or petechial in character, located on the body or extremities or both and appearing on the second to tenth day of illness.

Weil-Felix agglutination tests. Titers of 1:160 were considered as suggestive of rickettsial infection and titers of 1:320 or more were considered as diagnostic.

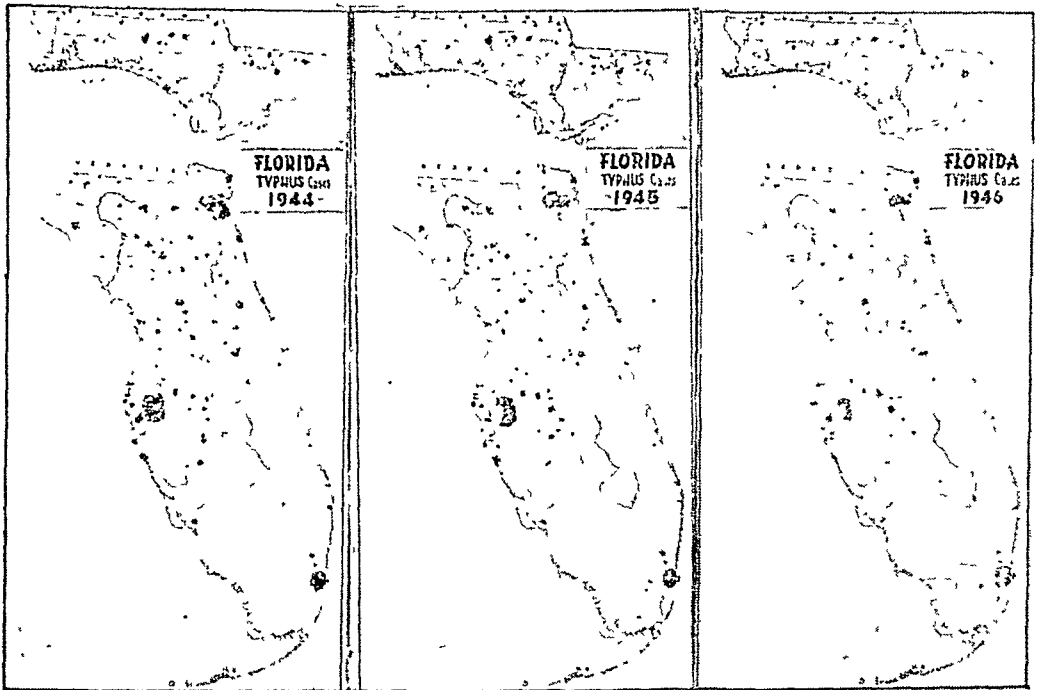
Patients having constitutional symp-

toms, typical rash, and Weil-Felix titers of 1:160 or more; those having constitutional symptoms without rash but with titers of 1:320 or more; and those having constitutional symptoms, typical rash but no serological examination were classified as cases of typhus. Patients with constitutional symptoms, no rash, and titers of only 1:160 and patients with constitutional symptoms only were classified as suspected cases.

Due to the rather extended period of time included in the survey as well as to wartime movement of population, it was not possible to locate a considerable number of persons for interview. Of a total of 3,072 cases or suspected cases 2,055 were interviewed. In calculating the incidence of the disease, cases officially or verbally reported as typhus by physicians and others have been included irrespective of whether they could be reached for interview, as experience revealed that only a small portion of these cases would not be classified as typhus.

A total of 1,337 cases with positive or doubtful Weil-Felix reports from state and private laboratories were investigated in the course of the survey. Of this group of cases 1,038 had titers of 1:320 or more. In correlating clinical and laboratory findings there were 5 per cent of these 1,038 cases in which the diagnosis of typhus was not considered clinically justified. In the cases considered as typhus clinically, the diagnosis was substantiated by the history of a typical typhus rash in 62 per cent of the group, while in 33 per cent there was no history of a rash having been observed. Among a smaller group of 299 cases in which a titer of 1:160 was the maximum observed, 27 per cent were not believed to have had typhus. This percentage was considerably higher than in the previous group; nevertheless, there were 73 per cent of this group who were believed to have had the disease and 44 per cent in which the diag-

MAP 1



nosis was confirmed by the presence of a typical typhus rash. The inclusion of cases with 1:160 titers but which were not investigated epidemiologically, therefore, seemed to lend more accuracy to the series than their exclusion. As the number of these cases was small, it did not greatly affect the various totals and percentages obtained in the survey.

RESULTS OF THE SURVEY

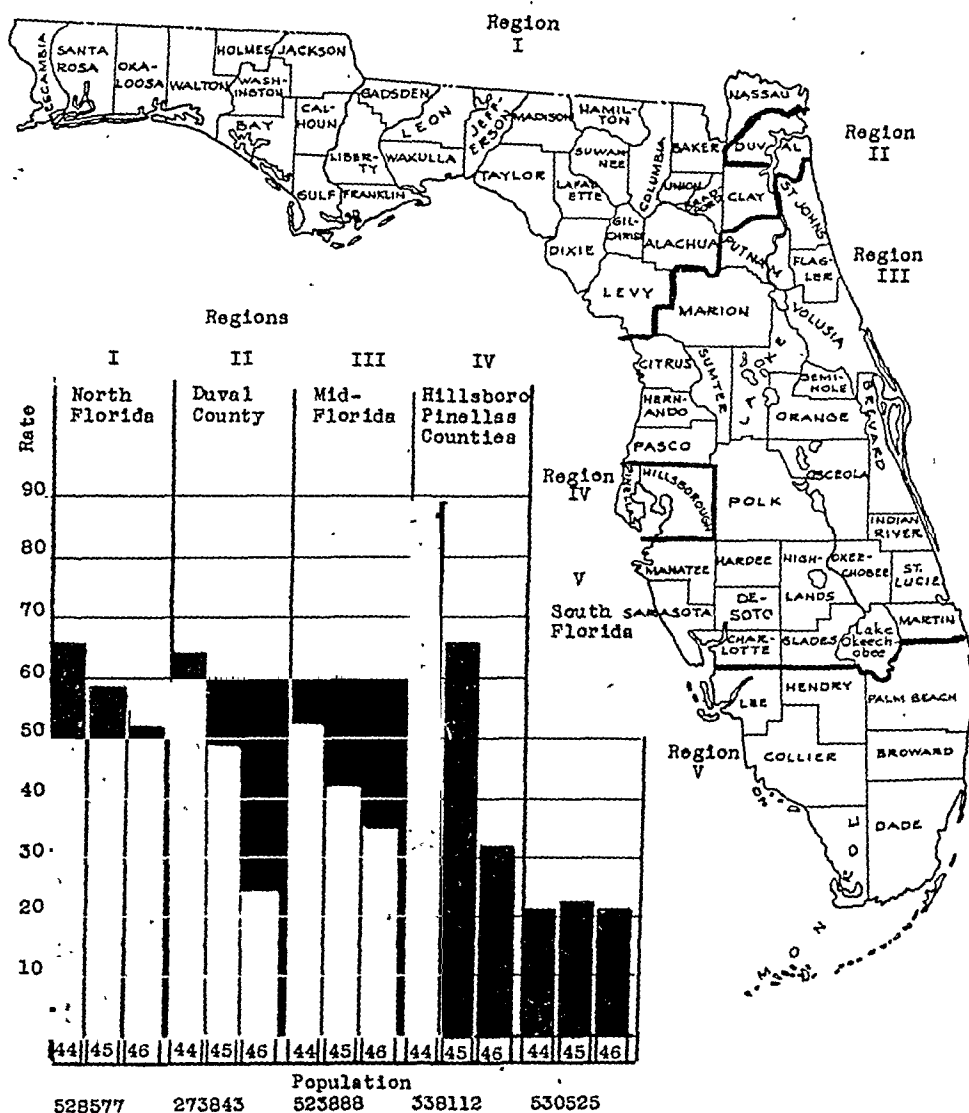
Of the various sources of information leading to the 3,072 cases, official reports to the health departments were the most fruitful; although only 37 per cent of the cases had so been reported. An almost equal number of cases, 34 per cent, were discovered by the investigation of positive or suspicious reports from the state laboratories. The remainder of the cases were found in the field with the exception of a very small number, 1 per cent, found through the investigation of the death certificates of persons who had been reported as dying of typhus but had not been reported as having the disease.

In the distribution of the cases by years there was a definite drop in the number of cases from a total of 1,234 in 1944 to 1,045 in 1945, and 793 in 1946. This trend was in accord with data on officially reported cases for the entire United States, as above quoted, but was at variance with the numbers of previously officially reported cases for the state for these years which were respectively 496, 380, and 420 cases.

On Map I the geographical distribution of the cases for the 3 years has been illustrated. Each dot represents one case which has been localized according to probable place of infection, when such could be determined or if this was not possible according to the place of residence. Little change in geographical distribution from year to year is evident. While it is apparent that cases are grouped in certain localities, there still is a widespread scattering of cases in almost all regions of the state. By and large, the distribution of cases follows almost exactly the distribution of the population.

Chart I
Typhus Fever Yearly Attack Rates per 100000 Population in
Different Regions during 1944, 1945, 1946.

STATE OF FLORIDA



The State of Florida extends through a wide range of latitude and consequently has certain climatic variations in different regions. For this reason the yearly indices of the disease have been analyzed separately for 3 principal regions of the state which have been illustrated on the map contained on Chart I. Northern Florida has essentially a "southern" climate characterized by long hot summers but broken by a

moderate winter season with fairly frequent frosts. Southern Florida has a climate almost tropical in nature with very rare winter frosts. The climate of mid-Florida ranges between those of the northern and southern regions. Throughout the state the winter months are relatively dry while the summer is characterized by high humidity and heavy rainfall. In addition to the above regions, data were also analyzed apart for

Duval County located in northern Florida and for Hillsborough and Pinellas Counties in mid-Florida. In these 3 counties extensive programs of typhus control have been carried out during the period covered by the survey. In the rest of the state control measures have been too limited in scope to have had any appreciable influence upon the incidence of the disease.

A comparison of the yearly attack rates per 100,000 inhabitants for the different regions as illustrated on Chart I reveals that, with the exception of south Florida, the trend of the rates has been somewhat similar. A recession may be noted in the first four regions which is accentuated in Regions II and IV where control measures were carried out. South Florida differs from the remainder of the state in having considerably lower attack rates in which no recession is apparent.

Seasonal curves for Regions I, II, and IV were similar and were characterized by summer peaks occurring in

June or July sometimes followed by secondary peaks in November or December. The disease had its lowest incidence in the late winter or early spring, generally in February or March. In Region III, mid-Florida, secondary peaks were more pronounced while in Region V, south Florida, the cases were more evenly distributed throughout the year.

Of a total of 3,072 cases or suspect cases under investigation for the 3 year period included in the survey, it was possible to complete interviews on 2,055 cases. Of the cases interviewed, 85 per cent were considered as typhus according to the criteria previously established. Thirty-eight per cent had all 3 cardinal characteristics of the disease: severe constitutional symptoms, significantly positive Weil-Felix titers, and typical rash. Seventeen per cent had constitutional symptoms and positive Weil-Felix titers but no history of rash, and 30 per cent had typical clinical findings and rash but were without serological

Chart II

Types of Business Houses in Which Infection was Probably Acquired in Cases Where Source of Infection was Attributed to Business Houses.

	Number of Cases	Percent 0 10 20 30 40 50 60 70
Food Handling	367	
Non-food Handling	170	
Total Cases	537	

Occupations of Patients Immediately Prior to Illness.

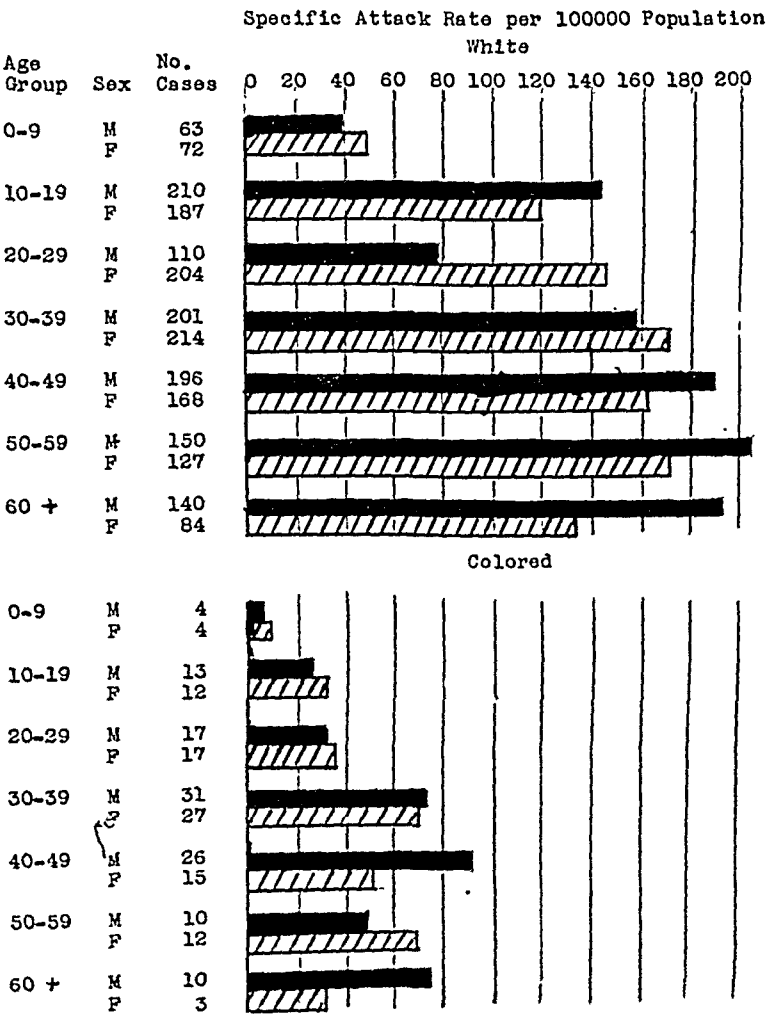
	Number of Cases	Percent 0 10 20 30 40 50 60 70
Employed in Business Establishments		
Food Handling	422	
Non-food Handling	542	
Not Employed in Business Establishments	1073	
Total Cases	2037	

confirmation. Only 15 per cent of the series were classified as suspected typhus in which the diagnosis was believed to be open to question.

In the classification of cases by probable places of infection, cities or towns having a population of 1,000 or more were considered as urban. This division was made in the belief that it would be more useful in planning control measures than the commonly accepted criterion of 2,500 inhabitants. On this basis, of the total population of the state, 2,250,061 persons according to the 1945 census, 1,541,416 or 69 per cent

are urban, and 708,645 or 31 per cent are rural dwellers. Seventy-six per cent of the 2,055 cases investigated were believed to have been contracted in urban and 24 per cent in rural localities. These percentages were reflected in the attack rates per 100,000 for urban and rural populations which were 101 and 70 respectively. There were many reasons to believe, however, that with the methods used in this survey rural cases would more likely have escaped discovery than urban ones and that there was no real difference in these attack rates. In the combined urban and rural cases,

CHART III
Comparative Age, Race and Sex Specific Attack Rates per 100,000 Population
(Based on 2,327 cases occurring in 1944, 1945, and 1946)



67 per cent were believed to have been infected in the homes and 28 per cent at places of business, while in 5 per cent of the cases it was impossible to form an opinion as to the probable place of infection.

On the upper portion of Chart II the ratio of the number of cases whose source of infection was ascribed to food handling and non-food handling business establishments has been illustrated. Here it may be noted that the greater portion of the cases were ascribed to food handling establishments. Of these establishments, groceries and restaurants were found to have been the principal offenders, as 47 per cent of the cases believed infected in business houses were attributed to these 2 types of establishments. To other types of food handling establishments 21 per cent of the cases were attributed. Less than one-third of the cases were traced to non-food handling establishments. In many instances the source of rat infestation responsible for infection in non-food handling establishments was believed to be in nearby food handling business houses.

Indication of the probable place of infection necessarily was a matter of the opinion of the investigators. For this reason an analysis of the occupations of the patients immediately prior to illness, as illustrated in the lower portion of Chart II, should be of interest. Here it may be seen that 53 per cent of the patients had not been employed in business. These patients had occupations the nature of which would keep the individual about home the greater portion of his time. Of those employed in business, 27 per cent of the total number of patients were employed in non-food handling businesses of rather widely diversified natures, and only 22 per cent in food handling establishments. These findings substantiated the opinions of the investigators in ascribing 67 per cent of the source of infection to homes.

In Chart III the age, race, and sex specific attack rates per 100,000 of the population have been illustrated. The low incidence of the disease in the 0-9 age group would seem at direct variance from that which would be expected from a disease which was most frequently contracted at home and suggests that typhus fever may not be recognized as readily in this age group as among older persons. The lower rate in the white male 20-29 age group may be explained by the absence of a large portion of this group in military service during the war years. Attack rates in the colored population were lower than the white in all age groups. This, likewise, was contrary to expectation in the case of household infection of the nature of typhus. The colored population commonly inhabits the older and, therefore, more heavily rat infested residential districts.

DISCUSSION

That murine typhus fever has been and still is an inadequately reported disease is the opinion of many public health workers and has been commented on in the literature.⁵ While it is true that in 15 per cent of the cases investigated in the present survey the diagnosis of typhus fever could not be considered as completely substantiated, there is reason to believe that by the methods employed all frankly typical cases of the disease were not discovered. Nevertheless, the magnitude of the typhus problem in the state has been indicated to be approximately two and one-half times as large as that shown by the number of officially reported cases. Moreover, epidemiological evidence collected in the survey suggests that in young children and in the colored race cases of typhus, perhaps mild and atypical or even subclinical, are escaping diagnostic detection. In consideration of the large number of febrile exanthemata to which young children are sub-

ject, the greater difficulty of the differential diagnosis in this age group is understandable.

In planning programs for the control or eradication of typhus, knowledge not only as to the case incidence but as to the circumstances under which disease is acquired is desirable for the orientation of control measures and subsequent evaluation of results achieved. Ratproofing of buildings has been used extensively as a method of rat and typhus control. In many respects this method is comparable to permanent drainage measures in malaria control. Like permanent drainage, ratproofing has definite economic limitations and, so far, has been applied principally to urban business establishments. The results of the present survey have shown, however, that business establishments are responsible for less than one-fourth of the cases of typhus in the state. Evidence suggested that 67 per cent of all infections were contracted in homes.

In many cities in the United States DDT dust has been applied to rat infested dwellings and buildings particularly in the poorer residential districts, in an attempt to control typhus by the reduction of fleas on rats. Encouraging reports have appeared in the literature both upon the reduction of flea indices⁶ and the reduction of human cases of typhus⁷ by this method. So far, however, little has been reported upon the necessary frequency of application of dusting and the duration of its effect, and the economic practicability of the method over a long period of time has not been evaluated.

The problem of the control of rural typhus would appear to be difficult of solution because of the high costs due to long distances involved. The Florida population is essentially urban, as previously defined, and only one-fourth of the cases were found to be of rural origin. Sporadic cases scattered in

small towns and cities throughout the state may be considered the same as rural cases, however, from the standpoint of the application of control measures. The relative numbers and locations of these cases may be appreciated by an inspection of Map I.

In evaluating any control measure, the natural epidemiological variations of the disease from one year to the next should be considered. Epidemic peaks and recessions have been noted in nearly every known infectious disease. It would seem likely, therefore, that the same natural variations exist in typhus fever. Apparently in the State of Florida, as in other states which have reported considerable numbers of cases, the disease was receding in 1945 and 1946 from an epidemic peak reached in 1944. Control measures applied during these years would, therefore, appear to have considerably accentuated the decline in the number of cases in the localities where applied but may not necessarily have been responsible for the entire decrease in incidence.

SUMMARY

A state-wide survey of murine typhus fever was conducted in Florida in which were investigated cases or suspected cases of this disease having their onset during the years 1944, 1945, and 1946. Sources of information leading to cases were official reports to health departments, state laboratory records, information obtained in the field, and death certificates. For 2,055 of the 3,072 cases under investigation, standard case history forms were made out by trained lay field investigators who endeavored to ascertain the source of infection in every case interviewed.

By the methods employed the incidence of the disease was determined to be approximately two and one-half times that indicated by numbers of previously officially reported cases. Evi-

dence was adduced which suggested that numbers of cases in young children and the colored race were not being recognized as typhus.

The disease was found to be almost proportionately distributed in urban and rural populations but the actual number of cases in urban populations was considerably higher because of the preponderance of urban dwellers in the state. Twenty-eight per cent of the cases were believed to have been infected in business establishments while 67 per cent were believed to have been infected in homes.

REFERENCES

1. Baker, J. N., McAlpine, J. D., and Gill, D. C. Endemic Typhus. *A.J.P.H.*, 24:1068-1073 (Oct.), 1934.
2. Baker, J. N., McAlpine, J. G., and Gill, D. C. Endemic Typhus in Alabama. *Pub. Health Rep.*, 50:12-21 (June 4), 1935.
3. Bowdoin, C. D., and Boston, R. J. Practical Epidemiology of Endemic Typhus in Georgia: Preliminary Report. *Am. J. Trop. Med.*, 20:537-549 (July), 1940.
4. Meloney, H. E. Recent Extension of Endemic Typhus Fever in the Southern United States. *A.J.P.H.* 31:219-227 (Mar.), 1941.
5. Eskey, C. R. Murine Typhus Control Especially by Rat Proofing of Buildings. *Pub. Health Rep.*, 58:631-638 (Apr. 16), 1943.
6. Davis, D. E. The Control of Rat Fleas (*X. cheopis*) by DDT. *Pub. Health Rep.*, 60:485-489, (May 4), 1945.
7. Davis, D. E. The Use of DDT to Control Murine Typhus Fever in San Antonio, Texas. *Pub. Health Rep.*, 62:449-463 (Mar.), 1947.

Canadian Public Health Association

Vancouver, British Columbia, will be host to the Canadian Public Health Association from May 18 to 20 when the association holds its annual meeting in that city. Hotel Vancouver will be headquarters and the center of the sessions.

The meeting is sponsored by the public health workers of British Columbia with the Washington State Public Health Association as co-hosts. Chairman of the conference will be G. F. Amyot, M.D., Deputy Minister of Health for British Columbia and President of the Canadian Public Health Association. The annual meeting of the Washington State Public Health Association will be held on May 17.

Sectional sessions will be held on Tuesday morning, May 18, with general sessions following on Tuesday afternoon and Wednesday morning. Wednesday afternoon will be reserved for relaxation. The final session, Thursday afternoon, will be a panel discussion under the leadership of Carl E. Buck, Dr.P.H., Resident Lecturer in Public Health Practice, School of Public Health, University of Michigan. The Honorable Paul Martin, Minister of National Health and Welfare, will be the luncheon speaker on Tuesday.

Further information can be obtained from the Division of Health Education, Department of Health, Parliament Buildings, Victoria, B. C., Canada.

Paralytic Shellfish Poisoning on the Canadian Atlantic Coast*

J. GIBBARD, F.A.P.H.A., AND J. NAUBERT

*Laboratory of Hygiene, Department of National Health and Welfare,
Ottawa, Canada*

IN 1936, Canadian public health officials realized that there was a mussel poisoning problem in Canada when there occurred in Nova Scotia 5 cases with 2 deaths following the consumption of mussels. The facts were reported by Dr. P. S. Campbell, Chief Provincial Health Officer for Nova Scotia, and later reported in a technical paper by Murphy.¹ A special *Bulletin* released recently by the Canadian Government authorities² is devoted entirely to the shellfish poisoning problem on the Canadian Atlantic Coast.

One of the earliest references to mussel poisoning is contained in a historical account of Captain Vancouver's expedition entitled "A Voyage to the Discovery of the North Pacific Ocean" published in London in 1798. The reference is to several outbreaks of mussel poisoning with one death among the crew of Captain Vancouver's ship. The incriminated mussels had been collected from an area which is still known as "Poison Cove." The description of the symptoms fits the condition which is now known to be caused by poisonous shellfish. Another interesting reference may be found in the *Washington Exploration Quarterly*, vol. 18, p. 284, in connection with explorations of Alaska by Russians which took place about 1790. In this account, members of a

Russian party are reported to have been affected by poisonous mussels, as follows: "One hundred of his hunters were poisoned by mussels from the Peril Straits and died."

There are no cases of mussel poisoning on record in Canada prior to 1936 except the ones just referred to. However, one notable result of careful inquiries conducted in the maritime provinces in 1945 was the revelation of the fact that there have been many unrecorded outbreaks among human beings and domestic animals. It was also found that residents of fishing communities know from old traditions of the dangers of eating poisonous mussels. They have also known that poisoning is confined to definite localities. They have even acquired food habits that afford a certain degree of protection. They will eat, for instance, only the adductor muscle of the scallops, the rim being considered poisonous. Others eat the "red roe" or "coral" as the ovary is called, and regard all other parts of the rim as unfit for food. Although most appreciate the danger of eating mussels, many are still not convinced that soft-shell clams can be poisonous. The allergic form of mussel poisoning has occasionally added confusion in identifying outbreaks. The evident prevalence of limited and hazy notions on this matter is further confirmed by indefinite reports of cases. Thus, in 1937, 1 case may have occurred at Pocologan, New Brunswick, and there were probably 2 deaths

* Presented at a Joint Session of the Laboratory and Engineering Sections of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 7, 1947.

years ago at Hailey's Cove, N. B. There was also another report from this locality in 1936, that probably 3 cases had occurred following the consumption of blue mussels.

Following the Digby outbreaks, some investigations were carried out and the seriousness of the problem was revealed.³ Since 1943 surveys have been conducted without interruption in order to determine the danger season, the dangerous areas, and the dangerous species of shellfish. This was successfully accomplished with the collaboration of the Fisheries Research Board of Canada and the Dominion Department of Fisheries. Sampling programs were drawn up and included all of the commercial clam areas as well as the canning and the shucking plants. The results obtained led to the institution of a quarantine regulation whereby areas showing toxicity increasing above a certain level may be closed immediately to fishing. Under this authority, also, the packs of canning and shucking plants may be subjected to regular or periodic sampling for the detection of mussel poison. These measures have already proved their efficiency. The consumers of clams and other shellfish of the home trade as well as the export market are now assured of a perfectly safe food in all its popular forms. This beneficial result, on the other hand, may be expected to reflect on the Canadian shellfish fishery by guaranteeing a steadily increasing market.

The detection of mussel poison is effected by a simple test which was developed from the "field test" used by Sommer and Meyer.⁴ Briefly the steps are: mincing the washed shellfish meats; suspending a determined portion of the mince in an equal volume of tenth normal hydrochloric acid and boiling gently for 5 minutes. The mixture is made up to the original total volume with distilled water, the pH adjusted to between 4.0 and 4.5, and then centrifuged

or permitted to settle. The clear supernatant liquid is injected intraperitoneally into at least three white mice. The mean death time is referred to a standard toxicity graph from which toxicity is determined and expressed as "mouse units." The mouse unit is the amount of poison, contained in 1 ml. of extract, that kills mice of 20 gm. weight in 15 to 20 minutes.

The quarantine level has been set at 400 mouse units, and was first based upon the work of Sommer and Meyer.⁴ The effectiveness of this level in affording consumers a more than ample degree of protection is now well established. Epidemiological studies carried out in 1945 in the maritime provinces have shown that the mildest symptoms of poisoning may be observed only when a quantity of poison in excess of 1,000 units has been ingested, thus confirming the 400 mouse unit quarantine level.

The epidemiological study referred to above was carried out in 1945 and has been reported in the literature.² An outstanding feature of this study is that case records included the place of origin of the poisonous shellfish as well as the date they were fished. It was thus possible to correlate toxicity of raw shellfish, dosage of poison, and symptoms. The data indicated that the minimum amounts of poison required to produce mild, severe, and extreme symptoms of poisoning in susceptible persons might be in the neighborhood of 2,000, 10,000, and 25,000 mouse units respectively. The clinical picture was carefully studied in the 28 human cases in New Brunswick in 1945. The symptoms, varying in severity with the amount of poison ingested, were consistent; numbness about face and mouth, "pins and needles" feeling about the lips, vomiting, headache, dizziness, difficulty in breathing, general weakness, occasional paralysis. The poisoning of domestic animals, particularly hens and house cats, seems to have been quite

common. More frequent illness among human beings is apparently prevented by the food habits of the people in the fishing communities and their traditional knowledge of the dangers involved. It was also found that there were many who ate toxic shellfish without ill effects. These cases were of particular interest since they indicated a degree of human resistance to the poison. This was found especially among inhabitants of shore communities. Most of the sufferers were among non-residents of these communities such as picnickers, for whom shellfish were not a habitual item of diet.

All of the species of mollusks more or less generally favored in the Bay of Fundy areas have been found toxic to some degree, during the late summer and early fall. These comprise, in decreasing order of toxicity, the red mussel (*Modiola modiolus*), the blue mussel (*Mytilus edulis*), the bar clam (*Macra solidissima*), the razor clam (*Ensis directus*), the scallop (*Placopecten grandis*), and the soft-shell clam (*Mya arenaria*). The last mentioned is the most important commercially and, fortunately, is the least dangerous.

The distribution of the poison within the shellfish was found to vary considerably with the organs. While Pugsley⁵ demonstrated the poison to be centered in the siphon of the butter clams (*Saxidomus*) of the West Coast, the toxicity records of the Atlantic Coast mollusks show that the poison is most concentrated in the liver. The gill is next in importance, and the remaining parts come in third place. The soft-shell clam (*Mya*), however, was shown to undergo a seasonal reversal of conditions, the liver having the highest toxicity level during the summer but ceding its place to the gill during the fall and winter months. Muscle tissue in all species was shown to have a low capacity for the poison; in the case of the scallop, however, there was never any trace

of poison demonstrated in the adductor muscle, a most fortunate circumstance indeed, considering the popularity of this part of the scallop as a delicacy.

With regard to the location of toxic beds within any given area, the toxicity was found to increase from nil to high levels with the proximity to the open sea. This is indeed a boon for the industry since most of the main commercial beds may be left open to fishing with little or no risk. Such is the case in Passamaquoddy Bay, where the inside areas have been consistently free of poison. Farther along the New Brunswick side of the Bay of Fundy, the commercially important areas that are open to the bay itself had the highest toxicity levels. These have been closed to fishing. Many commercial clam areas in Nova Scotia have been demonstrated to be free of poison, and all areas in Prince Edward Island and along the Northumberland Strait have also been found safe.

The ultimate source of the poison has been shown to be in a species of dinoflagellate *Gonyaulax tamarensis*, one of the planktonic organisms on which the shellfish feed. The appearance of high toxicities and large numbers of the dinoflagellate have been simultaneous, that is, between mid-July and the end of September.

Attempts to devise means of destroying the poison were the object of numerous experiments. In that regard, the chief of these were to determine the effects of domestic cooking, shucking, and commercial canning. Domestic cooking experiments included steaming for 15 to 20 minutes in a covered pot with only sufficient water to cover the bottom; boiling in water for 20 minutes; and "pan-frying" for 15 minutes in an open pan with just enough fat to prevent burning. Although these cooking processes were found to reduce the poison content of the raw meat by at least 70 per cent, they were demon-

strated to fall short of providing sufficient protection.

While shucking was demonstrated to have no effect whatever toward reducing the poison content of clams, the process of canning, as it is practised commercially, was found to be quite efficient. Presumably certain factors forming part of the process, such as discarding clam bouillon, the alkaline condition of steaming and the retorting temperature are jointly responsible in reducing a raw meat toxicity of 1,000 mouse units to a safe level. This protection is effectively insured by sampling systematically all commercial packs when the toxicity in clam fishing grounds rises over the quarantine level of 400 mouse units, and releasing these packs for sale only if free of demonstrable poison.

Commercial fishing of mussels of any species from areas in the Bay of Fundy either for canning or for sale as raw food has been prohibited at all seasons since the autumn of 1943, when their toxicity was found to be several times higher than that of clams.

The scallop industry presents no problem since the adductor muscle, the only part marketed, has been demon-

strated to be consistently free of poison.

During the past three years, the Department of Fisheries, on recommendation from the Department of National Health and Welfare, has imposed temporary restrictions on the taking of shellfish from restricted areas. At such times the grounds have been closed to all fishing except for canning. Dangerous areas have been posted with warning signs and patrolled by special wardens at week-ends when picnickers visited them. Beyond this, there is little that can be done to enforce the fishing prohibition on the general public. On the other hand there has been no difficulty in maintaining good control of all commercial operations.

REFERENCES

1. Murphy, C. I. Mussel Poisoning in Nova Scotia. *Canad. M. A. J.*, 35:418-419, 1936.
2. Medcof, J. C., Leim, A. H., Needler, A. B., Needler, A. W. H., Gibbard, J., and Naubert, J. Paralytic Shellfish Poisoning on the Canadian Atlantic Coast. *Bull. LXXV, Fisheries Research Board of Canada*, 1947.
3. Gibbard, J., Collier, F. C., and Whyte, E. F. Mussel Poisoning. *Canad. Pub. Health J.*, 30:193-197, 1939.
4. Sommer, H., and Meyer, K. F. Paralytic Shellfish Poisoning. *Arch. Path.*, 24(5):560-598, 1937.
5. Pugsley, L. I. The Possible Occurrence of a Toxic Material in Clams and Mussels. *Fish. Res. Bd. Can. Prog. Rep. Pacific Station*, 40:11-13, 1939.

American Journal of Public Health

and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

April, 1948

Number 4

Editorial Board

REGINALD M. ATWATER, M.D.
Chairman, and Managing Editor

LEONARD GREENBURG, M.D.
PROFESSOR JOHN M. HENDERSON
RALPH S. MUCKENFUSS, M.D.

STUART MUDD, M.D.
RAYMOND S. PATTERSON, PH.D.
GEORGE ROSEN, M.D.

C.-E. A. WINSLOW, DR.P.H., Editor

AUGUSTA JAY, Editorial Associate

THE WRITTEN WORD

WE take the "Book," and the whole miracle of the written word which is involved, far too lightly.

Each human being, according to his innate capacity, learns something as the days go on. He accumulates experience, to some extent he correlates it and interprets it. He becomes wiser as the years pass. And then he dies; and the complex neural mechanism, developed and refined so laboriously, disintegrates into dust.

In primitive society, something of the gathered wisdom is passed on by word of mouth. Folklore is gathered and sagas are learned by rote; but progress by this means is very slow. The real turning point in human evolution came when some brilliant innovator in a given society conceived the idea of the written symbol; and the way was gradually opened for full transfer of human thought to coming generations. The thinker attained immortality; and the process of real psychological and social evolution was opened to mankind.

So the book is the basic instrument of human progress. There is something almost sacred about an ancient book—or about a modern book which has in it the potency of living so that it may become an ancient book. A hundred feet from the desk on which this editorial is written is one of the oldest printed volumes in the world, the first edition of *The Conciliator* by Peter of Albano, published at Mantua in 1472, and one of the great medical works of all time. Is it not thrilling to realize that these pages which lie under my hand in 1948 have for nearly five hundred years been pored over by scholars, that these beautifully printed words have stimulated in the brains of twenty generations currents of thought which have led us on to new conceptions and new syntheses? The entire fruit of the speculation and of the aspiration of men is embodied in the printed word.

Therefore, this number of the *Journal* is devoted to books; and we are fortunate in having persuaded Huntington Williams to write the Special Review Article which opens the issue, as not only a distinguished health administrator, but also a scholar and a book lover.

As Dr. Williams has said, no two bibliophiles would recommend quite the same books. He mentions only casually what some of us would put at the top of the whole list—the *Report of the Sanitary Commission of Massachusetts* (1850). It is true that the report is so rare that few health officers have even seen it; but it

may be plausibly maintained that this is perhaps the most remarkable single document in the history of public health. You will find in its pages a preview of almost everything we are doing nearly a century later in the field—and of some things which even now remain as challenges of the future. Perhaps the Editor is prejudiced in this regard, since he has the good fortune to own a specially precious copy of the Report in question. It was sent by Lemuel Shattuck, head of the Sanitary Commission, to the Mayor of Providence with a personal letter (pasted in the front of the Report). Years later it was thrown out with other musty tomes on the city dump, rescued by an intelligent citizen and turned over to Dr. C. V. Chapin, then Health Officer of Providence; and presented, with a personal inscription, by Dr. Chapin to the present owner. It is our earnest hope that either the State of Massachusetts or Harvard University (or the American Public Health Association?) may commemorate the Hundredth Anniversary of this great document by reproducing it for the wide distribution which it deserves.

One word more, to the student of "The Health Officer's Bookshelf," and to the readers of the many new volumes reviewed or presented in this issue of the *Journal*. As we garner the treasures of the past, we must not be merely passive beneficiaries. What we gain from the written word should be handed on through the same medium, enriched and enlarged by the mites which all can add to the common store; each of us, one humble link in the long chain of progressing human experience.

A HEALTH DEPARTMENT MEDICAL CARE PROGRAM

THE Maryland Medical Care Program was described in general terms in this *Journal* a year ago.¹ The operation of this plan has been intensively studied by the Subcommittee on Medical Care of the Association, and an important report on the subject will shortly be available for distribution. We are permitted to make reference to the main conclusions of this report.

The Maryland plan was an outgrowth of a movement initiated by the Medical and Chirurgical Faculty (the State Medical Society of Maryland) and was formulated after careful study by the State Planning Commission. It aims to provide medical, hospital, nursing, and dental care for the indigent and the "medically indigent" of the state. It is directed by the State Health Department, with the advice of a State council on Medical Care representing state health and welfare agencies and the various health professions concerned.

The provision of hospital service remains in the hands of local welfare departments; and shortage of funds has so far limited the program largely to home and office physicians' calls and certain prescribed drugs. It has not made much progress in the care of the "medically indigent" for whom special authorization for each specific illness under a means test is required. For recipients of public assistance in any form, however, registration for service is automatic; and this group of the population has—for the first time in the United States—received basic physicians' services under a state-wide system operated by a state department of health. The experiment, therefore, deserves careful study.

Our Subcommittee on Medical Care has criticisms of the present program and has pointed out a number of desirable changes (many of which are advocated by the Maryland Department itself). On the whole, however, it is found that "after original apprehension about the flood of demands for free medical care and the burdensome volume of 'red tape' proved groundless, county health officials found

the new program relatively easy to administer, the wide relationships with professional people helpful, and the opportunities for service augmented." The program is a decentralized one and is administered on the local level by county health officers, each with his own advisory committee. Our subcommittee finds that lack of local initiative (or existence of local prejudice) has caused some areas to lag behind; but the decentralized plan offers valuable assurance against the boggy of "bureaucracy." Our subcommittee finds that the Bureau of Medical Service of the State Department of Health "has demonstrated a high level of administrative and professional efficiency in the development of the Maryland Medical Care Program." Actual service is sought by each recipient from the physician of his own choice and payment is made directly to the physician by the State Treasurer. "Physicians and dentists feel that the program has been skilfully organized to involve a minimum of 'red tape' in administration. They are required each month to submit a single standard form for every patient seen. The forms are compactly designed to reduce paper work."

The Maryland program has not yet found all the answers; but it is a serious attempt to solve a problem which has troubled all who are seriously concerned about the public welfare; and which cannot be solved by arm-chair pronouncements but only by trial and error.

The Board of Trustees of the American Medical Association, in a recent statement wipes this problem comfortably off the slate.² It states that the group of the population "who are wholly dependent on the public welfare for even their housing, clothing, and food . . . is well cared for on a charity basis in most areas, but certain arrangements must be made in a few areas. The problem here is a social one of raising the economic level of the group rather than a medical one." It is difficult to take refuge behind the Utopian ideal that a class below the poverty line can be completely abolished—unless one is a Marxian idealist of the most extreme type. Nor can it be maintained with any seriousness that this group of the population "is well cared for on a charity basis in most areas." All scientific studies of the question have shown beyond any shadow of doubt that this low economic group has less than half the medical care which is essential for health and which is enjoyed by the well-to-do. Even if hospital and clinic facilities were actually reaching the lower economic group in sufficient quantity, we should hardly be satisfied. The public health worker realizes that personal individual contact with a family physician of one's own choice is essential to good medical care. Such a relationship is completely absent from most "charity medicine"; but is clearly visualized in the Maryland plan.

Equally unfortunate—and wholly unjustified—is the thesis maintained by the Board of Trustees that "Health departments should not assume the care of the sick as a function, since administration of medical care under such auspices tends to a deterioration in the quality of service rendered"; and also, their "emphasis on the principle that medical care and treatment are not properly functions of public health units." We challenge the ability of the Trustees to provide any concrete evidence in support of the assumption that health department direction of medical facilities tends to deterioration in quality of service. The high standing of tuberculosis sanatoria chiefly under health department direction is a fairly clear refutation of the assumption.

Since it is agreed that funds for the care of the indigent must chiefly come from the public treasury, it is obvious that some form of control of these expenditures must be provided. The practical alternative is a choice between welfare

departments and health departments. It might have been assumed that the American Medical Association would have preferred medical rather than lay control of medical care allotments. That at any rate is the position of the American Public Health Association which recognizes that the health officer as representative both of the medical profession and of the public interest is the man to do the job. That is why the Association³ has declared in its resolution on "Medical Care in a National Health Program" that "A single responsible agency is a fundamental requisite to effective administration at all levels—federal, state, and local. The public health agencies—federal, state, and local—should carry major responsibilities in administering the health services of the future. Because of administrative experience and accustomed responsibility for a public trust, they are uniquely fitted among public agencies to assume larger responsibilities and to discharge their duties to the public with integrity and skill."

Of particular significance is the progress already made in Maryland in the basic improvement of the quality of medical care. "Plans have been completed and the necessary funds have been appropriated for the extension of diagnostic facilities by expanding the staff and equipment of the eleven branch state laboratories in order to make it possible for them to provide an increased volume and variety of clinical laboratory procedures."

"Additional public health nurses have been added to the staff of a number of county health departments. A study is being planned in one county in order to determine the requirements of patients under the medical care program for bedside and other nursing services. In addition, a detailed clinical study of the dental needs of one hundred eligible patients has been completed in one county and others are contemplated. Once these estimates of need are available, it will be possible to formulate more appropriate programs of service."

"Probably the most important potential contribution of the medical care program in improving quality is the projected plan for consultation services. This plan calls for an organized consultation service based on the facilities and personnel of the medical schools in Baltimore, whereby specialists would go into the counties at regular intervals and hold consultations with local practitioners on difficult cases under the medical care program."

It is such comprehensive planning for improvement in basic medical services and for their correlation with preventive services that can be attained—and can only be attained—by health department leadership. The Maryland plan is only a beginning; but it is a most important beginning. It reflects great credit on the Maryland State Department of Health; and on the Medical and Chirurgical Faculty which stimulated the movement nine years ago. It is a program which should be seriously studied and its lessons applied in other states.

REFERENCES

1. Roberts, D. W. Maryland Medical Care Program. *A.J.P.H.*, 37:259, (Mar.), 1947.
2. Report of Board of Trustees of the American Medical Association. *J.A.M.A.*, 136:261 (Jan. 24), 1948.
3. Medical Care in a National Health Program. Official Statement of the American Public Health Association. *A.J.P.H.*, 34:1252 (Dec.), 1944.

ADMINISTRATIVE JUDGMENT IN THE CONTROL OF TUBERCULOSIS

TWO articles on tuberculosis in this issue of the *Journal* present stimulating differences of opinion in regard to what should be our major emphasis in the detection and control of this disease. F. J. Weber and R. J. Anderson stress the

value of community-wide x-ray programs (envisioned for 92 of the largest cities of the United States). They advocate such surveys in densely populated areas as "an expedient means for the elimination of infectious foci"; as important factors in health education; and as a stimulus to the development and utilization of clinic and sanatorium facilities.

Dr. J. Arthur Myers, of the University of Minnesota presents a somewhat different program based on experience, particularly in the rural areas of his state. His aim is not the "control" of tuberculosis, but its "eradication." He points out that the incidence of clinical tuberculosis is so low in Minnesota that an epidemiological attack on the disease based on clinical cases could accomplish only meager results. A campaign to combat the disease by x-raying he compares to the use of "a fish sieve with meshes which prevent only those of ten pounds or more from passing through." He points out that only 75 per cent of the lung area is visualized in this procedure and that only relatively gross lesions are revealed. It is the tuberculin reactor who should be the keystone of our program, in Dr. Myers's view. In essence, every reactor is a case of tuberculosis in a mild form; and he quotes Bogen to the effect that about half of all infected persons ultimately develop clinical disease. Close and continued observation of all reactors is, then, the only sound procedure; and this need not be an unduly arduous task, since less than 10 per cent of the children under 18 years of age are found to react in many areas of Minnesota. Even in Minneapolis, the reaction rate at high school age is only 12.5 per cent; and the annual infection attack rate, only 0.33 per cent. Not unnaturally, Dr. Myers is strongly opposed to the use of BCG, since its general application would mask his favorite test.

When good men disagree there is usually some sound reason for their disagreement. We suspect that, in the campaign against tuberculosis, tactics may wisely and properly be varied in relation to local conditions, and particularly with respect to the stage of progress which that campaign has already reached.

In areas where the incidence of tuberculosis is very high and clinic and sanatorium and nursing facilities are inadequate (or in special groups such as nurses and sanatorium attendants or susceptible groups such as Indians) the routine use of BCG would seem to be clearly indicated as pointed out in this *Journal* last year.¹

Where tuberculosis rates are still moderately high but control machinery somewhat more adequate, the x-raying of special groups of the population may be the primary method of choice. In this case, we still feel that the groups to be tested could most profitably be selected in the following order²: persons with suspicious pulmonary symptoms, contacts with known cases, general hospital admissions, members of specially susceptible racial groups, and workers in trades exposed to silica dust.

When the program of control has progressed further, the most promising procedure for obtaining a maximum result from the x-ray may well be the screening of the general population.

Finally, when the disease has been controlled as successfully as in Minnesota, Dr. Myers may be quite right in maintaining that every reactor to tuberculin should be viewed as a potential source of infection, and the program centered about that assumption.

The nice logic of this classification is somewhat marred by the fact that Danish authorities advocate the use of BCG not in the first of the five states outlined above, but in the fifth—on the ground that it is dangerous to create a non-immune

population and that the more we reduce naturally acquired immunity—the more important it is to create artificial herd-immunity by vaccination.

We can perhaps leave this problem to Minnesota and Denmark. Most American communities are still in the second, third, and fourth stages of the public health progress outlined above.

It is clearly desirable, however, that the individual health officer should size up his own local situation and decide on the most effective and economical use of the resources at his disposal. An engineer was once defined as “a man who can do for one dollar what any fool can do for two.” The health officer should be a good social engineer.

REFERENCES

1. BCG. Editorial, *A.J.P.H.*, 37:307 (Mar.), 1947.
2. The Seeing Eye in Tuberculosis Control. Editorial, *A.J.P.H.*, 35:1224 (Nov.), 1945.

PRINCIPLES FOR CONSIDERATION IN JUDGING THE PROBABLE EFFECTIVENESS OF FEDERAL LEGISLATION DESIGNED TO IMPROVE THE HEALTH OF CHILDREN OF SCHOOL AGE*

Principles Relating to Scope and Content

1. The only criterion against which legislation can be measured is that it promotes continuing improvement in the health status of school age children. Many factors are involved. Specific legislation, however, is likely to be concerned with only certain phases. Three of these needing legislative attention at this time are: †

- a. Health instruction and physical education

Here are included those organized programs within the school providing learning experiences in personal and community health, and instructional and practice periods of physical activity.

- b. Health examination services

Here are grouped those activities of physicians, dentists, nurses, teachers, and other professional personnel through which the health status of school children

is appraised and diagnostic service begun.

- c. Treatment services

Here are grouped the activities of physicians, dentists, nurses, and other health personnel; health department or other public agency; preventive, diagnostic, and treatment facilities; hospitals, clinics, and other community agencies which provide preventive, diagnostic, and treatment services to children.

2. These three phases are so closely interlocked that planning and provision for all of them are necessary in order to make maximum contribution to the health status of children. Legislation concerning any one or all of these should be evaluated in terms of principles contained in this statement.

3. These activities can be best carried out when the community provides:

- a. Adequate school facilities with sufficient trained professional personnel to meet the educational needs of all children in the community.

- b. A community health program which includes an organized local health unit adequately staffed with full-time personnel and physicians, dentists, nurses, and other health personnel available in the community.

- c. Facilities (hospital, health department, and other preventive, diagnostic and treatment facilities) for necessary preventive and diagnostic and treatment services

* This statement has been approved by the Council of the School Health Section and is published before transmittal to the Executive Board for adoption as an official statement of the Association in order to permit members and Fellows to review it and to offer criticisms and suggestions. Suggestions should be mailed promptly to the Executive Secretary, American Public Health Association, 1790 Broadway, New York 19, N. Y.

† It is recognized that rehabilitation and vocational training of the physically handicapped is an essential in providing for the total health needs of school children. Appropriate rehabilitation representatives should be consulted in making plans. Moreover, existing legislative and administrative provisions established on both federal and state levels under Public Law 113 to carry out these services should be utilized, and such amendments and additional appropriations as are necessary should be made to enable federal and state bureaus of vocational rehabilitation to provide services to all who come under their jurisdiction.

accessible to children from infancy through childhood.

Principles Relating to Health Instruction, Physical Education, and Health Examination Services

4. The general policies, organization, and plans for execution of the program should be planned jointly by the appropriate educational and health authorities at the federal, state, and local levels, after consulting with professional and other groups concerned.
5. Legislation should be sufficiently flexible to enable it to operate in accordance with a variation in state laws and administrative patterns.
6. Coördination at the federal level should be brought about through a joint committee representing the U. S. Office of Education, the U. S. Public Health Service, and the U. S. Children's Bureau, which shall give joint consideration to and advise the Federal Security Administrator on the establishment of policies and regulations, the basis for approval of state plans and recommendations regarding the allocation of funds. State superintendents of education and state health officers shall be consulted before the establishment of federal policies.
7. Legislation should contain provisions concerning purpose and scope of the program, general organization, and administrative structure. Details regarding operation and content of the program are matters for state planning in harmony with the general purpose of the legislation.
8. Education is the function of the schools. Safeguarding and promoting the health of the community is the function of health departments. The education departments should have full responsibility for the instructional progress, administrative responsibility for the conduct of all activities taking place in the schools, without regard to which agency operates the program of health examination services. Where health examination services are operated by education departments, the health department should be responsible for the professional consultation needed for establishing and maintaining standards, stimulating continued professional growth, and integrating the health service program in the school with the health program in the community.
9. All personnel rendering health services must be properly supervised by qualified members of their own profession.
10. The provision for consultant services on federal, state, and local levels should be planned jointly by educational, health, and rehabilitation authorities so as to avoid overlapping and duplication of services, and so as to gain participation and cooperation by all who serve children.
11. Funds should be allotted to the states on the basis of a single plan submitted jointly by state departments of education and of health after consulting with educational, medical, dental, nursing, and other professional groups concerned within the state.
12. Funds must be used for the initiation of new programs and services and the extension and improvement of existing programs. They must not be used to take the place of present expenditures from state and local sources.
13. Funds made available must be expended through public agencies under public control.
14. The same quality of health instructional programs, and health examination and diagnostic service for school children should be available

to children without regard to race, color, creed, nationality, or economic status.

15. Funds should be distributed so as to serve all children of school age in so far as the amount of funds allotted permit and with appropriate safeguards for the quality of service rendered.

*Principles Relating to Medical
Treatment Services*

16. Plans for the extension of medical treatment services for school age children should be developed by state health authorities in coöperation with medical, dental, nursing,

educational, and other professional and lay groups concerned in each state.

17. Federal funds are necessary to assist the states and local communities to provide medical treatment services for children of school age. Existing legislative and administrative provisions established on both federal and state levels to carry out appropriate sections of the Social Security Act should be utilized and such amendments and additional appropriations as necessary should be made to enable the Federal Security Agency and the states to assist in development of necessary medical treatment for children of school age.

Clearing House on Public Health Salary Information

STATUS OF SALARY STUDIES

THE gravity of the present situation as to public health salaries was recognized by the Executive Board of the American Public Health Association when it declared that the time had arrived for the Association to state what the services of public health workers are worth. In 1947, it recommended minimum salaries for physicians employed full time as administrators in public health programs. The recommended salaries range upward from \$6,000 for those without formal public health training but with two years of full-time successful experience. For those with a Master's degree in public health and two years' full-time successful experience the Executive Board recommended salaries ranging upward from \$8,500. Salaries exceeding \$12,000 were recommended for those who have heavy responsibilities and have achieved notable success.¹

Similarly the National Organization for Public Health Nursing recommended that no nurse employed full time in a public health position should receive less than \$2,400, and that those who have completed an approved program of study in public health should receive not less than \$2,520.²

These recommended salary ranges are above those paid by most public health organizations. Statements by the American Public Health Association and the National Organization for Public Health Nursing have been generally applauded and have in many areas been useful tools in raising salaries.

To study the salary problem further and to guide the Association in its

efforts to improve the picture in the United States, the Committee on Professional Education of the American Public Health Association appointed a Subcommittee on Salary Studies.*

This subcommittee has explored the subject in a preliminary manner. It is clear that the administrator, in his efforts to obtain funds and authorization for increased salaries, needs to know what salaries are paid in comparable organizations in the same geographic region. He also needs support from the A.P.H.A. by declarations of acceptable salary ranges for professional personnel other than health officers. His task would be easier if the plight of his staff and the essential rôle the health department plays in the community welfare were better understood by the public.

Several salary studies have been made or are now under way. The N.O.P.H.N. makes such studies annually for the field of public health nursing, and useful data are available for this field.³ The State and Provincial Laboratory Directors have recently completed a survey of salaries of laboratory workers on the state level. The Vital Statistics Section of the Association is currently studying salaries in its field. Those studies, completed or in progress, although excellent, are not adequate. There are few data

* The members of the Subcommittee are:
William R. Willard, M.D., *Chairman*
Richard F. Boyd, M.D.
Harold F. Dorn, Ph.D.
M. R. Kinde, M.D.
M. H. Merrill, M.D.
M. Allen Pond
Wilson T. Sowder, M.D.
Ernest L. Stebbins, M.D.
V. A. Van Volkenburgh, M.D.
Alberta B. Wilson, R.N.

available concerning salaries paid in city, county, and district health departments or in voluntary agencies. To secure such data and analyze them properly requires staff and funds not now available.

The studies which have been conducted, however, have defined certain problems that must be solved if salary studies are to achieve maximum validity and usefulness. As an example, positions of the same title in various health agencies often carry differing responsibilities which might reasonably be reflected in differing salaries. Conversely, many positions essentially the same in various agencies carry differing job descriptions, classification, and pay. Without taking these factors into account, it is impossible to make valid comparisons but to secure such information is laborious and time consuming. The most recent event is the request of the State and Territorial Health Officers Association to the U. S. Public Health Service to make a salary study. In meeting this request the Service has confined itself to a study of salaries in state health departments as of November, 1947. The results have been made available to the State and Territorial Health Officers Association and will be reviewed in the Clearing House next month. The tables show salaries of state health officers and program directors for Local Health Service, Maternal and Child Health, Public Health Dentistry, Public Health Laboratory, Public Health Nursing, Sanitary Engineering, Tuberculosis Control, and Venereal Disease Control. Another group of tables shows salaries by \$200 intervals, paid in state health departments to laboratory workers, nurses, physicians, sanitary engineers, and sanitarians below the top level. It is planned that this study shall be repeated annually and perhaps increased in scope.

The current study, therefore, is in effect a pilot study from which can be drawn the blue print for the more detailed information that is clearly needed; namely, salaries in various regions and types of health agencies and with more clear-cut job descriptions. Such analyses would not only contribute useful knowledge concerning salaries, but would be helpful as a step toward uniform job descriptions and classifications in various health agencies. It is the hope of the subcommittee that resources may be found to conduct such a study in cooperation with the U. S. Public Health Service, the State and Territorial Health Officers, the national voluntary agencies, and other appropriate organizations.

In the meantime the subcommittee is considering salary ranges for various types of public health positions. It hopes to make recommendations of salary ranges to the A.P.H.A. through the Committee on Professional Education. These ranges, if adopted, would establish minimum salary standards for additional positions. It is believed that this would provide a useful tool for many health administrators who are trying to raise salaries for their staffs. The subcommittee from time to time has published salary data from scattered health agencies in the Clearing House on Public Health Salary Information of the *American Journal of Public Health*. Any agency or person who has knowledge of a salary study of public health personnel or those in related fields is requested to cooperate with the Subcommittee on Salary Studies.

REFERENCES

1. *A.J.P.H.*, 37:916 (July), 1947.
2. Letter: Urgent Message to Employers of Public Health Nurses from Ruth W. Hubbard, President, National Organization for Public Health Nursing, May 29, 1947.
3. Salary Study of Public Health Nurses, 1947. Reprinted from *Public Health Nursing*, Oct., 1947.

SOME PRINCIPLES REGARDING PUBLIC HEALTH SALARIES

THE following are excerpts from the report of a state health department to a state board studying salaries. This material is reproduced here because of its statement of general principles applicable to public health salary and recruitment problems being dealt with in other states.

"It is a recognized fact that the public health field is undergoing permanent expansion on the federal, state, and local levels of government. Accompanying this are the increased promotional activities of such private agencies as the National Tuberculosis Association, the American Social Hygiene Association, the National Foundation for Infantile Paralysis, and the American Cancer Society.

"Because this is a trend that has been in existence for some time and is a result of a nation-wide permanent program, its effect upon the salary situation cannot be brushed aside with the assertion that the medical recruitment problem is merely another symptom of a temporarily inflated wage market.

"In fact, a normally critical situation has been further aggravated by present economic conditions as indicated by the incomes of private physicians. Although no reliable statistics can be cited, the opinion is apparently unanimous among those having a knowledge of the field that there has been a phenomenal increase in physicians' incomes since 1939. Whatever progress has been made in convincing capable young doctors that the field of public health offers values to compensate for the lower monetary return from public service appears to be cancelled by the widened spread between incomes of private physicians and those of public health officials.

"Another independent factor having a profound effect upon the market has been the expansion of the veterans' hospital program. This cannot be classed as short-term competition.

"The current large number of vacancies is not merely a reflection of departmental expansion or accumulation of war-duration vacancies. Rather, they are the inevitable result of the factors referred to above.

"A timely factor to consider is the recent federal recruitment program for all types of public health positions. It is presumed that the salary board has carefully looked into this development. However, according to information received in March, 1947, from the U. S. Public Health Service, in the Children's Bureau, which follows a civil service pattern for its title structure, the salary of the position designated as 'entrance grade' ranged from \$5,905 to \$6,862; that of the 'regular grade' ranged from \$7,102 to \$8,059.

"It is admitted that the weight which the board studying salaries gives to federal salaries is a matter of broad policy. However, even if the policy of generally ignoring federal rates is adopted, it can be reasoned that it could be relaxed for a class of positions under exceptional circumstances. The continuance and in some respects the permanent peacetime expansion of public health programs of federal agencies along with the employment demands of the Veterans' Administration are cases in point.

"The training required of a public health physician is the same as that required of the physician who treats the ill and injured up to the point of entering training for the specialty of public health. During the one and one-half years of postgraduate academic and field training of the public health physician, he learns to analyze the health problems and improve the health of the community rather than to diagnose and treat the illness of the individual. To be a successful health officer the physician must be able to utilize statistics to determine the health needs of his commu-

nity; he must be skilled in the diagnosis of communicable diseases and their methods of transmission and control; he must have administrative ability; he must have a keen sense of business methods in order to prepare his budgets and wisely utilize the tax dollars allotted to him; he must be skilled in methods of educating the public relative to public health measures, and he must have diplomacy and tact to deal successfully with other government officials and the public.

"The physician specializing in a clinical branch of medicine requires

training over a comparable period of time in his clinical specialty. Recognition has been given to the value of this additional clinical training by an upward reallocation during the past three years of the salaries of a great many physicians in the state hospitals who are thus qualified. Equal recognition should be given to the training required of a public health physician who, in addition to a certain amount of specialized clinical training, must possess other training not required of physicians whose duties are to treat individual patients."

1947 Directory of State Health Officers

The 1947 Directory of State and Territorial Health Authorities recently became available. It shows not only

health officers but directors of divisions and bureaus. U. S. Government Printing Office, Washington 25, D. C. 15 cents.

Credit Lines

PUBLIC HEALTH IN SWEDEN

"A good test of the social standard achieved by a nation is the interest shown in public health." This sentence opens a brief article in the *American-Scandinavian Review* for December, 1947, reprints of which are available from the American-Swedish News Exchange, 630 Fifth Avenue, New York 20. The author is Dr. Arvid Myrgård who is a district physician in the south of Sweden.

Sweden has had a government sponsored health insurance fund for some years. In 1946, a new law was passed which will make it obligatory for the whole nation by 1950. Health control and medical control are combined in one administration which, this report says, is a happy solution in a country as thinly populated as Sweden, and points out that this double function has a long historic tradition, district physicians having been instructed as early as 1720 to pay attention to the living habits of the people and to correct unsanitary conditions as well as administer to the sick.

Sweden's public health system is administered through 24 districts for a population of something over 6½ million. This would average about 260,000 persons per district which is the approximate population planned for New York City's 31 health center districts. This little pamphlet should be of interest to American public health workers.

PLANNING YOUR CHILDREN

Recently triplets were born to a board member of the Planned Parenthood Federation of America. He announced that although he and his wife did not plan for triplets, they did plan their children.

Apropos of planning your children, the Public Affairs Committee has just published its pamphlet No. 136 on *Planning Your Family*. It contains the experience of a number of public health workers on the relation of planned parenthood to public health.

Felix J. Underwood, M.D., Health Commissioner of Mississippi, says that in the South, planned parenthood programs are a necessary and integral part of the tuberculosis control program.

Available from the Public Affairs Committee, 22 East 38 Street, New York 16, at 20 cents each.

COLORADO HAS A HEALTH BULLETIN

The revolution in the Colorado State Health Department is further symbolized by *Colorado Health News*, Volume 1, Number 1, which appeared in January, 1948. This first issue pictures the newly-reorganized state health department in which there are four main divisions—one for preventive medicine services, one for local health services, one for sanitation, and one for general health services. The vitality of the reorganized department is indicated also by the fact that 34 additions have been made to the staff since July 1, 1947. Among these are the Director of the Laboratories Section, George W. Stiles, M.D.; Director of Maternal and Child Health, Marion Dressler, M.D.; Director of Venereal Disease Control, James R. McDowell, M.D.; Director of Veterinary Services, Martin Baum, D.V.M.; Director of Health Education, Norma Johannis; and Director of Hospital Facilities, Herbert D. Moe.

Another interesting announcement in this first issue is of an agreement between the City and County of Denver and the State Health Department to

combine their Vital Statistics Services in one unit to be located in the State Health Department and under the direction of Fred W. Beesley, D.D.S.

EACH HELPS IN HIS OWN WAY

Money is not the only coin through which community agencies can express their support of community projects. An excellent illustration of this fact is in a money raising brochure, *Children Calling*, put out by the Children's Hospital of Michigan in Detroit. This brochure was the contribution of a local advertising agency, MacManus, John & Adams, Inc., to the future of the hospital. Its photographs and its make-up would do the advertising concern proud even if it had been prepared for its most expensive customer. In appealing pictures, the story is told of the Children's Hospital services from the time the child enters the hospital until he is discharged from the convalescent home or the clinic. This is a striking illustration of bringing varied community resources to bear on one's problem.

SAFETY FOR THE HOUSEHOLD

If you have broadened your horizons to the extent of including some activity in the elimination of household accidents, here's a publication that should be of interest to you. *Safety for the Household* is a 200 page pamphlet published by the National Bureau of Standards. Although written mainly for the average present-day household, the booklet provides information that is also of value in the construction and safe operation of schools, hotels, stores, industrial plants, etc. Chapters on gas, building construction, refrigerants, fire prevention, plumbing, and electrical equipment are only some of the special items that have been prepared, all of them by qualified specialists from the Bureau. In preparing the booklet, recognition has been taken of possible new sources of accidents in the home brought

about by recent trends in home design, household equipment and modern toys. This publication, also known as *NBS Circular 463* can be obtained from the Superintendent of Documents, Washington 25, D. C., for 75 cents.

WHERE OHIO NOW STANDS

When *Local Health Units for the Nation*, the report of the Association's Subcommittee on Local Health Units, was being prepared in 1944, the best that could be agreed upon as a districting plan for Ohio was 53 units to cover the 88 counties, 10 of the 53 with populations of less than 50,000.

As late as July, 1947, three-fourths of the state's population in 61 counties were served through 70 local health departments in charge of full-time health officers. These 70 departments covered 111 of the 203 jurisdictions set up by the Ohio public health law, leaving 92 with a fourth of the state's population in charge of part-time health officers.

The present State Health Officer, John D. Porterfield, M.D., now suggests a much bolder plan than was proposed in *Local Health Units for the Nation*. For the consideration of Ohio citizens, he suggests that adequate service could be given to every person in the state through 37 local health departments, no one of them serving less than a county and all its contained cities, and all but 8 of them serving 2 or more counties. In this plan the smallest population made up of 3 counties is nearly 70,000.

In developing his plan, Dr. Porterfield has secured the support of many citizen groups in the state. Although it is to be expected that there will be delays and changes in putting it into effect, it is nevertheless a realistic approach to the problems of financing and staffing local public health service in the face of present-day personnel shortages.

Coincident with the development of this plan, the State Health Department

has been reorganized. The department has also published a pamphlet outlining the legal procedures involved in combining health districts or in contracts for public health service to a district from a neighboring one. These are the two methods provided by the Ohio law for consolidating existing health jurisdictions.

ANNUAL REPORTS

The 29th Annual Report of the Commonwealth Fund for 1947 representing the end of Barry Smith's 26 years of Directorship of the Fund, takes a backward look to see what the Fund has done and tried to do thus far. This backward look is a contribution to the social history of the last quarter of a century that is well worth attention by the public health worker.

A Decade of Doing is the title of a brief report of the first 10 years' activities of the National Foundation for Infantile Paralysis. In a little pamphlet of 20 pages about the size of a check-book, it manages to tell the background of the Foundation, what special events have taken place, what research has accomplished and what is ahead—particularly in better staffing of polio centers, in creating convalescent care and in improving opportunities for handicapped men and women.

Public Health in a Changing World is a report for the 2 years, 1945 and 1946, of the Birmingham-Jefferson County (Ala.) Health Department. Because it is dedicated to the late Judson D. Dowling, M.D., who was its first health officer in 1917 and served in that capacity for nearly all of the 30 years of the department's existence, it is also a summary of public health in the years 1917–1947. As such, it contains a very brief historical bird's-eye of the scientific, social and economic facts that affected public health—the two World Wars and the great depression between, Hiroshima, immunology, the Rh Factor,

psychosomatic medicine, and many others. The Jefferson County health picture is portrayed in the perspective of these events in an attractively packaged booklet.

Through the War Years, 1941–1947 is the six year report of the Des Moines County Health Unit which has the distinction of being the only local full-time health department in the state. It is a good workmanlike report which tells the story of the health department activities during the war years in a community that had a war ordnance plant and whose population increased about 50 per cent during the period.

COMMUNITY JUVENILE DELINQUENCY PROGRAMS

The conference technique of dealing with community problems is in no present danger of falling into disuse. Control of juvenile delinquency is currently being approached in this among other ways. In November, 1946, the Attorney General of the United States called a national conference on prevention and control of juvenile delinquency to study and make recommendations for action in each community.

In January, President Truman issued a proclamation calling for similar state and local conferences throughout the nation in April, 1948. Among the tools available for these conferences are 18 pamphlets representing the results of the various panel discussions of the 1946 conference. Included are a wide range of subjects relating to juvenile delinquency. These may be purchased from the Government Printing Office, Washington, D. C., for from 10 to 25 cents each or \$2.65 for the set. There are also special rates for quantity orders.

Available also is a *Handbook of First Steps in Organizing State or Local Conferences on Prevention and Control of Juvenile Delinquency*. This detailed guide has the why and how of such local conferences. If your community

combine their Vital Statistics Services in one unit to be located in the State Health Department and under the direction of Fred W. Beesley, D.D.S.

EACH HELPS IN HIS OWN WAY

Money is not the only coin through which community agencies can express their support of community projects. An excellent illustration of this fact is in a money raising brochure, *Children Calling*, put out by the Children's Hospital of Michigan in Detroit. This brochure was the contribution of a local advertising agency, MacManus, John & Adams, Inc., to the future of the hospital. Its photographs and its make-up would do the advertising concern proud even if it had been prepared for its most expensive customer. In appealing pictures, the story is told of the Children's Hospital services from the time the child enters the hospital until he is discharged from the convalescent home or the clinic. This is a striking illustration of bringing varied community resources to bear on one's problem.

SAFETY FOR THE HOUSEHOLD

If you have broadened your horizons to the extent of including some activity in the elimination of household accidents, here's a publication that should be of interest to you. *Safety for the Household* is a 200 page pamphlet published by the National Bureau of Standards. Although written mainly for the average present-day household, the booklet provides information that is also of value in the construction and safe operation of schools, hotels, stores, industrial plants, etc. Chapters on gas, building construction, refrigerants, fire prevention, plumbing, and electrical equipment are only some of the special items that have been prepared, all of them by qualified specialists from the Bureau. In preparing the booklet, recognition has been taken of possible new sources of accidents in the home brought

about by recent trends in home design, household equipment and modern toys. This publication, also known as *NBS Circular 463* can be obtained from the Superintendent of Documents, Washington 25, D. C., for 75 cents.

WHERE OHIO NOW STANDS

When *Local Health Units for the Nation*, the report of the Association's Subcommittee on Local Health Units, was being prepared in 1944, the best that could be agreed upon as a districting plan for Ohio was 53 units to cover the 88 counties, 10 of the 53 with populations of less than 50,000.

As late as July, 1947, three-fourths of the state's population in 61 counties were served through 70 local health departments in charge of full-time health officers. These 70 departments covered 111 of the 203 jurisdictions set up by the Ohio public health law, leaving 92 with a fourth of the state's population in charge of part-time health officers.

The present State Health Officer, John D. Porterfield, M.D., now suggests a much bolder plan than was proposed in *Local Health Units for the Nation*. For the consideration of Ohio citizens, he suggests that adequate service could be given to every person in the state through 37 local health departments, no one of them serving less than a county and all its contained cities, and all but 8 of them serving 2 or more counties. In this plan the smallest population made up of 3 counties is nearly 70,000.

In developing his plan, Dr. Porterfield has secured the support of many citizen groups in the state. Although it is to be expected that there will be delays and changes in putting it into effect, it is nevertheless a realistic approach to the problems of financing and staffing local public health service in the face of present-day personnel shortages.

Coincident with the development of this plan, the State Health Department

has been reorganized. The department has also published a pamphlet outlining the legal procedures involved in combining health districts or in contracts for public health service to a district from a neighboring one. These are the two methods provided by the Ohio law for consolidating existing health jurisdictions.

ANNUAL REPORTS

The 29th Annual Report of the Commonwealth Fund for 1947 representing the end of Barry Smith's 26 years of Directorship of the Fund, takes a backward look to see what the Fund has done and tried to do thus far. This backward look is a contribution to the social history of the last quarter of a century that is well worth attention by the public health worker.

A Decade of Doing is the title of a brief report of the first 10 years' activities of the National Foundation for Infantile Paralysis. In a little pamphlet of 20 pages about the size of a check-book, it manages to tell the background of the Foundation, what special events have taken place, what research has accomplished and what is ahead—particularly in better staffing of polio centers, in creating convalescent care and in improving opportunities for handicapped men and women.

Public Health in a Changing World is a report for the 2 years, 1945 and 1946, of the Birmingham-Jefferson County (Ala.) Health Department. Because it is dedicated to the late Judson D. Dowling, M.D., who was its first health officer in 1917 and served in that capacity for nearly all of the 30 years of the department's existence, it is also a summary of public health in the years 1917–1947. As such, it contains a very brief historical bird's-eye of the scientific, social and economic facts that affected public health—the two World Wars and the great depression between, Hiroshima, immunology, the Rh Factor,

psychosomatic medicine, and many others. The Jefferson County health picture is portrayed in the perspective of these events in an attractively packaged booklet.

Through the War Years, 1941–1947 is the six year report of the Des Moines County Health Unit which has the distinction of being the only local full-time health department in the state. It is a good workmanlike report which tells the story of the health department activities during the war years in a community that had a war ordnance plant and whose population increased about 50 per cent during the period.

COMMUNITY JUVENILE DELINQUENCY PROGRAMS

The conference technique of dealing with community problems is in no present danger of falling into disuse. Control of juvenile delinquency is currently being approached in this among other ways. In November, 1946, the Attorney General of the United States called a national conference on prevention and control of juvenile delinquency to study and make recommendations for action in each community.

In January, President Truman issued a proclamation calling for similar state and local conferences throughout the nation in April, 1948. Among the tools available for these conferences are 18 pamphlets representing the results of the various panel discussions of the 1946 conference. Included are a wide range of subjects relating to juvenile delinquency. These may be purchased from the Government Printing Office, Washington, D. C., for from 10 to 25 cents each or \$2.65 for the set. There are also special rates for quantity orders.

Available also is a *Handbook of First Steps in Organizing State or Local Conferences on Prevention and Control of Juvenile Delinquency*. This detailed guide has the why and how of such local conferences. If your community

conference has not been held you will want this manual from the Continuing Committee, The National Conference on Prevention and Control of Delinquency, Washington, D. C.

HOW LOCAL HEALTH COUNCILS ARE BUILT

The National Health Council has recently published *Stepping Stones to a Health Council* by Yolande Lyon. It answers the questions the intelligent layman might have about a health council, what it is, and what it will do for a community, who belongs to it, who starts one, and how. It is written in a simple easy style with frequent headings to guide the reader. It should be in the hands of every lay and professional person interested in finding ways of improving his community health program.

Stepping Stones is geared to the situations existing in urban areas where techniques of coöperation between diverse voluntary and official health agencies need to be developed more definitely than to rural or sparsely settled areas where there has been little development of health services. It is the plan of the Council to prepare a further manual designed especially for rural areas.

Stepping Stones is available from the National Health Council, 1790 Broadway, New York 19, at 25 cents per copy; 20 cents for orders of 25 or more.

THE COST OF COMMUNITY FAILURES

The Public Health Federation of Cincinnati has recently published *We Pay With Our Lives—A Story of Life and Death in Cincinnati* in terms of what community apathy, ignorance, and poverty cost in lives. This study of the mortality figures for the city, made by

the Federation's Director of Research, Floyd P. Allen, M.D., leaves no doubt as to the high correlation between death rates and such social and economic factors as family income, housing, schooling, etc. One-fourth of Cincinnati's population lives in the Basin, an old slum area on the Ohio River where buildings are old, overcrowded, without play spaces, and occupied by the lowest income groups, three-quarters of them Negroes. In the Basin the death rates for tuberculosis, pneumonia, accidents, homicide, and infant mortality are in all instances twice as high for whites as outside the Basin, and for Negroes in the Basin uniformly higher than for whites in the same area. *We Pay with Our Lives* is no poetic but a deadly realistic title for this example of a community looking at the facts.

THE OHIO SANITARIAN PUBLISHES AGAIN

Volume 3, No. 1 of the *Ohio Sanitarian* marks the revival of this publication, now the organ of the Ohio Association of Public Health Sanitarians, a quarterly designed primarily for the sanitarian in city and district offices of Ohio. The current issue includes a section on technical hints, another on recent legislation proposed or enacted in the State of Ohio, a list of the personnel active in the field of environmental sanitation in various state district offices plus "Personals." The Ohio Association of Public Health Sanitarians is an outgrowth of the former Ohio Conference of Milk and Food Sanitarians organized in the late 30's. E. A. Graber, Milk and Food Sanitarian of the Ohio State Department of Health, Columbus 15, is Secretary-Treasurer of the Association.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted. All books reviewed in these columns may be purchased through the Book Service.

Sexual Behavior in the Human Male—By A. C. Kinsey, W. B. Pomeroy, and C. E. Martin.. Philadelphia and London: Saunders, 1948. xxv and 787 pp. Price, \$6.50.

In view of the central importance of reproduction in the life cycle of any living organism, it is extraordinary that basic scientific data with regard to the sex activities of the genus *Homo* have been almost wholly lacking. Our views on this essential factor in the life history of the human species have been dominated by social traditions and moral aspirations. Even single case histories have been of a highly fragmentary nature; and studies including sufficient quantitative data to have statistical significance simply nonexistent.

The authors of the present volume have approached the subject with the approved techniques of the biologist. (The senior participant has published a report on a single species of gall wasp based on 150,000 individual specimens.) The investigation of Professor Kinsey and his associates is planned ultimately to include 100,000 human case histories. It is sponsored by the Committee on Research in Problems of Sex of the National Research Council and has the generous support of the Rockefeller Foundation as well as that of the University of Indiana where its authors are faculty members in the Department of Zoology. It is a 20 year "fact-finding survey in which an attempt is being made to discover what people do sexually and what factors account for differences in sexual behavior among individuals and among various segments of our population." At present some 12,000 individual case histories have

been collected, and this first volume of the studies is an analysis of approximately 5,300 white males included in the group.

The project is a bold one. Professor Kinsey reports that "there were attempts by the medical association in one city to bring suit on the ground that we were practising medicine without a license, police interference in two or three cities, investigation by a sheriff in one rural area, and attempts to persuade the University's administration to stop the study or to prevent the publication of the results, or to dismiss the senior author from his university connection, or to establish a censorship over all publications emanating from the study." Even greater courage, perhaps, was needed to face the inherent difficulties in the task itself; but these difficulties have been met and overcome with persistence and with high technical skill. While the present sample of 5,300 is insufficient for many refined correlations, which future extensions will make possible, it includes a nationwide geographical coverage (fully representative of the northeastern quarter of the United States) and most extensive social coverage (inmates of penal institutions, the underworld in general, laborers, clerks, farmers, business executives, lawyers, physicians, college professors, and clergymen).

The data were not obtained by questionnaires (which are of very doubtful value in such an area) but by intimate personal interviews, carried out by Kinsey (who himself conducted 58 per cent of the interviews) and five other trained experts. In informal sympathetic and objective conversation,

answers have been obtained with regard to 521 possible items of personal experience, the results being recorded in a code known only to the investigators and never reduced to writing to insure their absolutely confidential nature. Data have been analyzed by the stratified sampling method and results checked and verified by the soundest statistical procedures.

For interpretation on a national scale, the data for the observed sample populations are translated (for various age groups and social groups) into national terms by correction for the proportions of such groups given by United States Census figures.

The first basic fact revealed by this preliminary study is the actual incidence of activity of the sex glands as evidenced by accomplishment of an orgasm. The total incidence of such sexual climaxes from adolescence to the age of 85 averages 2.34 per week for the United States male population. From adolescence to the age of 30 years, the figure is 3.27.

Orgasm is accomplished by six different methods: masturbation, nocturnal emissions, heterosexual petting, heterosexual intercourse, homosexual relations, and intercourse with animals; and three-quarters of the male population have experienced two or more of such outlets. Individual patterns vary to a most astonishing degree. Single instances are reported in which either masturbation, or nocturnal emissions or intercourse or homosexual relations accounted for the total outlet. Two per cent of the population have experienced 5 or 6 of the possibilities. By the age of 20 years, 92 per cent of all males report orgasm through masturbation; 77 per cent through nocturnal emissions; 73 per cent through premarital intercourse; 37 per cent through homosexuality; and 24 per cent through petting procedures. A second major conclusion from the study is, then, that practices which society has

labelled as "abnormal" and "degenerate" and psychotic are major phases of normal human behavior—whether we like it or not.

Incidentally, it should be noted that homosexual experience does not mean that the individual is "*a homosexual*." There is the usual biological gradient between pure homosexuality and pure heterosexuality.

A third major revelation of this study is the wide difference in type of sexual outlet in different social classes. The data are analyzed in detail by various occupational groups; but the main facts are most clearly presented by the educational level attained by the individual, which the author rightly interprets as a measure of social status. Three major groups are analyzed, including boys who have only a grade school education, those who go through high school, and those who reach the college level. Total sexual outlet is greatest in the second of these groups (9th–12th grade) and lowest in the college group. The total sexual activity for the high school group is 10–20 per cent above that for the grade school group, and 20–30 per cent higher than for the college group. (It should be noted that these variations have nothing to do with educational experience *per se*. They are manifest both before and after actual school experience.) The major differences appear in the type of outlet. At the age of 20, the grade school group shows 66 per cent and the college group 94 per cent with experience of nocturnal emissions; the grade school group, 14 per cent with experience of orgasm due to petting and the college group 46 per cent; while premarital intercourse is experienced by 85 per cent of the grade school group against only 44 per cent of the college group. Masturbation experience is over 90 per cent in all groups; and homosexual experience highest in the high school group (43 per cent)—a puzzling phenomenon.

In general, the differences noted above are clearly mirrored in the emotional reactions of the individuals interviewed. The mores of the grade school group regard masturbation (in spite of its common prevalence in youth) and petting activities with an abhorrence not found in the college group; while feeling in regard to extramarital heterosexual relations is exactly reversed.

Incidentally, it should be noted that there is little evidence in this study of deterioration in sexual habits or of any harmful effects of military service. Correlative evidence as to past experience indicates that younger and older generations of the college level show a greater incidence of petting experience in recent years; while at grade school level the younger generation becomes active at a somewhat earlier age in premarital intercourse and shows an increase in masturbation and petting experience. Otherwise, the records (at similar ages) for men over and under 33 years of age are identical. The fundamental patterns of sexual experience are set by the middle teens and they are set by the mores of the social group to which the individual belongs.

Perhaps the most important conclusion from this whole study is that our conception of what is "normal" sexual behavior must be radically revised. What is "desirable" is another question; and "desirable" ends may be made more nearly "normal" by changing our mores. We must recognize facts, however, now that we have them. Our present legal standards are based on a point of view not dissimilar to the assumption that all men are normally six feet tall and that those below this height must be abnormal and degenerate.

The facts brought out in Professor Kinsey's book should be given serious consideration by all persons who are engaged in personal counselling services, such as physicians, mental hygien-

ists, social workers, prison executives, and military authorities. Alan Gregg says in his brief preface to the volume, "These studies are sincere, objective, and determined explorations of a field manifestly important to education, medicine, government, and the integrity of human conduct generally. They have demanded from Dr. Kinsey and his colleagues very unusual tenacity of purpose, tolerance, analytical competence, social skills, and real courage. I hope that the reader will match the author with an equal and appropriate measure of cool attention, courageous judgment and scientific equanimity."

C.-E. A. WINSLOW

140 Million Patients—By Carl Malmberg. New York: Reynal and Hitchcock, 1947. 242 pp. Price, Paper, \$.95, Cloth, \$2.75.

In his capacity as public relations advisor and information specialist for the U. S. Public Health Service and, recently, as chief investigator for the Sub-Committee on Health and Education of the Senate Committee on Labor under the chairmanship of Senator Murray, the author has been able to assemble a mass of factual data which demonstrate clearly that there is much room for improvement in the health of the nation. The monograph is readable, interesting, and for the most part thoroughly convincing. It marshals authentic information bearing upon the dual problems of medical care in the United States and of national compulsory medical insurance in a more effective manner than any volume previously published on this subject. It will become the bible of proponents of compulsory medical insurance.

Praise for the interesting manner in which this valuable information has been presented must be tempered by regret that the journalistic experiences of the author have persuaded him to overdramatize some of the factual material,

which may mislead many lay readers who are not in possession of all the medical facts. Medical authorities who condemn their professional colleagues for wrong diagnostic and therapeutic practices are quoted frequently. When reread in relation to the rest of the texts from which these quotations are derived, they prove for the most part to be admonitions employed for the purpose of driving home the author's lessons to his colleagues.

In the chapter entitled "How Good Is American Medical Care?" Mr. Malmberg includes a number of gruesome mistakes made by hospitals and individual physicians. His examples are quoted both from newspapers and from authoritative medical journals. When read in unrelieved sequence they will surely instill a fear in the uncritical reader that he is living in a medical wilderness. By the time he has reached page 152, the average reader will have developed a profound anxiety state, convinced by the evidence that there is little hope for him at the hands of an average practitioner or specialist. He is then in proper shape to accept the "Prescription for Better Health" which is next offered to him, national compulsory medical insurance. The reader is not made aware that many of the hospitals in which the author describes conspicuous examples of neglect and malpractice are wholly supported and operated by government. For example, the tragic story of Alice at the close of the chapter on "How Good Is American Medical Care?" ended in Gallinger Hospital which is operated by the government of the District of Columbia presumably under the supervision of a special committee of the House of Representatives.

No one can take issue with the main theses of this monograph, that medical care is grossly inadequate in many parts of the country, that the health of people of low incomes, even those who live in

the most privileged urban centers, is often jeopardized by "too little and too late," and that morbidity and mortality rates for many preventable diseases are inexcusably high for one of the most civilized countries of the world. The question troubling all men of good will is how best shall we proceed to correct these deficiencies. In writing his prescription of a remedy, Mr. Malmberg endorses the Wagner-Murray-Dingell Bill which would levy a special and general tax upon all citizens in the nation and in return promise all workers complete and adequate medical care wherever they may live.

Before the government can carry out such an obligation with a reasonable measure of success, it must educate many more physicians, dentists, nurses, medical auxiliaries, and public health workers; arrange for their more equitable distribution throughout the underprivileged sections of the country; help local communities to build and staff more hospitals, health centers, and public health laboratories; provide full-time local health departments wherever they are lacking; persuade medical schools to awaken to their social obligations and accept a share of responsibility for the quality of medical services provided by physicians and hospitals in their area; and, last but not least, educate the public and the medical profession concerning medicine in the changing order. This reviewer offers no brief in defense of that large segment of the medical profession which has resisted progress.

The question, then, is whether we should close our eyes to the pitfalls which lie ahead and take one grand leap, or whether we should proceed to correct the deficiencies in our medical care system by purposeful steps such as those outlined in the previous paragraph. Mr. Malmberg, who favors the first alternative apparently has not considered the advantages of the second, for he does not mention the four year

study of medical care made by the Committee on Medicine and the Changing Order of the New York Academy of Medicine. He makes no reference to the ten monographs on various parts of the problem published by the Academy during the last two years, nor to the final summary report entitled "Medicine in the Changing Order" which appeared in March, 1947,* and contains its recommendations. In this report, as well as in statements made by the President of the Academy at Senate Hearings on medical care during 1946 and 1947, a proposed rôle of government is outlined and grants-in-aid to the states and local communities are advocated for the support of state programs of prepaid medical care, changes in medical education, encouragement of medical group practice, promotion of medical research, establishment of adequate local health services, and health education of the public.

The Academy favors voluntary medical insurance at this time because it provides operational flexibility and broad possibilities for experimentation with methods of providing comprehensive medical care such as group medical practice, and of paying for such medical services by capitation or capitation plus salary in a manner which may insure high standards of preventive as well as curative medicine. The Health Insurance Plan of Greater New York (HIP) is an example of the type of experimentation which the Academy has in mind. On the other hand, it also sees advantage in the adoption of compulsory medical insurance by one or more states so that there may be comparable experiences with voluntary and compulsory systems.

After four years of intensive study, the Academy finds itself opposed to national compulsory medical insurance at this time chiefly, although not entirely,

because the medical profession and medical institutions of this country are unprepared for a radical nation-wide program. The Academy is convinced that such a revolutionary change in medical care at this time would be followed inevitably by serious deterioration of medical standards as in New Zealand and be detrimental to the health of the nation. While admitting most of Mr. Malmberg's premises, it believes that the goal which he has in mind can be reached more rapidly by methods which are decidedly less hazardous.

Mr. Malmberg's book, *140 Million Patients*, should be required reading for every health worker and every physician in the country. Then, before accepting his prescription for better health, they should also read *Medicine in the Changing Order*, published by the Commonwealth Fund.

GEORGE BAEHR

Practical Psychiatry and Mental Hygiene—By Samuel W. Hartwell, M.D. New York: McGraw-Hill, 1947. 439 pp. Price, \$3.75.

This is a new textbook on psychiatry and mental hygiene written particularly for nurses. It was written with the purpose of helping the student develop a dynamic interest in psychiatry, of making psychiatry more easily understood, and of making the teaching of psychiatry practical. The author has succeeded well in these objectives. The text is simply and clearly written. There is a minimum of technical jargon and an excellent glossary is provided as reference for the necessary technical terms which are introduced.

The author prepares the nurse for understanding the symptomatology of the various clinical syndromes by giving a brief theoretical background drawn from the various psychological schools of thought. In general the orientation is that of the psychoanalytic clinical approach. There is a general discussion of

* Reviewed in this *Journal*, 37, 9:1188 (Sept.), 1947.

the etiology of mental disease and a description of the various mental symptoms which the nurse may encounter. Practical suggestions are given regarding the taking of a psychiatric history and an outline for such a history is provided as an appendix.

The various syndromes are presented as in the standard classification of the American Psychiatric Association. In discussing the treatment of the various mental disorders the aim is to give to the nurse practical suggestions which will be of help to her, rather than discussion of the intricacies of the psychiatric treatment. The section on mental hygiene is especially well done. The discussion of the psychological development of the child and the parent's rôle in this development should be very helpful not only to the nurse as a professional person but to a mother as well. While the text is written for nurses and the practical suggestions for treatment are particularly appropriate for the nurse, the general simplicity and clearness make it a valuable text for a group who do not have a preliminary medical education. JAMES M. CUNNINGHAM

Cornell Conferences on Therapy, Volume II—*Edited by Harry Gold, M.D., Managing Editor, and Editorial Board. New York: MacMillan, 1947. 354 pp. Price, \$3.75.*

This second volume records 16 selected clinical conferences of the Department of Medicine and the Department of Pharmacology at Cornell University Medical School—New York Hospital, with participation of a wide range of additional practitioners. The conferences, designed "to promote the practice of therapeutics based on sound pharmacological principles," deal with a variety of subjects, all problems in therapy. Of particular interest to the health officer are the discussions of poliomyelitis, meningitis, syphilis, rheumatic fever, and malaria.

In a time when practices and standards of therapy are changing from day to day, this publication is not intended as the last word in therapy, but as a report of progress starting from recognized fundamentals. The attitudes of a group of distinguished participants, based on facts and opinions, are presented in dialogue form, with introductory remarks and a concise summary for each presentation.

In addition to providing a general review of a number of therapeutic problems selected on the basis of their frequency and common interest, the editors have illustrated a commendable teaching device. The integration of fundamental principles with their realistic application is worthy of copying in a number of fields. It is regrettable that the practice is not more widespread in teaching preventive and therapeutic medicine.

ROBERT DYAR

Meals for Millions—Final Report of the New York State Joint Legislative Committee on Nutrition—*Chairman, Senator Thomas C. Desmond. Newburgh, N. Y.: State Joint Legislative Committee on Nutrition, 1947. 213 pp. Free.*

The New York State Joint Legislative Committee on Nutrition has sought to explore this subject from many angles and this report which is *Legislative Document* (1947) No. 61, includes testimony presented before the Committee by about 30 persons, including among others Anton J. Carlson, Ole Salthe, Callie Mae Coons, Robert S. Goodhart, James R. Wilson, Harold R. Sandstead, Edward R. Schlesinger, Norman Jolliffe, and Otto A. Bessey.

The volume represents a good attempt to bring down to practical levels the discoveries in many laboratories, and the analysis of the problem as it affects New York State has implications elsewhere.

REGINALD M. ATWATER

Diseases Transmitted from Animals to Man—By *Thomas G. Hull, Ph.D. (3rd. ed.) Springfield, Ill: Thomas, 1947. 571 pp. Price, \$10.50.*

This third edition is more comprehensive than the earlier editions. The new chapters on rickettsial and virus diseases have broadened its scope. Public health workers will find it most interesting and practitioners of human and veterinary medicine will find a common ground.

Under each disease there is a brief discussion of its history, epidemiology, bacteriology, pathology, symptomatology, and control. Some chapters deal with all these phases in an excellent manner. The chapters on Tuberculosis, Swine Erysipelas, Listerellosis, Ornithosis, Plague, Typhus Fever, Rocky Mountain Spotted Fever, and Jungle Yellow Fever are outstanding. Other chapters have been weakened by repetition of investigational reports of 15 to 20 years ago, or have presented only one aspect of the problem which does not give the reader the broad discussion he seeks.

There are many statements throughout the book that cannot go unchallenged or that have been given too much emphasis. The discussion of tuberculosis points out that avian tuberculosis is capable of causing widespread disease in swine and sheep. It is hardly possible that the author believes that avian tuberculosis can be as serious to sheep as it has been to swine. In the summary for brucellosis it is emphasized that *Brucella abortus* attacks man at rather rare intervals. That may be true if based on the 1928 study of McAlpine and Mickle, but if we turn to 1946 and note that there are six times as many cases reported in a population that has a much higher percentage of pasteurized milk, the low pathogenicity theory of *B. abortus* for man is not supported. In the discussion of the rôle of animals and birds in the transmission of disease

it is not thought that the author meant to stress the importance of the chicken as a reservoir of brucellosis or swine erysipelas. Neither of these diseases has been possibly traced to infected fowls except on rare occasions.

The reviewer does not believe salmonella should be considered only as a food infection, but should be more broadly thought of as the cause of an infectious disease that may be due to occupational hazards, or spread directly from man to man, or animal to man, or man to animal.

The statement "that post-vaccinal paralysis is due to rabies fixed-virus contained in the vaccine is receiving more support today," is probably too enthusiastic. It is the belief of most workers in this field that post-vaccinal paralysis is an immunity phenomenon. The meticulous attention given to the preparation of anti-rabies vaccine, under the supervision of the Bureau of Animal Industry and the Public Health Service in which every possible test is performed before vaccines are released, would seem to prevent any virulent virus material being included in the vaccine. In regard to post-vaccinal rabies, today most veterinarians and investigators believe that such cases are due to active infection existing in the animal before it is immunized.

Under the discussion of Pox Diseases of Man and Animals the author states that between 30,000 and 60,000 cases of smallpox occur annually. It has been fifteen years or more since 30,000 cases were reported annually. In 1946 there were 356 cases reported to the U. S. Public Health Service and in 1945 only 345.

The author in his discussion of histoplasmosis states that the disease caused by *Histoplasma capsulatum* is invariably fatal. Investigations since 1940 suggest that this is a widespread disease in the central United States which has a low mortality rate.

It is a debatable question whether any serologic tests for leptospirosis are satisfactory. There has been much discrepancy of results in various investigators' and practitioners' efforts. The commercial manufacturers of the antigen have tried to solve the rapid agglutination tests for canine leptospirosis with only partial success. The author states that there is no effective vaccine, but Larson has produced what is considered an effective vaccine.

Q fever was reported by Army authorities in Italy and the Balkans. The Army had a sizeable outbreak of the disease in troops in Italy in 1945. The disease shows all characteristics of being world-wide; but the author reports the disease only in the United States and Australia.

In Chapter XXXI the author lists a number of diseases which have no reservoir in animals and in which animals have no part in the dissemination of the causative agent, among which are staphylococcus food poisoning. Brown of Johns Hopkins has incriminated staphylococcus mastitis as a cause of food poisoning in man.

The statement is made that *Fasciola hepatica* is not found in this country. The reviewer believes a few days in any large packing plant would correct the author's opinion about its incidence in the United States.

It is difficult to find any statement in the literature supporting the author's Table 62 statement that sheep are susceptible to *Brucella suis*. Sheep are not known to be infected very often in the United States with any of the *Brucella*.

There are occasional manuscript and proofreading errors which are to be regretted in a book of this type. Among items of note (ornithosis), page 229, item 7, the word pigeon no doubt is meant instead of parrot. On page 319, under item 11 *Coccidioidomycosis*, the word is "southwestern" instead of "southeastern." Mediastinal is mis-

spelled on page 317. "Variabilis" is misspelled in Table 46 on page 397. "Mansoni" is spelled "Masoni" on page 268. Little errors of this type distract the reader's attention.

A book of this kind is much needed in the respective fields of public health, human medicine, and veterinary medicine. The book points out very excellently by its omissions how little is known of many of the bacterial, rickettsial and virus diseases in animals. There is an important need for the study of animal epidemiology, bacteriology, and pathology in those diseases of animals which are communicable to man.

JAMES H. STEELE

The Louse. An account of the lice which infest man, their medical importance and control—By P. A. Buxton (2nd ed.) Baltimore: Williams & Wilkins, 1947. 164 pp. Price, \$3.25.

Professor Buxton's monograph on "The Louse" is clear, comprehensive, authoritative, and well illustrated. With this 2nd edition, the author has included references up to the end of 1945 and brought the subject as nearly up to date as was possible at that time. Illustrations have been added and the entire chapter on louse control has been rewritten.

The book is concerned with the lice which are parasitic on man. It covers their zoölogic position, anatomy, physiology, behavior, biology in relation to the host, and distribution on human beings. A chapter is devoted to the medical importance of *Pediculus humanus*, which not only covers the entomologic aspects of typhus, trench fever, and relapsing fever, but also gives an excellent discussion of the epidemiology of these diseases. The chapter on the control of lice will prove most interesting to those in the field of public health. The final chapter is devoted to the crab louse.

This little volume is highly recommended to entomologists, public health

workers, those interested in the epidemiology of infectious disease, and all others who enjoy a completely satisfactory volume on a single subject. W. A. DAVIS

Administration of Medical Care; Problems and Issues—*By Odin W. Anderson, Bureau of Public Health Economics, Research Series No. 2, Ann Arbor: School of Public Health, University of Michigan, 1947. 179 pp. Price, \$1.50.*

This book is an analysis and evaluation of the Medical-Dental Care Program in the State of Washington for the recipients of old age assistance.

The basic data on the services and costs of the program cover the period 1941–1945. Observations on the local characteristics of the program are based on ten selected counties.

Anderson's analysis ought to satisfy anyone who still doubts it that uncontrolled free-choice fee-for-service programs of medical care are destined to result in high costs, which, in turn, will produce either curtailment of services or limitation on fees. In Washington the legislature rebelled at the costs and abolished the program.

The acute problems of administration, finance, and standards of service are essentially the same whether the program is publicly or privately sponsored.

HOWARD M. KLINE

Health Practice Indices 1943-1946
—*Prepared by the Subcommittee on State and Local Health Administration for the Committee on Administrative Practice of the A.P.H.A., 1947. 77 pp. Free.*

This new edition of *Health Practice Indices* summarizes data collected through evaluation schedules from 276 communities in 34 states, 1 territory, and 4 provinces of Canada. The data from any one community may be for any one of the years 1943 through 1946. If two or more schedules were submit-

ted the most recent one was used. It is estimated that the communities reporting have a total population of 26 million, representing some 30 per cent of those currently receiving full-time local health service.

The material is presented in a form familiar to many. There is a series of charts, each chart representing a particular community health resource or health activity. Each line on each chart represents one community's achievement. The lines on the charts are arranged so that the more favored communities are at the top, with the chart divided into quartiles, and any community may easily spot its position in relation to the reporting communities for any particular activity covered by the schedule. There is a list of the departments reporting, a tabular summary of the ranges, medians and quartiles, and a table of the relative standing of communities in each of the charts with communities designated by code numbers.

The volume is extremely valuable for the administrator, probably more so for the administrator who has completed an evaluation schedule than for one who has not. Completing one of the schedules is in itself good experience. The material is useful for self evaluation by an organization, for staff education, for program and budget planning, and for community organization. Other uses suggest themselves.

The evaluation schedules from which the charts are prepared have been kept up to date. New items are added from time to time or old ones are modified in accordance with current practices. Some might give rise to argument, for example the one on the ratio between population and the number of full-time clerks, but the indices have been carefully selected and are extremely reliable indicators of health resources and achievement. The Committee on Administrative Practice and its Subcommittee on State and Local Health Administra-

tion have done an excellent job in making this useful volume available.

WENDELL R. AMES

The American County—Patchwork of Boards—*By Edward W. Weidner. New York: National Municipal League, 1946. 24 pp. Price, \$35.*

This pamphlet adds to the mounting chorus of demand for the reorganization of local government in the United States. The examination of the various types of boards functioning in the more than 3,000 counties of the United States leads the author to suggest a manager system for counties. To achieve this would require changing the viewpoints of state and national officials, amending state laws and constitutions, eliminating special function boards and independently elected officers, and finally arousing the electorate to action. "A task of no small proportions," says the author, "but it can be, and is being done."

MARTHA LUGINBUHL

Rypins' Medical Licensure Examinations—*Prepared under the Editorial Direction of W. L. Bierring, M.D. with the Collaboration of a Review Panel. (6th ed.) Philadelphia: Lippincott, 1947. 690 pp. Price, \$6.00.*

The sixth edition of *Rypins Medical Licensure Examinations* has been published, as was the fifth edition, under the distinguished editorial direction of Dr. Walter Bierring, with the collaboration of a review panel of outstanding medical educators and clinicians. The text of the volume is now subdivided into two parts: Basic Medical Sciences and Clinical Sciences. Each area of knowledge such as anatomy, surgery, etc., is again covered in a chapter which contains a descriptive summary and a series of questions and answers.

The outstanding advances of the past few years in science and medicine, such as the work on the Rh factor, the latest concepts of various neoplastic diseases

and the antibiotics, have been incorporated in the text, which has been changed and added to in many places since the last edition.

For the first time, in this edition there is a chapter on psychiatry containing a glossary of psychiatric terms, a discussion of etiologic factors, syndromes and a review of therapeutic methods. The chapter on Hygiene and Preventive Medicine was revised under Dr. Charles F. McKhann's direction to include a discussion of public health administration, nutrition in public health, immunization programs, and mental hygiene. The personal foreword of the late Dr. Harold Rypins as contained in the first edition and a discussion of "The Philosophy of Examinations" by the present editor, both masterly treatises, are continued in the present edition.

FRANZISKA W. RACKER

Calcium and Phosphorus in Foods and Nutrition—*By Henry C. Sherman. New York: Columbia University Press, 1947. 176 pp. Price, \$2.75.*

The reading of any of Dr. Sherman's contributions to the field of nutrition is an enlightening and gratifying experience. This book is no exception. It is obviously the work of one who is thoroughly conversant with the vast literature on the subject, and one whose extensive investigations and mature thinking have contributed largely to present-day concepts of calcium and phosphorus requirements. The fields of animal and human experimentation are surveyed and the data critically analyzed and appraised. The conclusions presented are supported by abundant data and by sound reasoning.

This book should prove useful to teachers and workers in the field of nutrition and anyone seeking to understand the biological functions of calcium and phosphorus.

ERNESTINE BECKER MCCOLLUM

BRITISH JOURNAL OF SOCIAL MEDICINE

Among new periodicals of particular interest to experts in public health and preventive medicine in English speaking countries is the *British Journal of Social Medicine*, now at the beginning of its second year. It is a British Medical Association publication edited on behalf of the association by Drs. F. A. E. Crew, recently appointed Professor of Public Health and Social Medicine in Edinburgh, and Lancelot Hogben, head of the new department of Medical Statistics at Birmingham. Among other members of the editorial committee are Dr. Donald Hunter, Dr. Thomas McKeown, Dr. J. A. Ryle, and representatives of the Society of Medical Officers of Health. Dr. Donald Hunter is himself editor of the sister publication, the *British Journal of Industrial Medicine*, likewise issued quarterly by the B.M.A.

The primary objective of the two journals is to provide a medium for original research in all aspects of preventive medicine and cognate branches of social biology. Hitherto, there has been little encouragement in Great Britain for publication of papers embodying comprehensive numerical data; and the creation of the two journals should therefore act as a stimulus to neglected fields of research. As such the *British Journal of Social Medicine* does not offer a platform for controversial social opinions; but it invites well documented contributions of a factual character pertaining to the rôle of medicine in the organized community in addition to contributions on other themes to which it specifically refers in its notice to contributors. The *Notice to Contributors* states its terms of reference as follows:

‘As understood by those who are responsible for this *Journal*, social medicine is that branch of science which is

concerned with: (a) numerical, structural, and functional changes of human populations in their biological and medical aspects. To a large extent its methods must necessarily be statistical, involving the use of numerical data obtained either from official sources or from special field investigations, and interpreted in the light of established findings of the laboratory and of the clinic. Social medicine takes within its province the study of all environmental agencies, living and non-living, relevant to health and efficiency, also fertility and population genetics, norms and ranges of variation with respect to individual differences and, finally, investigations directed to the assessment of a regimen of positive health.”

Whole time departments of social medicine, of which there are now 5, and of industrial health 3, are a novel feature of the post-war set-up in British Medicine. In the early years of these new departments the *British Journal of Social Medicine* has had to draw heavily on the resources of medico statistical enquiry in the fighting services, but the editors anticipate an increasing measure of support from coöperation between departments of social medicine in the universities and regional public health authorities in the conduct of suitable investigations. Indeed such coöperation is already taking shape in some university centers. While, (as the title signifies), the *British Journal of Social Medicine* is in one sense a national publication, the problems which concern it are of world-wide interest. Accordingly, the editorial committee hope that it will be able to enlist the support of well established American departments and cordially invite their coöperation in assuring contributions of high quality, espe-

cially during the formative years of its existence.

"In expressing this hope the editors recognize that the rightful claims of preventive medicine in the medical cur-

riculum and in community life will gain prestige *pari passu* with an effective vindication of its contribution to the advancement of medical science in fields hitherto neglected."

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

"Must"-Paper-of-the-Month—Buy, beg or borrow this candid evaluation of dental caries control measures by a top-notch team of researchers and dentists. Only by iron self-control do I restrain myself from filling the rest of this bibliography section with excerpts from this not-to-be missed symposium. Whoever you are and whatever your job, you must read it and the four following papers by Volker, Arnold, Knutson, and Wisan. (Reprints at 6¢ from A.D.A.)

ANON. The Michigan Workshop on the Evaluation of Dental Caries Control Technics (and four related papers). *J. Am. Dent. A.* 36, 1:3 (Jan.), 1948.

Trained as a Group—Fast disappearing are the days when good intent could convert a physician into a health officer, an engineer into a public health engineer, or a nurse into a public health nurse. What the essential training should be is the burden of this brief but profound discourse. The author decries the segregation and isolationism still prevailing in graduate education. Public health is a coöperative enterprise, he says.

ANDERSON, G. W. Professional Training for Public Health. *Canad. Pub. Health J.* 39, 1:11 (Jan.), 1948.

Humor in Health—Realism stops you from putting your fingers in the buzz-saw by showing what happens if

you do. Humor corrects the state of mind that prompts you to put your fist in the saw. Somehow or other you should get your hands on this rare item, illustrated by some perfectly swell British posters drawn by the art editor of *Punch*.

BIRD, K. Propaganda Posters. *Health Education J.* 6, 1:9 (Jan.), 1948.

Unpleasant Thought for the Day—There is a tendency, these researchers allege, to implicate the staphylococcus as the cause of food poisoning when the usual pathogens are excluded. There may be other, and dirtier, culprits. Enteric streptococci were found the cause of four epidemics spread through canned milk, charlotte russe, barbecued beef, and ham bologna.

BUCHFINDER, L., et al. Studies in Enterococcal Food Poisoning. *Pub. Health Rep.* 63, 4:109 (Jan. 23), 1948.

This You'll Be Glad to Know—Residual effects of DDT louse powder last longer than the incubation period of the nits, so one application does the trick.

EDDY, G. W. The Treatment of Head Lice with MYL and DDT Louse Powders and the NBIN Emulsion. *Am. J. Hyg.* 47, 1:3 of (Jan.), 1948.

Good News—There are so many plus-minuses in this comparison.

white and non-white mortality trends that this "twice-burnt child" shies away from any comment—but he thinks it shows a more rapid decline in total mortality among the non-whites than the whites. If this is so, then it must give comfort to those health workers who have the Negroes' special health problems laid on their shoulders.

GOVER, M. Negro Mortality. Pub. Health Rep. 63, 7:201 (Feb. 13), 1948.

No Explanations Are Offered—Cancer appears to be more prevalent among diabetics than non-diabetics. The findings of this study suggest the need for more investigations into the association of chronic conditions.

JACOBSON, P. H. A Statistical Study of Cancer Among Diabetics. *Milbank Quart* 26, 1:90 (Jan.), 1948.

"Margarine Is a Good Source of Table Fat"—There is no growth factor present in butter that is not present in margarine and there is no longer much reason why health workers, too, shouldn't be heard in the demand for the repeal of discriminatory taxes and regulations against margarine.

LEICHENGER, H., *et al.* Margarine and the Growth of Children. *J.A.M.A.* 136, 6:388 (Feb.), 1948.

For Docile Minds—Here is a sentence for you to take to heart. "The relationship between hunger, famine, and infection has become more conspicuous by reiteration than by demonstration." It begins a report of a study which finds rats undergoing severe protein deprivation doing as well as adequately nourished controls against infection with *S. typhimurium*.

METCOFF, J., *et al.* Nutritional Status and Infection Response. *J. Lab. & Clin. Med.* 33, 1:47 (Jan.), 1948.

From Great Lakes Naval Barracks—Aggressive cleaning remains the most effective means of interrupting the pas-

sage of infective microorganisms from one barracks mate to another. Ultraviolet irradiation of floors and upper air helps, too. Though results were encouraging, the authors warn that they do not warrant the general installation of ultraviolet sterilizers.

MILLER, W. R., *et al.* Evaluation of Ultraviolet Radiation and Dust Control Measures in Control of Respiratory Disease at a Naval Training Center. *J. Infect. Dis.* 82, 1:86 (Jan.-Feb.), 1948.

Success Story—Good for young and old, the class as a teaching method can be adapted to any angle of the subject of nutrition. That we should use the group-guidance method more intensively is the burden of this paper. If the class is the preferred method for teaching nutrition, why isn't it equally good for other elements of the hygienic program, seems to be a fair question.

MURRAH, P. Teaching Nutrition. *Pub. Health Nurs.* 40, 2:66 (Feb.), 1948.

Modest but Promising—You'll be interested in this study in which volunteers inoculated subcutaneously with a cold virus grown on chick embryos, became refractory to intranasal inoculation with infective washings from an acquired cold. The writers do not pretend that all the answers are to be found in their limited work, but it is a suggestion of what can be done.

POLLARD, M., and CAPLOVITZ, C. D. Immunologic Studies With Common Cold Infection. *Am. J. Hyg.* 47, 1:106 (Jan.), 1948.

Words-of-One-Syllable Department—Though this is about therapeutics, not prevention of viral diseases, the paper is for you. Here is one quotation: "Question: Is it worth while giving antibiotics in the common cold or influenza? Answer: No."

RIVERS, T. M. Recent Advances in the Treatment of Viral and Rickettsial Diseases. *J.A.M.A.* 136, 5:291 (Jan. 31), 1948.

Since Lincoln's Day—Our national headache—protecting rural public health and providing medical care for the sticks—is an old but not a unique social malady. What other countries have done to relieve their difficulties in the same regions is reviewed. Many seem to be doing better than we are.

ROEMLER, M. I. Rural Health Programs in Different Nations. *Milbank Quart.* 26, 1:58 (Jan.), 1948.

You Can't Ring the Bell Every Time—Assuming that you want to know about failures as well as successes, here are two negative reports on tests of (1) an influenza A virus vaccine: 58 days after immunization an outbreak of influenza A occurred producing, among the immunized, a 20 per cent incidence and among the non-immunes an incidence of 27 per cent—scarcely enough higher to warrant the effort at prophylaxis; (2) in another school 54 per cent of the vaccinated (with a commercial influenza A and B vaccine) contracted influenza three months after treatment, whereas only 49 per cent of a smaller “unprotected” group came down with

the disease. Looks as though we haven't enough strains in our vaccines!

VAN RAVENSWAAY, A. C. Prophylactic Use of Influenza Virus Vaccine (and) Influenza A in a Vaccinated Population. *J.A.M.A.* 136, 7:435 (Feb. 14), 1948.

They Work, But—Those who didn't hear the paper at our Cleveland meeting will want to know about this study of multiple antigen prophylactics. Relative frequency of reactions should not discourage their use, is the conclusion, though parents should be warned that they do occur.

VOLK, V. K. Observations on the Safety of Multiple Antigen Preparations. *Am. J. Hyg.* 47, 1:53 (Jan.), 1948.

The Bad With the Good—Our highly productive chest x-ray programs have one undesirable effect: they send to sanatoria a few patients who haven't TB. Prompt sputum studies and the determination of tuberculin sensitivity can prevent these unfortunate tragedies.

WOODRUFF, C. E. On the Verification of the Diagnosis of Tuberculosis. *Pub. Health Rep.* 63, 6:184 (Feb. 6), 1948.

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

- AMERICAN FOUNDATIONS AND THEIR FIELDS. SIXTH SURVEY. PART II. Published in IV Parts. Edited by William B. Cherin, Ph.D., New York: Raymond Rich & William Cherin Associates, 1948. 134 pp.
- AWAKE AND AWAY. Grade One, \$.96. GROWING DAY BY DAY. Grade Two, \$1.08. KEEPING FIT FOR FUN. Grade Three, \$1.28. Leslie W. Irwin, Ph.D., Waid W. Tuttle, Ph.D., and Caroline DeKelder, B.S. New York: Lyons and Carnahan, 1947.
- A BIOCHEMICAL HYPOTHESIS OF THE GENESIS OF CANCER. Annal, Volume 50, Article 1. Louis A. Pinck. New York: New York Academy of Sciences, 1948. 18 pp. Price, \$.50.
- BERGEY'S MANUAL OF DETERMINATIVE BACTERIOLOGY (6th ed.) Robert S. Breed, E. G. D. Murray, A. Parker Hitchens. Baltimore: Williams & Wilkins, 1948. 1529 pp. Price, \$15.00.
- BRIEF PSYCHOTHERAPY. Bertrand S. Frohman, M.D. Philadelphia: Lea & Febiger, 1948. 265 pp. Price, \$4.00.
- THE CANNED FOOD REFERENCE MANUAL (3rd ed.) New York: American Can Co., 1947. 638 pp.
- THE CARE OF CHRONIC DISEASE IN PITTSBURGH AND ALLEGHENY COUNTY. A Survey by Claude W. Munger, M.D., and Mary C. Jarrett. Under the Auspices of Federation of Social Agencies of Pittsburgh and Allegheny County Health Division, 1947.
- CHROMATOGRAPHY. Annals Volume 49, Article 2. Harold G. Cassidy, Norman Applezweig, Stig Claesson, Victor R. Deitz, Beveridge J. Mair, A. J. P. Martin, Stanford Moore, Robert L. Peck, W. A. Schroeder, Leo Shedlovsky, William H. Stein, Henry C. Thomas, and L. Zechmeister. New York: N. Y. Academy of Sciences, 1948. 186 pp. Price, \$2.75.
- COMPARATIVE PHYSIOLOGY. Bradley T. Scheer, Ph.D. New York: Wiley, 1948. 563 pp. Price, \$6.00.
- CONSTRUCTION AND ANALYSIS OF ACHIEVEMENT TESTS. Dorothy C. Adkins, Ernest S. Primoff, Harold L. McAdoo, Claude F. Bridges, and Bertram Forer. Washington, D. C.: Supt. of Documents, U. S. Gov. Ptg. Office, 1947. 292 pp. Price, \$1.25.
- DISABILITY EVALUATION. Earl D. McBride. (4th ed.) Philadelphia: Lippincott, 1948. 667 pp. Price, \$12.00.
- FACTORS REGULATING BLOOD PRESSURE. Transactions of the First Conference. April 24-25, 1947, New York, N. Y. New York: Josiah Macy, Jr. Foundation. 175 pp. Price, \$1.90.
- FURNEAUX'S HUMAN PHYSIOLOGY. Nurses Edition. William A. M. Smart. (rev. ed.) New York: Longmans, Green and Co., 1948. 375 pp. Price, \$1.25.
- HIGHER EDUCATION FOR DEMOCRACY: A Report of the President's Commission on Higher Education, Washington. 1947. Vol. I Establishing the Goals. 103 pp. \$.40. Vol. II Equalizing and Expanding Individual Opportunity. Vol. III Organizing Higher Education. 74 pp. \$.30. Vol. IV Staffing Higher Education. 63 pp. \$.25. Vol. V Financing Higher Education. 68 pp. \$.25. Vol. VI Resource Data. .
- INTRODUCTION TO GENETICS AND CYTOGENETICS. Herbert Parkes Riley. New York: Wiley, 1948. 596 pp. Price, \$5.00.
- THE KIMBLE CATALOG OF LABORATORY GLASSWARE. Division of Owens-Illinois Glass Company. Toledo, Ohio: Kimble Glass. 176 pp.
- LABORATORY CONTROL OF WATER SUPPLIES. H. W. Streeter. Supplement No. 201 to the Public Health Reports. Washington, D. C.: Supt. of Documents, U. S. Gov. Ptg. Office, 1947. 15 pp. Price, \$.10.
- LAW OF ADOPTION SIMPLIFIED. Legal Almanac Series No. 3. Morton L. Leavy. New York: Oceana Publication, 1948. 76 pp. Price, \$1.00.
- LIVER INJURY. Transactions of the 5th and 6th Conferences. New York: Josiah Macy, Jr. Foundation. September, 1946. 127 pp. Price, \$2.25. May, 1947. 74 pp. Price, \$2.00.
- MAN-WEATHER-SUN. William F. Petersen, M.D. Springfield, Ill: Thomas, 1948. 462 pp. Price, \$10.00.
- THE NEIGHBORHOOD UNIT PLAN. ITS SPREAD AND ACCEPTANCE. Compiled by James Dahir. New York: Russell Sage Foundation, 1947. 91 pp. Price, \$1.00.
- NURSING IN TUBERCULOSIS. Louise Lincoln Cady, R.N. Philadelphia: Saunders, 1948. 481 pp. 64 illus. Price, \$3.75.

- OLD AGE INSURANCE FOR HOUSEHOLD WORKERS. Bulletin of the Women's Bureau No. 220. Washington, D. C.: Supt. of Documents, 1947. U. S. Gov. Ptg. Office. 20 pp. Price, \$.10.
- OPIATE ADDICTION. Alfred R. Lindesmith. Bloomington, Ind.: Principia Press, Inc., 1947. 235 pp.
- PRIVATE ENTERPRISE OR GOVERNMENT IN MEDICINE. Louis Hopewell Bauer, M.D. Springfield, Ill.: Thomas, 1948. 201 pp. Price, \$.50.
- PUBLIC HEALTH. A CAREER WITH A FUTURE (rev. ed.). New York: American Public Health Association, 1948. 19 pp. Price, \$.15.
- A RORSCHACH STUDY ON THE PSYCHOLOGICAL CHARACTERISTICS OF ALCOHOLICS. Charlotte Buhler, Ph.D., and D. W. Lefever, Ph.D. New Haven, Conn.: Hillhouse Press, 1948. 64 pp. Price, \$.75.
- STOP ANNOYING YOUR CHILDREN. W. W. Bauer, M.D. Indianapolis: Bobbs-Merrill, 1947. 272 pp. Price, \$2.75.
- SYMPOSIUM ON MEDICOLEGAL PROBLEMS. Under the Co-Sponsorship of the Institute of Medicine of Chicago and the Chicago Bar Association. Edited by Samuel A. Levinson, M.D., Ph.D. Philadelphia: Lippincott, 1948. 255 pp. Price, \$5.00.
- A TEXTBOOK OF DIETETICS. L. S. P. Davison, M.D., and Ian A. Anderson, B.Sc. (2nd ed.) New York: Hoeber. 517 pp. Price, \$6.00.
- TREATMENT BY DIET. Clifford J. Barborka, M.D. (5th ed.) Philadelphia: Lippincott, 1948. 784 pp. Price, \$10.00.
- WOMAN'S INSIDE STORY. Mario A. Castallo, M.D., and Cecilia L. Schulz, R. N. New York: Macmillan, 1948. 203 pp. Price, \$3.00.
- THE FOLLOWING REPORTS HAVE BEEN RECEIVED
- ANNUAL REPORT OF THE FEDERAL SECURITY AGENCY. Section One, Social Security Administration, 1947. Washington D. C.: Supt. of Documents, U. S. Gov. Ptg. Office, 1948. 167 pp. Price, \$.35.
- ANNUAL REPORT OF THE VITAL STATISTICS DIVISION OF THE DEPARTMENT OF PUBLIC HEALTH. Province of Saskatchewan, 1945. Regina: Thos. H. McConica, King's Printer, 1947. 124 pp.
- HAS THE TIDE TURNED? Annual Report, 1947. New York: American Social Hygiene Association. 19 pp.
- INTERSTATE SANITATION COMMISSION. Annual Report, 1947. New York-New Jersey-Connecticut. New York: Interstate Sanitation Commission. 111 pp.
- LOS ANGELES CITY SCHOOL DISTRICTS. Auxiliary Services Division Annual Report, 1946-1947. Los Angeles: Health Services Branch. 15 pp.
- MANSFIELD CITY AND RICHLAND COUNTY HEALTH, 1947. Mansfield, Ohio: Department of Health. 17 pp.
- NATIONAL SOCIAL WELFARE ASSEMBLY, INC., 1947. Annual Report. New York: National Social Welfare Assembly, Inc. 30 pp.
- PHYSICIANS AND SCHOOLS. Report of Conference on the Cooperation of the Physician in the School Health and Physical Education Program, October, 1947. Edited by Dean F. Smiley, M.D., and Fred V. Hein, Ph.D. Chicago: American Medical Association, 1947. 32 pp.
- PRELIMINARY ANNUAL REPORT—VITAL STATISTICS OF CANADA. Ottawa, Canada: Minister of Trade and Commerce, 1948. 45 pp. Price, \$.25.
- TOLEDO'S HEALTH ANNUAL SUMMARY, 1946. Toledo, Ohio: Department of Public Health. 114 pp.
- TWENTY FIVE YEARS OF PUBLIC HEALTH IN NEW MEXICO. In Lieu of Annual Report, 1944. 1919-1944. Santa Fe, New Mexico: Department of Public Health. 81 pp.
- VIRGINIA STATE DEPARTMENT OF HEALTH. 37th Annual Report for the Year Ended June 30, 1945. Richmond: Division of Purchase and Printing. 303 pp.

ASSOCIATION NEWS

SEVENTY-SIXTH ANNUAL MEETING ,
AMERICAN PUBLIC HEALTH ASSOCIATION
BOSTON, MASS., NOVEMBER 8-12, 1948

STANDARD METHODS FOR THE EXAMINATION OF DAIRY PRODUCTS, NINTH EDITION — SEPARATES OF CHAPTER 2 ON MILK AND CREAM

The new edition of *Standard Methods for the Examination of Dairy Products* is expected to come from the press in late spring, 1948. The subject matter for guidance of administrators is largely assembled in Chapter 1 on Selection and Interpretation of Quality Tests. The subsequent Chapters, 2 to 13, supply directions for laboratory workers. This arrangement should not only cause less confusion for administrators but should make instructions clearer for the laboratory workers.

The fundamental laboratory procedures routinely used in the sanitary control of fluid milk are outlined in this edition in Chapter 2 on Microbiological Methods for Milk and Cream. In order that this instruction may be given col-

lege students taking course work in dairy bacteriology, and in order that copies of the official procedures, with particular reference to methods for determining the sanitary quality of milk and cream, may be available in less well financed public health laboratories, a small stock of Separates of Chapter 2 are being printed. The Separate will be bound in a durable paper cover.

The printing of Separates on Microbiological Methods for Milk and Cream is entirely on an experimental basis. If you are a prospective purchaser of these Separates, please notify the Association of your expected needs so an estimate of total requirements can be reached. The price will be nominal, based on the actual publication costs.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Robert M. Albrecht, M.D., Sand Lake, N. Y.,
Apprentice Epidemiologist, State Dept. of
Health

Henrik L. Blum, M.D., State Health Dept.,
760 Market St., San Francisco, Calif.,
Trainee for M.P.H.

C. L. Brumback, M.D., Box 536, Brighton,
Mich., Student, School of Public Health,
Univ. of Michigan

Orion R. Gregg, M.D., Choctaw-McCurtain
Health Dept., Hugo, Okla., Director

Edward J. Hagan, M.D., 222 Main St., Williston,
N. D., City Health Officer

Pillai M. Kunjukrishna, M.B., Public Health
Dept., Trivandrum, South India, Industrial
Medical and Hygiene Officer

Fred K. Laurentz, M.D., 1009 City Hall, 900
Brazos St., Houston, Tex., Director of Public
Health

Theodor Mueller, M.D., Gesundheitsamt,
Basle, Switzerland, Director of Public
Health Service

William J. Peebles, M.D., 112 Haralson St.,
LaGrange, Ga., Health Officer, Troup County
Health Dept.

Milton Silon, M.D., 907 Washington St., Hoboken,
N. J., Health Officer

Carl R. Trask, M.D., D.P.H., P. O. Box 77, Saint John, N. B., Canada, District Medical Health Officer

R. B. Turnbull, M.D., 304 East Main St., Gallatin, Tenn., Director, Summer Tuberculosis Control Dist., State Health Dept.

Miguel A. Ugarte-Machado, M.D., Arguelles 21, Maximo Gomez, Cuba, Public Health Officer

G. E. Duff Wilson, M.B., D.P.H., City Hall, Kitchener, Ont., Canada, Medical Officer of Health

Leonid Zavadsky, M.D., State Department of Public Health, Box 711, Sante Fe, N. M., Director, Tuberculosis Control Division

Laboratory Section

Juan J. Angulo, M.D., Luis Estevez 420, Santos Suarez, Havana, Cuba, Student, University of Michigan

Charles W. Darby, D.V.M., M.S., Disease Contraception Control Lab., Ralston Purina Co., St. Louis 2, Mo., Research Bacteriologist

Adelaide E. Evenson, Ph.D., University of Arizona, Tucson, Ariz., Asst. Professor, Department of Bacteriology

C. E. Fortenberry, 316 Graham St., Montgomery, Ala., Laboratory Technician, Dairy Producers Cooperative

Eleanore T. Hay, 3824 Bushnell Road, University Heights 18, Ohio, Serologist, Cleveland Division of Health

William H. Hay, No. 18 City Hall, Cleveland, Ohio, Chief of Laboratories, Cleveland Division of Health

Wilfred Lachance, M.D., St. Vallier Hospital, Chicoutimi, Que., Canada, Director of Laboratory

Beatrice D. Larner, 3726 N. Pinegrove, Chicago, Ill., Bacteriologist, Dept. of Milk and Water, State Department of Health

Pyung H. Lee, M.D., Bureau of Lab., State Health Dept., Lansing 4, Mich., Director, National Institute for Prevention of Infectious Diseases (Seoul, Korea)

Anna-May C. Loughery, 1720 Fourth Avenue, Los Angeles 6, Calif., Senior Student, Univ. of California

Herman K. Mohr, 24 East Columbia Avenue, Palisades Park, N. J., Bacteriologist, Schwarz Laboratories, Inc.

Harold E. Pearson, 344 State Office Bldg., Providence, R. I., Principal Serologist, State Dept. of Health

Sydney C. Rittenberg, Ph.D., 902 Tula Rosa Drive, Los Angeles 26, Calif., Asst. Professor of Bacteriology, Univ. of Southern California

Henry B. Schulhoff, M.Sc., 268 Handy Street, New Brunswick, N. J., Sanitary Engineer,

First Army Headquarters, Governors Island, New York

George A. Spendlove, M.D., M.A., U. S. Public Health Service, 605 Volunteer Bldg., Atlanta, Ga., Asst. Chief, Tuberculosis Evaluation Study

Eru Tanabe, 5182 Maple Avenue, St. Louis 13, Mo., Bacteriologist, St. Louis Health Dept.

Weldon C. White, M.D., Malaria Research Project, Box B, Seagoville, Tex., Senior Asst. Surgeon, U. S. Public Health Service

Vital Statistics Section

Ila D. Buck, Franklin, Tenn., In Charge of Clerical Training School, State Health Dept.

Loren E. Chancellor, 2323-47th, Des Moines, Iowa, Director, Division of Vital Statistics, State Dept. of Health

Lillian Konick, M.P.H., 610 George St., New Haven 11, Conn., Statistician, New Haven Dept. of Health

Regina Loewenstein, A.M., 1712-16th St., N. W., Washington 9, D. C., Chief, Operations Department, Study of Child Health Services, American Academy of Pediatrics

Engineering Section

John C. Bumstead, C.E., Engineering News-Record, 330 W. 42 St., New York 18, N. Y. Asst. Editor

George W. Burke, Jr., B.C.E., 613 Kennesaw Ave. N. E., Atlanta, Ga., Graduate Student of Sanitary Engineering, Georgia School of Technology

R. C. Burkhardt, P. O. Box 794, Huntsville, Ala., Principal Sanitarian, State Health Dept.

Robert T. Coleman, 700 Park Ave., Charlevoix, Mich., Sanitarian, District Health Dept.

James Covington, 429 McLemore St., Brownsville, Tenn., Senior Sanitarian, Haywood County Health Dept.

W. F. Drake, Fayetteville, Tenn., Senior Sanitarian, Lincoln County Health Dept.

William H. Gilmore, B.S.C.E., 1804 Goode St., Montgomery, Ala., Senior Public Health Engineer, State Health Dept.

Donald H. Helgren, M.P.H., 79 Bridge Rd., Ross, Calif., Sanitarian Consultant, State Dept. of Public Health

Earl McDonald, 22 Burke Terrace, Huntington, W. Va., Sanitarian, City Health Dept.

Erman A. Pearson, S.M., Box 80, Rt. 2, Bothell, Wash., Research Asst., Massachusetts Institute of Technology

Warren F. Smith, B.S.C.E., 5018 S. Benton, Kansas City, Mo., Asst. Public Health Engineer, City Health Dept.

Leo A. Sterenberg, B.C.E., 249 Troy Ave., Brooklyn 13, N. Y., Sanitarian, U. S. Public

Health Service Communicable Disease Center

John E. Taylor, State Health Dept., Little Rock, Ark., State Director, Communicable Disease Center Activities

Raymond F. Wagner, M.S., 55 Prospect St., Brookline, Mass., Sanitary Engineer, Brookline Health Dept.

Industrial Hygiene Section

Agnes E. M. Anderson, R.N., 70 Summit Ave., Jersey City, N. J., Industrial Nursing Consultant, State Health Dept.

Robert P. Gleason, M.S., 40-22 Lawrence St., Flushing, N. Y., Industrial Hygiene Engineer, Sylvania Electric Products Co.

Jacob Kaufman, M.D., 180 Cardova St., St. Augustine, Fla., Resident Physician, Flagler Hospital

Marjorie U. Wilbur, 185 Pleasant St., Providence, R. I., Industrial Nursing Consultant, State Dept. of Health

Food and Nutrition Section

Alan Blackman, M.S., 3423 Ave. S., Brooklyn 29, N. Y., Teacher, Food Trades Vocational High School

John G. Brereton, Ph.D., 524 West 57 St., New York, N. Y., Technical Director, Sheffield Farms Co., Inc.

Felix Bronner, 238 West 74 St., New York 23, N. Y., Health Inspector, City Health Dept.

A. Hughes Bryan, M.D., School of Public Health, Chapel Hill, N. C., Professor of Public Health Nutrition

Homer N. Hake, D.D.S., Reinbeck, Iowa, Dentist

Eleanor L. McKnight, M.S., 123 E. First St., Dixon, Ill., Nutritionist, State Dept. of Public Health

Elbert C. Tabor, M.S., 215 Howard St., Grand Haven, Mich., Biochemist, Nutrition Section, U. S. Public Health Service

Kathryn Tew, M.S., College of Home Economics, Cornell Univ., Ithaca, N. Y., Instructor in Nutrition

Alice Van Winkle, 2470 Wenzell Place, Pittsburgh, Pa., Staff Nutritionist, State Dept. of Health

Maternal and Child Health Section

Edith B. Jackson, M.D., Rm. 4085, 789 Howard Ave., New Haven 4, Conn., Assoc. Clinical Professor of Pediatrics, Yale Univ. School of Medicine

Belle D. Poole, M.D., 459 Bellefontaine St., Pasadena, Calif., Medical Officer, State Dept. of Public Health

Norman Survis, M.D., Westchester County Department of Health, County Bldg., White

Plains, N. Y., Director of Maternal and Child Hygiene

Public Health Education Section

Romeo Y. Atienza, M.D., M.P.H., Philippine National Red Cross, Manila, Philippines, Director of Health and Safety

Margaret A. Biesack, 240 E. Madison St., Louisville 2, Ky., Asst. Health Educator, Louisville and Jefferson County Board of Health

Fred D. de Armond, M.P.H., Hall of Justice, San Jose, Calif., Director of Health Education, Santa Clara County Health Dept.

Belvia Green, M.A., 304½ E. Washington, Springfield, Ill., Health Education Representative, State Dept. of Public Health

Nicholas J. Lavnikovich, R.N., B.S., 804 Main St., Fitchburg, Mass., Director of Health Education, Northern Worcester County Public Health Assn.

Fred Nado, 115 Bedford Ave., Brooklyn, N. Y., Health Education Instructor, Bronx Union Y.M.C.A.

Alma Norum, R.N., B.S., Deaconess Hospital, Grand Forks, N. D., Director, School of Nursing

Stanley I. Rapoport, 60 East 42 St., Rm. 812, New York, N. Y., Asst. Director, Research Council on Problems of Alcohol

Marie E. Riley, M.A., 132 East 45 St., New York 17, N. Y., Student, New York Univ. School of Education

Arthur W. Smith, 193 Morris Ave., Summit, N. J., Director, Overlook Hospital

Vaughn Smith, M.P.H., New York State Food Commission, 18 Dove St., Albany 6, N. Y., Principal Health Educator

Eugene L. Wittenborn, Jr., M.P.H., 1252 W. Governor, Springfield, Ill., Exec. Secy., Illinois Statewide Public Health Committee

Public Health Nursing Section

Mary F. Benedict, 219 Mott St., New York, N. Y., Public Health Coordinator, Cumberland Hospital (Brooklyn, N. Y.)

Margaret E. Dill, 230 Spring St., N. W., Atlanta, Ga., Nursing Field Representative, American Red Cross

Anne H. Dobbins, Box 75, Hinesville, Ga., Public Health Nurse, Liberty County Health Center

Yvonne V. Esler, R.N., B.S., Box 248, 1230 Amsterdam Ave., New York 27, N. Y., Student, Teachers College, Columbia Univ.

Evelyn Haddox, Berkeley Springs, W. Va., County Health Nurse

Mabel E. Marshall, N. Elk St., Fayetteville, Tenn., Senior Public Health Nurse, Lincoln County Health Dept.

Elizabeth Martin, M.A., 1008 S. W. 6 Ave., Portland 4, Ore., Director, Visiting Nurse Assn.

Mary F. Parker, 15 Talcott Ave., Rockville, Conn., Director, Rockville Public Health Nursing Assn.

Elizabeth A. Ryan, 45 Pineapple St., Brooklyn, N. Y., Student, New York Univ.

Clara G. Steinmann, M.A., Box 13, Salisbury, Md., Supervising Nurse, State Dept. of Health

Katherine G. Svelander, 1102 Columbia, Seattle 4, Wash., Director of Nursing Education, Swedish Hospital Division, Univ. of Washington

Etta M. Wells, 508 N. Iron, Centralia, Wash., Public Health Nursing Supervisor, Lewis County Health Dept.

Epidemiology Section

Major Louis C. Kossuth, M.C., 407 W. Masonic View Ave., Alexandria, Va., Chief of Preventive Medicine, U. S. Air Force

Carlos Ortiz-Mariotte, M.D., M.P.H., Huasteca 311, Col. Industrial, Mexico, D.F., Mexico Chief, Division of Epidemiology, Ministry of Health

Col. G. N. Schuhmann, M.C., Medical Section, GHQ, FEC, APO 500, San Francisco, Calif., Preventive Medicine Consultant to Chief Surgeon, General Headquarters, Far East Command, Tokyo, Japan

School Health Section

Alfred F. Abramson, Sr., 107-36 Remington St., Jamaica 4, N. Y., Health Education Teacher, Community Center, New York City Board of Education

Charles S. Eccher, 108 Perry St., New York, N. Y., Student, New York Univ.

Bernard A. Fox, 3832 Laurel Ave., Brooklyn 24, N. Y., Teacher, New York City Board of Education

Ima L. Glasson, R.N., 515 Fisher, Corpus Christi, Tex., Supervisor of School Nurses, Independent School District

Thomas S. Martin, M.S., 2139 Barhamville Rd., Columbia, S. C., Consultant to South Carolina Student Health Council

Margaret M. McBride, R.N., 519 Rose St., Chester, Pa., School Nurse, Chester School District

Gregory R. Piccini, M.A., 219 East 196 St., New York 58, N. Y., Health Educator, National Tuberculosis Assn.

Joseph Plentzas, 146 Cedar St., Manchester, N. H., Student, New York Univ.

Dental Health Section

Aaron Apfel, D.D.S., 185 Erasmus St., Brooklyn 26, N. Y., Supervising Dentist, New York City Health Dept.

Howard R. Attebery, D.D.S., 1139 E. Cliff Drive, Santa Cruz, Calif., Public Health Dentist, Santa Cruz County

Margaret K. Dillon, D.H., U.S.P.H.S. Dental Demonstration Unit, City Hall, Chattanooga, Tenn., Dental Hygienist

Helen C. Dwyer, D.H., 12 West Neck Rd., Huntington, N. Y., Dental Hygiene Teacher, Public School District 3

John E. Fauber, D.D.S., 1015 Foxcroft Rd., Richmond, Va., Asst. Chief, Dental Division, Veterans Administration

Robert G. Kesel, D.D.S., M.S., 808 S. Wood St., Chicago 12, Ill., Professor and Head, Dept. of Applied Materia Medica and Therapeutics, College of Dentistry, Univ. of Illinois

Philip H. McCaul, D.M.D., City Hall, Chattanooga, Tenn., Dental Officer in Charge, Dental Demonstration Unit

Laurence S. McClaskey, D.D.S., 55 Shattuck St., Boston, Mass., Dental Consultant, California State Dept. of Public Health

Unaffiliated

Robert I. Wakeley, Box 305, Springfield College, Springfield, Mass., Senior in Health Education

Ralph L. Nielsen, M.S., 2113 East 52 St., Seattle 5, Wash., Head, Hospital Planning and Development Section, State Dept. of Health

J. Rex James, 1005 Washington, Jefferson City, Mo., Business Administrator, State Division of Health

Robert P. Fosnaugh, M.D., 529½ Market St., Parkersburg, W. Va., Wood County Health Officer

T/Sgt. Frank R. Richardson, 4866 Thurston Rd., Fort Worth 7, Tex., Sanitary Technician, U. S. Army

Margretta Fortuin, M.A., Paterson General Hospital, Paterson 3, N. J., Director of Nurses

Franklyn C. Hochreiter, M.A., 353 Equitable Bldg., Baltimore 2, Md., Secy., Division of Medical Care Agencies, Baltimore Council of Social Agencies

Mary F. Fordham, State Dept. of Health, Charleston 5, W. Va., Asst. Director, Bureau of Hospitals and Medical Care

George Pifher, Canadian Cancer Soc., 280 Bloor St., W., Toronto, Ont., Canada, Honorary Secretary

THE 76TH ANNUAL MEETING
Boston, Mass., November 8-12, 1948
Hotel Reservation Form

The hotels listed below have rooms available for Association delegates at the rates indicated. Please note that NO RESERVATIONS WILL BE ACCEPTED DIRECTLY BY HOTELS. Make your reservation through:
The Convention Bureau, Boston Chamber of Commerce, 80 Federal Street, Boston 10, Mass.

Hotels	Singles	Doubles	Twin Beds	Suites
Bellevue	\$4.00-\$6.00	\$6.00-\$8.00	\$7.25-\$10.00	\$12.00-\$15.00
Bostonian	3.00- 4.50	5.00- 6.50	5.00- 7.00	8.00- 10.00
Bradford	4.00- 6.00	6.00- 7.00	6.50- 8.00	12.00- 14.00
Braemore	4.40- 6.60	6.40- 9.90	6.60- 9.90	9.90- 25.00
Continental	3.50- 4.00	6.60	7.00	8.00- 25.00
Copley Plaza	4.50- 6.60	7.75- 8.80	8.80- 10.00	15.00- 25.00
Copley Square	4.00- 5.00	6.00	7.00	10.00- 14.00
Gardner	2.50- 5.00	4.00- 6.00	4.00- 6.00	7.50
Hemenway	3.00- 3.85	4.40- 5.50	4.40- 5.50	None
Kenmore	4.00- 6.00	6.50- 8.50	6.50- 8.50	10.00- 12.50
Lenox	3.75- 5.00	5.50- 6.50	7.50	10.00- 16.00
Manger	3.85- 5.50	5.00- 7.50	5.50- 7.50	None
Minerva	3.00- 5.00	4.00- 6.00	5.00- 7.00	5.00- 8.00
Myles Standish	3.85- 6.50	5.50- 7.50	6.50- 7.50	6.50- 15.00
Parker House	4.00- 6.50	6.25- 8.50	7.50- 10.00	14.00- 16.00
Puritan	4.40- 6.60	6.60- 8.80	9.90	13.20- 17.60
Sheraton	4.00- 4.50	7.00- 8.00	7.00- 8.00	7.00- 16.00
Somerset	5.00- 9.00	7.00-11.00	7.00- 11.00	10.00- 20.00
Statler	4.00- 9.50	6.50-12.00	8.50- 14.00	17.50- 27.00
Touraine	4.00- 6.00	6.00- 9.00	7.50- 9.00	14.00- 16.00
Vendome	3.75- 7.00	5.50- 8.75	6.50- 8.75	10.00- 15.00

MAKE ROOM RESERVATIONS EARLY

APPLICATION FOR HOTEL ACCOMMODATIONS
AMERICAN PUBLIC HEALTH ASSOCIATION

76th Annual Meeting and Meetings of Related Organizations, Boston, November 8-12, 1948
(Note that the Meeting opens Monday, November 8, at 9.30 A.M.)

Please make hotel reservation as indicated below:
Give three choices of hotels.

Hotel 1st Choice; Hotel 2nd Choice; Hotel 3rd Choice
 Room with Double Bed at \$...... per day for persons
 Room with Twin Beds at \$...... per day for persons
 Room for three people at \$...... per day for persons
 Single room at \$...... per day
 Suite at \$...... per day for persons

ARRIVING. NOVEMBER Hour LEAVING: NOVEMBER Hour

Please print (or type) names and addresses of all occupants including persons making reservation.

NAME	STREET ADDRESS	CITY	STATE
.....
.....
.....

Name
Street Address
City State

MAIL TO: The Convention Bureau, Boston Chamber of Commerce, 80 Federal St., Boston, Mass.
RESERVATIONS WILL BE HELD UNTIL 6:00 P.M. ONLY, UNLESS
THE HOTEL IS NOTIFIED OF LATE ARRIVALS

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

(Supplemental to list in March Journal)

POSITIONS AVAILABLE

Health Officer in one of the most desirable locations in Montana; population 30,000; salary \$6,000 to \$7,000, depending upon training and experience. Write Box A-1. Employment Service. A.P.H.A.

Executive Director for community health agency in suburban Philadelphia. Professional staff of twelve nurses and dentist. Generalized nursing service affiliated with local Boards of Health and Schools; Dental Clinic; Child Health Centers; Practical Nurse Registry. Nurse with academic degree plus supervisory and administrative experience in official and nonofficial public health nursing. Retirement plan, one month vacation, 5 day 39½ hour week, sick leave. Salary open. Write Mr. H. H. Perry, President, Community Health and Civic Association, 25 East Athens Avenue, Ardmore, Pa.

Public Health Nurse and a Physiotherapist. Metropolitan Area of Washington, D. C. Excellent working relations. Good salary. Apply to Mrs. Sarah Brooks, Director of Nursing Bureau, Arlington Health Department, 1800 N. Edison Street, Arlington, Va.

Bacteriological Technician to assist in Bacteriology Department of Research Division of large pharmaceutical and biological firm. College graduate and at least one year of experience required. Experience in immunology or chemotherapy desirable. \$55 per week to start. Regular increases. Paid vacation. Five day week. Write Box A-2, Employment Service, A.P.H.A.

Public Health Nursing Field Supervisor; B.S. degree with major in Public Health Nursing and theory and experience in supervision required. Salary: minimum \$3,000, higher depending upon qualifications. Interesting and growing program. Write: Director, Public Health Nursing Association, Des Moines, Iowa.

Qualified Bacteriologist, Serologists and Sanitarians wanted for positions in New Mexico Department of Public

Health. Permanent tenure, vacations and sick leave with pay. For application blanks and information write Merit System Supervisor, Box 939, Santa Fe, N. M.

Sanitarian for metropolitan county 300,000 population to assist in generalized sanitation program. Area includes rural as well as urban sanitation problems; offers excellent opportunity for activity in all fields of environmental health. Experience in general sanitation activities required. Salary \$3,315 to \$3,795. Retirement plan, liberal vacation allowance, sick leave, 5 day week. Mileage allowance 7¢. Must furnish own car. Write Wayne County Health Department, Eloise, Mich.

Public Health Nurses needed in Nevada. Permanent positions in rural counties and local county health unit.

Junior Public Health Nurses: (salary range \$2,160-\$2,640 annually); minimum of 6 months postgraduate public health nursing training.

Senior Public Health Nurse (salary range \$2,340-\$2,940 annually). One academic year of postgraduate training in public health nursing plus satisfactory experience in official agency. Mileage allowance 7½¢, if nurse owns car.

Supervisory Nurse for 6-7 counties (salary range \$2,580-\$3,300 annually plus travel allowance). Degree plus 1 year postgraduate training in public health nursing and two years' experience. All positions subject to Merit System examination. Write: Division Public Health Nursing, Nevada State Department of Health, 12 Fordonia Building, Reno, Nevada, for full details.

California County Health Department needs **Public Health Analyst**—Salary \$2,964-\$3,564. **Dental Hygienist**—Salary \$2,832-\$3,408. Travel allowance 7¢ per mile. Civil Service and Retirement systems. Population 200,000. Write: W. A. Powell, M.D., Health Officer, Health Department, Contra Costa County, Martinez, Calif.

Staff Nurse, preferably with some public health nursing experience. Area, both urban and rural, population appr. 33,000.

Generalized public health service, well-baby clinics, bedside care, school nursing, tuberculosis clinics. Five day week, month vacation, all holidays, sick leave. Salary dependent upon qualifications. Write to Red Cross Nursing Service, West Essex Chapter, 14 Park Street, Caldwell, N. J.

Health Officer and Public Health Nurses for rural public health program coöperating with the North Carolina State Board of Health and the University of North Carolina School of Public Health. This Health Unit serves as a field training center for Public Health personnel. The public health program operates under the State Merit System which regulates requirements and salaries. Write to O. David Garvin, M.D., District Health Officer, Chapel Hill, N. C.

Director of Health Education and Health Services in public school system in midwestern city of 100,000 population. Ability to develop health education program in public school system. Coördinate community resources. Direct health and safety education; medical, dental and nursing services; food services; school sanitation; physical sanitation. Salary \$5,000 depending on training and experience. Write Box A-7. Employment Service. A.P.H.A.

Assistant Executive Secretary (health education) voluntary health agency. North Eastern city. M.P.H., and some community experience required. Man or woman. Salary \$3,200-\$3,600. Opportunity to develop program in suburban areas. Write Box A-8. Employment Service. A.P.H.A.

Epidemiologist for responsible statewide program in communicable disease control requiring an experienced health officer.

Senior Bacteriologist for responsible positions in state public health Laboratories. Master's degree or experience necessary. Monthly salary \$250-\$315.

Junior Bacteriologist for positions available in state public health laboratories. Bachelor's degree with major in bacteriology or immunology required. Monthly salary \$210-\$265. Contact Personnel Office, Kansas State Board of Health, Topeka, Kans.

Employment Opportunities in Arizona Wanted—Medical and Other Professional Personnel in Arizona

Director of Tuberculosis Control Division, \$6,000 a year

Director of Maternal and Child Health Division, \$6,000 a year

Two Directors of Local Health Units, \$5,100 a year
Maternal and Child Health Clinician, \$5,100 a year
Clinician in the Special Field of Cancer, \$5,100 a year
Director, Hospital Survey, Planning and Construction, \$6,000 a year
Nutrition Consultant, \$3,360 a year
Dental Hygienist, \$2,400 a year
Assistant Director of Health Education, \$2,880 a year
Psychiatric Social Work Consultant, \$3,360 a year
Consulting Psychologist, \$3,360 a year
Senior Psychologist, \$2,880 a year
Junior Psychologist, \$2,400 a year
Personnel Officer, \$3,000 a year
Vital Statistician, \$2,880 a year

Public health program operates under a Merit System of Personnel Administration. For further information write to: J. P. Ward, M.D., Superintendent of Public Health, Phoenix, Ariz.

Public Health Nurse wanted with Public Health Certificate. Beginning salary \$3,051 to maximum of \$3,577. Car furnished. Permanent tenure, vacation and sick leave, 5 day week. For further information apply to the Civil Service Board, City Hall, Dearborn, Mich.

Nurse for Public School System of Mount Clemens. Beginning salary \$3,200-\$3,300 depending upon training and experience. Write Box A-10. Employment Service. A.P.H.A.

Public Health Administrator. A position combining that of public health engineering and the supervision of personnel, accounting and properties in a health unit containing 57 full-time positions. The area is adjacent to the District of Columbia, has a population of 130,000, and is both rural and suburban. Salary \$4,400-\$5,060, plus a ten per cent cost of living increase. Apply to Civil Service Commissioner of Montgomery County, Rockville, Md.

Chief Health Officer for City Health Department. Department operating efficiently. Required: M.D., preferably with public health training and experience. State experience and salary expected. Apply to City Manager, Bluefield, W. Va.

City Health Officer for New England industrial city of 20,000 population; full-time position with major emphasis on child and school health program; starting salary \$6,000. Reply in detail to Board of Health, City Hall, North Adams, Mass.

Medical Director, Municipal Tuberculosis Hospital, bed capacity 115. Perma-

ment, full time. Salary \$4,620 with full maintenance. Reply Box 583, Fall River, Mass.

Physician, as Chief of the Bureau of Tuberculosis in charge of all public health tuberculosis activities (no institutional work). Salary \$10,380 plus \$25 cost of living monthly bonus. Write to the President, Board of Health, Territory of Hawaii, Honolulu, Hawaii, by airmail.

Physician as Director City-County Health Department, Eau Claire, Wis., population 56,000; staff of 14; ideal offices and laboratory. Salary for man with degree in public health \$7,500 plus 8¢ per mile travel. Write City-County Health Department, Safety Building, Eau Claire, Wis.

Supervising Nurse with certificate in public health nursing. Salary range \$260-\$300. Car furnished. Provision for vacation, sick leave, retirement benefits, permanency. For further particulars write Charles A. Neafie, M.D., Director, Department of Public Health, Pontiac 15, Mich.

Supervisor of Public Health Nurses. Baltimore County Health Department. Urban, suburban, and industrialized areas. Generalized service; director, four supervisors, 36 field nurses. Degree and experience required. Salary \$3,100 to \$3,600; for special preparation in child hygiene, venereal disease, mental hygiene, or orthopedics, \$3,600 to \$3,900. Retirement plan; 1 month vacation; 5 days a week. For use of personal car, an allowance of 7¢ per mile. Write to Dr. William H. F. Warthen, Health Officer, Baltimore County Health Department, Towson 4, Md.

Public Health Nurses for attractive rural area in northern Michigan within short distance of several urban centers. Opportunity for supervised experience and university study. Salary excellent, dependent upon experience and qualifications, systematic increments, 40 hour week, liberal travel allowance. Write Director, Eaton County Health Department, Charlotte, Mich.

Public Health Commissioner in Tuscarawas County, New Philadelphia, Ohio. Must have degree in public health. To serve in a county with a population of approximately 40,000. Beginning salary \$6,000 or more. Write Box A-3. Employment Service. A.P.H.A.

Physicians (several), experienced in medical care administration or equivalent; for Health Services Division of Welfare

and Retirement Fund. Age 30-45; exception possible for otherwise well qualified applicants. Salary range \$8,000-\$12,000 dependent on training and experience. Write Box A-6. Employment Service, A.P.H.A.

Wanted for City Health Department. Midwest. Public Health Physician. Salary \$370 to \$415 per month plus \$30 per month for using his own car.

Epidemiologist, (Physician), salary \$410 to \$455 per month plus \$30 per month for using own car. Both these positions require a license to practice medicine in Ohio or ability to obtain such license if selected for the position.

Senior Bacteriologist, Public Health Laboratory Service. (Male or female.) Salary \$420 to \$520 per month.

Write Box A-9. Employment Service. A.P.H.A.

City Health Officer. \$6,000-7,200 plus \$63.85 monthly cost of living adjustment. Practical experience in public health, graduation from medical school, Wisconsin license or eligibility. Write Personnel Division, City Hall, Madison 3, Wis.

Several vacancies Nursing Division. Public Health Supervisor \$3,000-3,720; Senior Public Health Nurse \$2,640 to 3,360; Senior Bacteriologist \$2,820-3,540. Merit System. Vacation and sick leave with pay. Submit credentials and recommendations with first communication to: Floyd R. Town, M.D., Director, Bremerton and Kitsap County, Department of Public Health, Bremerton, Wash.

Bacteriologist, investigational work in pulp and paper fields involving bacteriological and mycological studies. Salary commensurate with experience and ability. Give all details in first letter. Write: The Institute of Paper Chemistry, Appleton, Wis.

National trade association requires Department Head. Preferably graduate sanitary engineer, experienced in state, county or city health departments. Some travel. Headquarters probably Chicago. Excellent opportunity for man with proper training and with initiative and good personality. Write fully education, experience, and references. Box E-2. Employment Service, A.P.H.A.

Supervising and staff Public Health Nurses needed in department of public health in modern agricultural county in southern California. Minimum N.O.P.H.N. qualifications required. Salary range \$2,916-3,540; vacation and sick leave. Write Burke E. Schoensee, M.D., County Health Officer, El Centro, Calif.

Sanitarian with Public Health experience; B.S. degree in bacteriology or chemistry. Assist generalized environmental sanitation program in established department in east central Michigan; applicant must have car. Beginning salary \$3,000 plus travel allowance. Position offers excellent opportunity for self expression and selected applicant will be one of six carrying forward the programs in this area. Write Bay City Department of Health, Bay City Hall, Bay City, Mich. State qualifications and experience.

Medical Health Officer for City of Saskatoon. Salary range \$5,000-6,000. Successful applicant permitted to devote limited amount of time to lecturing at University of Saskatchewan on public health subjects. Applications giving particulars of age, qualifications, previous experience, and accompanied by copies of testimonials, are to be addressed to Andrew Leslie, City Commissioner, City Hall, Saskatoon, Saskatchewan.

Advisor to Dean of College of Medicine, Seoul National University in Korea. Qualifications: Male between ages of 28 and 55. Graduate of recognized medical college. Experience in medical education preferred. Knowledge of Korean conditions, manners, and customs is important. Korean language desirable but not required. Salary: \$5,905.20 base plus 25 per cent overseas allowance, making a total annual salary of \$7,381.50. Apply:

Lt. Colonel Arthur W. Hodges, Jr., War Dept. Special Staff, Washington 25, D. C.

Public Health Nurse position. Generalized public health nursing. Civil Service requirements: one year of public health nursing at approved university; experience preferred. Salary range \$2,400 to \$2,800—\$120 increase per year. Three weeks vacation, sick leave 12 days per year, accumulative. Personal car, mileage of for travel on duty. Write to Adele Didricksen, R.N., Director Public Health Nursing, Ulster County Health Department, 61 Albany Avenue, Kingston, N. Y.

Bacteriologist—\$3,360. Three years' experience in clinical or laboratory diagnosis. Master's or Doctor's degree. Complete charge of Public Health laboratory, town of approximately 10,000. Apply to Bureau of Personnel, State Capital, Madison 2, Wis.

Research Microbiologist, opportunity in Connecticut State Health Department. Salary range \$4,620—\$5,820 plus temporary adjustment of \$642. Applicants not required to be Connecticut residents. Minimum requirements experience or training equivalent to 7 years in important bacteriological research in a bacteriological laboratory. Last date for filing application for competitive examination is April 30, 1948. For full particulars and application form, write State Personnel Department, State Capitol, Hartford, Conn.

Public Health Opportunities in Colorado

Dentist, as Director of Public Health Dentistry Section. Salary \$4,800-5,500.

Public Health Physicians:

1. Director, Local Health Services. Salary \$6,750.
2. Director, Preventive Medical Services. Salary \$6,750.
3. Director, Tuberculosis Control. Salary \$4,800-5,500.
4. Director, Venereal Disease Control Section. Salary \$4,800-5,500.
5. Director, Maternal, Child Health and Crippled Children Section. Salary \$4,800-5,500:

Apply at: State Civil Service Commission

314 State Capitol
Denver, Colo.

Fellowships for the Training of Health Educators

Fellowships leading to a Master's Degree in Public Health in the field of Health Education are again being offered this year to any qualified United States citizen between the ages of 22 and 40. Funds are available through a grant from the National Foundation for Infantile Paralysis.

Candidates must hold a Bachelor's degree from a recognized college or university at the time the application is filed, and must be able to meet the entrance requirements of the accredited school of public health of their choice. Proof of acceptance at such a school must be furnished before applications are submitted to the Fellowship Awards Committee for consideration. In addition to the Bachelor's degree, courses in the biological sciences, sociology, and education are required. Training in public speaking, journalism, psychology, and work in public health or a related field is considered desirable.

The fellowship consists of 8 or 9 months' academic work, which begins with the fall term in 1948, and three months of supervised field experience in community health education activities in a local health department. The academic training includes courses in public health administration, epidemiology, public health and school education, problems in health education, community organization, information techniques, and others.

Veterans are encouraged to apply, and will be paid the difference between their subsistence allowance under the G-I Bill of Rights and the monthly stipend of \$100 for single veterans or \$150 for married veterans. Employees of state or local health departments are not eligible, since federal grants-in-aid are provided through the states for such training.

Information and application blanks may be obtained by writing to the National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y.

Public Health Workers Needed for European Rehabilitation Program

We need two qualified public health physicians; six public health registered nurses, one chief nurse to organize programs; one health consultant capable of setting up training schools for practical nurses; two nurse educators to head these schools; three medical social workers; and two public health dentists. All personnel must enlist for eighteen months. They must have physical stamina, be adaptable and sympathetic. A knowledge of Yiddish is necessary. Interested applicants should apply to the Health Committee of Joint Distribution Committee, 270 Madison Avenue, New York 16, N. Y.

POSITIONS WANTED

Senior Serologist seeks position in southern California; 15 years' experience including 4 years as laboratory officer. Major Army United States. Write Box L-1. Employment Service. A.P.H.A.

Veterinarian with training in bacteriology, organic chemistry, and pathology; experience in public health work as a veterinary inspector for large Midwestern city; experience in clinical laboratory procedures; desires position in or outside United States requiring initiative and diligence. Write Box V-1. Employment Service, A.P.H.A.

Position in School Health Education or public health education wanted by woman with many years' experience in teaching and community organization in public health. Master's degree in public health. East or Middle West preferred. Write Box H-E-1. Employment Service. A.P.H.A.

Biological and Physical Chemist available for research, control, teaching. Extensive experience research, industrial development and control on pharmaceuticals, biologicals, bio-assays, also expert in animal surgery. Original analytical and physical-chemical methods. Former University professor, 60 publications; many in medical research; books. Executive ability. Age 35, married, children. Seeks responsible position Hospital Laboratories or Educational Institution, New York Metropolitan area preferred. Box L-2. Employment Service. A.P.H.A.

Sanitary Engineer, A.B., M.S., C.E., 3 years' experience in Public Health Engineering with Federal, State, and local agencies. Army experience in water supply in the Pacific. Desires position in public health engineering. Write Box E-1. Employment Service. A.P.H.A.

Health Educator, B.S. in Education, New York University, M.P.H., Yale University Department of Public Health. Experienced in community organization with City Health Department; Instructor of Health Education in University. Interested in Health Education in the community or as School Health Coordinator. Write Box H-E-2. Employment Service. A.P.H.A.

Graduate Veterinarian with undergraduate and graduate work in dairy technology, experienced in both fields, desires position as sanitarian in a public health capacity or related work; suggestions solicited. Write Box V-2. Employment Service. A.P.H.A.

Physician 18 years of active practice in internal medicine and chest diseases (Pneumo-thorax treatment); desires position in tuberculosis control (institutional or field) or one requiring general clinical background. Eligible for New York license; available immediately; references sent on request; age 44, married, children. Write Box Ph-1. Employment Service. A.P.H.A.

Industrial Hygiene Chemist, M.S.; 13 years' experience in analytical chemistry. Seven years' experience with well known industrial hygiene laboratory. Familiar with wide variety of chemical methods.

Present salary above \$5,000 but immediate increase in salary not as important as opportunity to advance and reasonable security. Write Box I-H-1. Employment Service. A.P.H.A.

Academic position as Professor of Bacteriology or Preventive Medicine. Ph.D.;

M.D. expected in spring, 1948. Sixteen years' experience in teaching and research (7 years as Professor of Bacteriology). Many publications including textbook of bacteriology for medical students. Write Box Ph-2. Employment Service. A.P.H.A.

Advertisement

Opportunities Available

WANTED--(a) Public health physician to direct health department of rapidly growing county; present population 155,000; staff of 30 personnel; Pacific Coast. (b) Professor of public health medicine; duties include serving as student health physician; state university; \$7,200. (c) Public health administrator; key position; Middle Western metropolis. (d) Student health physician to direct department, eastern university. (e) Physician to direct city-county health department; staff of fourteen; \$7,500 plus traveling expenses; Middle West. (f) Three student health physicians; one should be available immediately; two others, man and woman, need not report until fall; co-educational college; enrollment of 12,000 students; Southwest. PH1-1 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

WANTED--(a) Health coordinator; small community in Wisconsin; well organized program. (b) Sanitary engineer to direct mosquito control program; four years' professional engineering experience including work in sanitary engineering; required; around \$6,000; United States dependency. (c) Health educator; school and county health education program serving two counties; South. (d) Public health engineer; state department; South. (e) Health educator, county health department; preferably someone with several years' experience in education including public

relations, radio work, exhibition, etc.; headquarters in town of 90,000; East. PH1-2 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

WANTED--(a) Public health supervising and staff nurses; generalized service; expansion program; opportunity for obtaining interesting experience; salaries depend upon qualifications, for staff nurses, \$3,500-\$3,600; nominal living expenses; West. (b) School nurse; preparatory school for boys; East; salary includes complete maintenance, private suite. (c) Public health nursing supervisor; duties include responsibility for undergraduate students who are affiliates; possibility of developing program to include graduate nurses; well staffed department; residential town vicinity New York City. (d) Consultant nurse for cancer control; duties include giving nursing supervision to tumor diagnostic clinics throughout the state; will work closely with various agencies and medical societies; \$3,660-\$4,300. (e) Advisory nurse for generalized program; duties consist of supervising local agencies throughout state; \$3,660-\$4,300. (f) Supervisor of nurses; health department of public school system; Bachelor's degree required; Master's in health education desirable; Middle West. PH1-3 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

Advertisement

Opportunities Wanted

Bacteriologist; M.S., Ph.D. degrees, southern school; six years bacteriologist, public health department, two years head of department of bacteriology, small college; for further information, please write Burneice Larson, Director, The Medical Bureau, Palmolive Building, Chicago 11.

Health educator; Ph.D.; six years, health educator, nationally known organization; three years, health educator in industry; teaching experience; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health director; Ph.B., C.P.H., M.D. degrees; four years' experience as county health officer; three years' industrial experience (wartime assignment); now director of metropolitan department of health; for further information, please write Burneice Larson,

Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health nursing administrator; Master's degree in public health; four years, industrial nursing consultant to public health agency; past several years, director of generalized state-wide program; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Young dentist; D.D.S., M.S. degrees; recently received Master's degree in Public Health; has done considerable research work on problem of dental caries; prefers public health dentistry or teaching position in pedodontia; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

NEWS FROM THE FIELD

ANNUAL MEETING OF THE NATIONAL HEALTH COUNCIL

Oscar Ewing, Federal Security Administrator, was the chief luncheon speaker at the annual meeting of the National Health Council in New York on February 17. He outlined some of the plans that have been made following President Truman's request to the Administrator to develop a 10 year program for improving the health of the nation.

Mr. Ewing told briefly of the plans for the National Health Assembly in Washington May 1-4 including a variety of voluntary and citizen agencies. The keynote of his address in this respect was that there were large areas of general agreement among the various groups interested in developing public health; that these areas should be exploited at the same time that discussions are going on with respect to health insurance about which there are large areas of disagreement.

The Federal Security Administrator also put forward a proposal for a plan of federal aid to medical education. He said that there is now a serious shortage of doctors, particularly in rural areas and among Negro populations, a deficiency which cannot be corrected for many years without some special aid. Mr. Ewing also used this occasion to announce the opening of Gallinger Hospital in Washington to the students of Howard University, thus making it the 13th hospital in the United States that is open to both Negro and white physicians.

Philip R. Mather, President of the Council, presided at the luncheon and Bailey B. Burritt, its Executive Director, made a brief report in which he presented the association with 8 chal-

lenges for the coming year, among which he cited the need for extending local full-time health service to the 40 million persons now without even minimum health protection in their local communities.

At the business meeting of the Council, the following officers were elected for the coming year:

President, Philip R. Mather
Vice-President, Ernest L. Stebbins, M.D.
Treasurer, Haven Emerson, M.D.
Assistant Treasurer, Franklin M. Foote, M.D.
Secretary, Reginald M. Atwater, M.D.

The business meeting also authorized an increase in the Board of Directors from 25 to 31 in order to give more representation to member agencies and to provide a wider geographic distribution of directors. Newly elected members of the Board of Directors are Bleecker Marquette of the Cincinnati Public Health Federation; Mrs. Brooks Potter, Newton, Mass.; Mrs. Lewis S. Thompson, Red Bank, N. J.; Anna Fillmore, Director of the National Organization of Public Health Nursing; Gale F. Johnston of the St. Louis Mercantile Commerce Bank Trust Company; and William P. Shepard, M.D., Metropolitan Life Insurance Company.

NEW ENGLAND HEALTH INSTITUTE, JUNE 16-18

The 1948 New England Health Institute will be held at the University of Massachusetts in Amherst, June 16-18. Among those on the program are Leonard A. Scheele, M.D., Surgeon-General of the U. S. Public Health Service; Martha M. Eliot, M.D., of Washington, Associate Chief of the U. S. Children's Bureau and President of the American Public Health Association; Ira V. Hiscock, Sc.D., of Yale University; V. A.

Van Volkenburgh, M.D., Assistant Commissioner of the New York State Department of Health; and Hugh R. Leavell, M.D., of Boston, Professor of Public Health Practice at the Harvard School of Public Health. One thousand local and state public health workers from the six New England states are expected to attend.

Meeting at the same time will be the local and state health workers of Massachusetts for the annual conference sponsored by the State Public Health Association and the State Department of Health. Vlado A. Getting, M.D., State Health Commissioner, heads the committee on arrangements for the joint meetings.

Arrangements for the housing and feeding of the gathering are being handled by Professor Ralph L. France, University of Massachusetts, Amherst. Programs will be mailed from his office in early May.

THE FOURTH INTERNATIONAL CONGRESSES ON TROPICAL MEDICINE AND MALARIA

Washington, D. C., May 10-18, 1948

The Fourth International Congress on Tropical Medicine and the Fourth International Congress on Malaria will meet jointly in Washington on the above dates under the sponsorship of the United States Government through its Department of State. Physicians, scientists, and other professional persons interested in tropical medicine are invited to attend as members; and students, non-professional persons interested in tropical medicine, and members of the families of professional members are invited to attend as associates. There will be a registration fee of \$10 for professional members who will receive the printed report of the *Proceedings of the Congresses*. Registration fee for associates is \$5 without the *Proceedings*, or \$10 with the *Proceedings*. Fur-

ther information concerning registration and hotel accommodations can be obtained by communicating with Dr. Wilbur A. Sawyer, Executive Secretary of the Congresses, Department of State, Washington 25, D. C.

The Congresses will hold both plenary and sectional meetings. The following sections have prepared programs.

1. Research and Teaching Institutes
2. Tropical Climatology and Physiology
3. Bacterial and Spirochetal Diseases
4. Virus and Rickettsial Diseases
5. Malaria
6. Helminthic Diseases
7. Protozoan Diseases
8. Nutritional Diseases of the Tropics
9. Tropical Dermatology and Mycology
10. Tropical Veterinary Medicine
11. Public Health
12. Medical and Veterinary Entomology

In addition, there will be two evening commemorative sessions, one on Wednesday, May 12, commemorating the establishment by Walter Reed of the mosquito transmission of yellow fever and celebrating his admission to the Hall of Fame, and one on Friday, May 14, commemorating the fiftieth anniversary of the discovery by Ronald Ross of the mosquito transmission of malaria. Opportunities will also be given to visit the Research Center of the Department of Agriculture at Beltsville, Md., the National Institute of Health, and the Naval Medical Research Center at Bethesda, Md., and the Army Medical Department Research and Graduate School in Washington. The tentative program of the Section on Public Health, of which Dr. Henry E. Meleney, Professor of Preventive Medicine, College of Medicine, New York University, is Convener, is as follows:

Session 1. Education and Research—Joint Meeting with Section on Research and Teaching Institutes

1. The Education of Public Health Personnel for Work in the Tropics. Angel de la Garza Brito, M.D.
2. Qualifications, Training and Opportuni-

ties for Public Health Nurses in the Tropics. Johanna Schwarte, R.N.

3. Plans and Purposes of the Institute for Scientific Research in Central Africa. L. Van den Berghe, M.D.

4. The Liberian Institute of the American Foundation for Tropical Medicine. Thomas T. Mackie, M.D.

Session 2. Research and Teaching—Joint Meeting with Section on Research and Teaching Institutes

1. Research and Training in Tropical Medicine in Europe. Dr. Oliver R. McCoy

2. Facilities for Research and Teaching in Tropical Medicine in Africa. Dr. Alexander F. Mahaffy

3. Research and Teaching in Tropical Medicine in the Far East. Dr. Marshall C. Balfour

4. Institutes for Research and Teaching in Tropical Medicine in the Americas. Dr. Morales Otero

5. Research and Training Institutes in Australia and the Southwest Pacific. Dr. A. H. Baldwin

Session 3. Health and Medical Services in the Tropics

1. Health and Medical Services for Agricultural Workers in the Tropics. Edward I. Salisbury, M.D.

2. Health and Medical Services for Rural Populations in Brazil. Paulo C. A. Antunes, M.D.

3. Health and Medical Services in the Tropics for a Colonial Population. Professor Jerome Rodhain

4. Health and Medical Services for the Southwest Pacific. Sir Raphael Cilento

5. The Contribution of Christian Medical Missions to the Practice of Medicine in the Tropics. Dr. Harold G. Anderson

Session 4. The Tuberculosis Problem in the Tropics

1. Tuberculosis in Jamaica. Richard A. Cory, M.D.

2. Tuberculosis in South Africa. Dr. B. A. Dormer

3. Tuberculosis in India. Dr. A. C. Ukil

4. BCG Vaccination in the Control of Tuberculosis. Dr. Joseph D. Aaronson

5. Pulmonary Calcification in Relation to Tuberculosis and Fungus Infections. Amos Christie, M.D.

Session 5. Public Health and Vital Statistics Problems

1. Population Problems in the Tropics. Dr. T. Lynn Smith

2. Vital Statistics Problems of India. K.C.K.E. Raja.

3. China's Public Health Problems. P. Z. King, M.D.

4. The Work of the Interim Commission of the World Health Organization. Dr. Frank A. Calderone

ANNUAL MEETING OF THE PUERTO RICO PUBLIC HEALTH ASSOCIATION

The 7th Annual Meeting of the Puerto Rico Public Health Association was held in San Juan, February 10 to 13, under the Presidency of Guillermo Arbona, M.D., M.P.H., at the School of Tropical Medicine. Ten sessions were organized for the discussion of public health problems important to the island, including stream pollution, housing sanitation, milk sanitation, Blue Cross programs, airport sanitation, communicable disease control, public health nursing, personnel problems, the federal hospital plan, coöperation with voluntary health agencies, the island nutrition program and plans for mental hygiene.

Participants from Puerto Rico included Oscar Costa Mandry, M.D., E. Garrido Morales, M.D., Maria S. Lacot, Ramon A. Rios, M.D., Rafael Timothee, M.D., Sarah R. Chacon and Angel M. Marchand, M.D., M.P.H.

The Secretary of the Association is Mr. Nelson Biaggi, Sanitary Engineer, of the staff of the School of Tropical Medicine.

Visitors from the mainland at the meeting included Professor C.-E. A. Winslow, Editor, *American Journal of Public Health*, who conducted an institute during the program; Estella Ford Warner, M.D., States Relations Division, U. S. Public Health Service, Washington, D. C.; Robert S. Breed, Ph.D. of Geneva, N. Y.; Harold W. Brown, M.D., Columbia University School of Public Health; E. J. Herring, Senior Sanitary Engineer, U. S. Public Health Service, New York, N. Y.; W. W. Peter, M.D., Institute of Inter-American Affairs, Washington, D. C.; John L. Rice, M.D., New York,

N. Y. and Reginald M. Atwater, M.D., Executive Secretary, A.P.H.A.

New officers of the Puerto Rico Public Health Association include:

President—Rafael A. Timothee, M.D., Rio Piedras

President-elect—Juan A. Pons, M.D., Santurce

Vice-President—Americo Pomales, Ph.D., San Juan

Secretary—Nelson Biaggi, San Juan

Sub-Secretary—Rafaela Salgado de Rosado, Santurce

Treasurer—Angeles Cebollero, San Juan

Representative on A.P.H.A. Governing Council—Guillermo Arbona, M.D.

DR. MARY CROSSE RECEIVES ORDER OF BRITISH EMPIRE

V. Mary Crosse, M.D., of the Public Health Department, Birmingham, England, was made an Officer of the Order of the British Empire in the King's New Year Honors List in recognition of her work on the care of premature babies.

Readers of the *Journal* will recall that Dr. Crosse was a member of an A.P.H.A. team of speakers which visited several state and public health meetings during the spring of 1947 and attended also the Western Branch A.P.H.A. meeting. Dr. Crosse is the author of a widely read text on the care of the premature baby which she is now revising.

AWARD TO PSYCHIATRIC AIDE OF THE YEAR

The first recipient of the annual National Mental Health Foundation's Psychiatric Aide of the Year Award of \$500 was recently made to Walter Starnes of the Winter Veterans Administration Hospital of Topeka, Kans. In commenting on the award, Karl A. Menninger, Manager of the hospital, praised the Mental Health Foundation for calling the attention of the public to a group of persons whose service is rendered far away from the public eye. Said he, "Walter Starnes is an ambassador extraordinary. The qualities for which he was chosen—kindness,

tact, sensitivity to the needs and feelings of others, patience, humility, and, above all, character—could very well make Starnes the outstanding man of the year."

Nominees for the award were selected from among 12,000 psychiatric aides by the staffs and patients in private and public mental hospitals throughout the country. Five additional candidates were cited for honorable mention and each received a \$50 award.

FEDERAL SECURITY ADMINISTRATOR'S HEALTH ASSEMBLY

Federal Security Administrator Oscar R. Ewing has called a National Health Assembly to meet in Washington, May 1-4. The purpose of this Assembly is to help develop a ten year health program for the nation. It grew out of President Truman's recent request to Administrator Ewing to develop plans for the next ten years in public health.

Twenty-four national leaders have been invited to serve on the conference executive committee. Among these is Abel Wolman, Chairman of the Association's Executive Committee, and Louis I. Dublin, its Treasurer. The list includes representatives of newspapers, radio, and motion pictures; farm, labor, and business groups; as well as professional organizations.

The activity of the Assembly will be in the form of panel discussions each of which will explore in detail a specific phase of the health problem. Not all of the panel leaders have been chosen but the one on local health units will be under the chairmanship of Haven Emerson, M.D., the Chairman of the Association's Subcommittee on Local Health Units.

In announcing the Assembly, Mr. Ewing said, "Health is the people's job. We can have national action only to the extent that we have community interest and action. As I see it, the job is: to know accurately the health facili-

ties and personnel of each community and of the nation, to determine our health deficits or the difference between what we need and what we have, and to devise feasible methods of meeting these deficits. I hope that, in the real sense of the word, this Assembly will spring from and its results go back to the 'grass roots' of the country."

PHILIP R. MATHER PRESIDENT OF
AMERICAN SOCIAL HYGIENE
ASSOCIATION

At the Annual Meeting of the American Social Hygiene Association in New York on February 4, Philip R. Mather of Boston was presented with the William Freeman Snow Medal for Distinguished Service to Humanity and was elected President of the Association. The citation reads:

To Philip Richard Mather . . .

Who from boyhood was taught by the precepts and examples of his distinguished father and mother the obligations and the satisfactions of social service . . .

Whose imperative sense of duty causes him never to hesitate to sacrifice personal comfort and convenience in favor of an opportunity to aid a worthy cause . . .

Who served with honor in the armed forces of his country in wartime . . .

Whose sound judgment and perspicacity have made him a valued member of the governing bodies of many local, state and national welfare agencies . . .

Who has given generously of his resources to relieve suffering and correct injustice . . .

Whose courtesy, humor, modesty and unselfishness have endeared him to all who know him . . .

Who embodies in himself the traits of the true philanthropist—"one who desires to do good to all mankind" . . .

The American Social Hygiene Association is proud to award the William Freeman Snow Medal for Distinguished Service to Humanity.

Mr. Mather has been President of the National Health Council since 1946.

At this meeting also Edward S. Godfrey, Jr., M.D., recently retired as Commissioner of Health of New York

State, received Honorary Life Membership in the Association.

One of the interesting sessions of the meeting was the panel discussion on Marriage and Family Life in Universities Under the G.I. Bill of Rights in which four G.I. students and their wives were the discussants and Howard W. Ennes, Jr., Chief of the Extension and Training Section, Venereal Disease Division of the U. S. Public Health Service, was Moderator. At the same session, Charlotte Carr, Executive Director of the Citizens' Committee on Children of New York City, in an address, "Building a City for Families," suggested the integration of social and welfare services through the development of local community centers, pointing out the confusion and inefficiency of having separate community buildings for police, welfare, health and many others.

PTA AND LOCAL HEALTH UNITS

Recent activities of the National Congress of Parents and Teachers have encouraged the coverage of the entire nation with local health departments under competent full-time professional leadership. This is the project of the Association's Subcommittee on Local Health Units which began rather than ended with its 1945 report, *Local Health Units for the Nation*, and which has had numerous chain reactions, among the most important being the Ann Arbor and Princeton Conferences.

The National Congress of Parents and Teachers has recently taken two important steps to further the development of local health departments. It sponsored S. 2189 in the national Congress. This bill, introduced on a bipartisan basis by Senators Saltonstall (Mass.) and Hill (Ala.) on February 20, provides for grants-in-aid to states for the specific purpose of developing or extending local health departments. As in the Hill-Burton Hospital Con-

struction Act, aid to a state would be contingent upon the preparation by the state health department of an overall plan for serving the entire state with local health units of such population and area as to be efficient and economical. This bill has the approval of the State and Territorial Health Officers Association. It will be actively pushed by many of the citizen agencies represented at the Princeton Conference both as groups and as individual members.

A second activity of PTA is its Health Conference of February 16 and 17 in Chicago. Present were the organization's state chairmen, and particularly the health chairmen. They represented some 27,000 local chapters aggregating a membership of five million. These state chairmen heard: How to Organize for Securing Public Support from members of four effective state health committees—Florence R. Sabin, M.D., E. L. Wittenborn, H. C. Cranford, and Hugh W. Breneman, respectively of Colorado, Illinois, North Carolina, and Michigan. They discussed national and state legislation and made their campaign plans for S-2189; they learned something about evaluating local health services and they reserved a morning to detailing what they as an organized body could do to extend public health services.

NEW PRESIDENT OF NATIONAL COMMITTEE FOR MENTAL HYGIENE

Arthur H. Ruggles, M.D., Superintendent of the Butler State Hospital, Providence, R. I., was recently elected President of the National Committee for Mental Hygiene, succeeding Eugene Meyer, publisher of the *Washington Post*. Dr. Ruggles is Consultant in Mental Hygiene and Lecturer in Psychiatry at Yale University, Consultant to the U. S. Public Health Service, and former President of the American Psychiatric Association. Mr. Meyer resigned when he was appointed Presi-

dent of the International Bank for Reconstruction and Development.

In order to distribute leadership further among both lay and professional members, the National Committee for Mental Hygiene has replaced its former Executive Committee of 5 members with a new Board of Directors of 15; the old Board of Directors of 31 members has been replaced with a council of 51 members.

MULTIPLE SCLEROSIS SURVEYS

The January *AARMS Forward*, the year old organ of the Association for the Advancement of Research in Multiple Sclerosis, reports on the development of the area surveys that have been approved by the Association's Medical Board. Such statistical surveys in local areas of not less than half a million population in representative regions of the United States will develop background data as a ground work for a systematic attack on Multiple Sclerosis. The first survey is being made of Metropolitan New York and will soon be completed.

Statistical surveys are also being made in England and Europe through special grants received for that purpose.

AMA RURAL HEALTH CONFERENCE

The American Medical Association held its annual National Conference on Rural Health in Chicago on February 6 and 7. Among the speakers were Florence R. Sabin, M.D., Health and Welfare Commissioner of Denver, and G. F. Moench, M.D., Hillsdale County, Michigan, Health Officer and Health Chairman of the National Congress of Parents and Teachers. They emphasized that the 40,000,000 persons in the United States who do not have a full-time local health officer are mostly in rural regions.

This Conference was held in coöperation with the American Academy of Pediatrics which for the past 2 years

has been studying the child health services throughout the country. John P. Hubbard, M.D., who is Director of the Academy study, reported on findings up to date and reinforced the other speakers as to the gaps in rural health services.

HERE AND THERE IN CEREBRAL PALSY

The following news about the facilities for the care of cerebral palsy victims is summarized from various sources:

The 28th annual meeting of the Ohio Society for Crippled Children in October appropriated \$15,000 for special training in cerebral palsy for doctors, physical therapists, and speech therapists.

In Grand Rapids, Mich., a nursery for cerebral palsied children was recently established to provide treatment for both in- and outpatients. The Junior League of Grand Rapids assisted in this project.

In North Dakota, the first cerebral palsy demonstration clinic to be held in the state was held in Jamestown on December 1 and 2, under the sponsorship of the North Dakota Chapter of the National Society for Crippled Children, the North Dakota Medical Association, and the Crippled Children's Services of the North Dakota Public Welfare.

In Mississippi, a hospital school for cerebral palsied children was recently opened at Jackson Charity Hospital which has set aside 20 beds for children from all sections of the state. The medical expenses of this hospital school will be borne by the Crippled Children's Service of the State Department of Education.

In New York, a center partially financed from state funds for the care and treatment of cerebral palsy patients was recently opened at LeRoy, Genesee County. The new center, a joint project of the University of Rochester and the

State Department of Health, offers diagnostic treatment and hospital services for patients as well as facilities for personnel training and research. In New York City, a cerebral palsy preschool training center has been opened at Lenox Hill Hospital. It is being financed by the New York State Association for Crippled Children.

The women's national sorority, Alpha Gamma Delta, recently voted to sponsor a project on a national basis for the cerebral palsied. The tentative plans include funds for films and information services with other specific fields of work to be chosen at a later date.

FUND FOR TRAINING IN ATOM MEDICINE

Late in January, the U. S. Atomic Energy Commission set up a million dollar fellowship fund to train doctors and biologists in the new field of atomic science. This fund will be spent to carry out the first year of a program to relieve "the serious shortage of trained scientific personnel in the field of atomic energy as applied to biology and medicine."

Although treatment of atomic bomb victims will be explored, the primary aim is to gain more basic scientific knowledge of both the good and bad effects of atomic radiation on living organisms.

The program will be administered by the National Research Council, 2101 Constitution Avenue, Washington 25, D. C.

DOCTOR HARPER DAY IN WISCONSIN

On January 31, public health workers in Wisconsin celebrated Doctor Harper Day in honor of C. A. Harper, M.D., who at the age of 84 retired from the Wisconsin State Health Department after 47 years of service, 39 of them as State Health Officer. Speakers on the occasion, which also commemorated public health progress in Wisconsin, were Thurman B. Rice, M.D., Professor of Public Health, Indiana University, on

"Where We Came From in Public Health"; Floyd C. Beelman, M.D., Kansas State Health Officer on "Where We Are in Public Health"; and William D. Stovall, M.D., Director, State Laboratory of Hygiene on "Where We Are Headed in Public Health." The presiding officer at this session was Carl N. Neupert, M.D., who succeeded Dr. Harper as Wisconsin State Health Officer in 1943.

At the banquet session, Gunnar Gundersen, M.D., President of the Wisconsin State Board of Health, was master of ceremonies, and Harry S. Mustard, M.D., New York City Health Commissioner, made the main address on "The Development of State and Local Health Services."

STUDY OF WAR'S EFFECT ON CHILDREN

Under the provisions of the National Mental Health Act, and on recommendation of the National Advisory Mental Health Council, a research grant of \$20,000 has been made to the International Committee on Mental Hygiene for a study of the effect of war on children.

The study is under the direction of David Levy, M.D., Professor of Psychiatry at Columbia University, who will present the findings at the International Congress on Mental Health in London in August, 1948.

TRAINING RURAL DOCTORS

A plan has recently been announced in Illinois for financing medical education for farm boys. This joint plan of the Illinois Medical Society and the Illinois Agricultural Association makes available a revolving fund of \$100,000 as loans to students wishing to prepare for rural medical practice. In accepting the loan, the student must agree to return to a town of less than 5,000 population in his home county and practise general medicine. He is expected to repay the loan in 5 annual payments after he begins to practise medicine, at 2 per

cent interest. If his agreement is not kept, the interest is 7 per cent.

Under the plan at present, 4 new students can be accepted annually. The program is administered by a Farmer and Doctor Loan Fund Board made up of 3 representatives from each of the 2 sponsoring agencies.

JUNIOR CHAMBER OF COMMERCE AWARD TO DR. HINGSON

On January 21, in a ceremony at Chattanooga, Tenn., Surgeon R. A. Hingson of the U. S. Public Health Service was presented with a gold key as a token of honor by Harold E. Stassen for the U. S. Junior Chamber of Commerce. This group annually selects 10 outstanding young men to receive this honor. Dr. Hingson won this award for his part in developing caudal analgesia and also the Hypospray technique for parenteral injections which he was the first to use.

A number of the other Junior Chamber of Commerce awards are of interest to public health workers: Lavon Peterson, blind founder of a School of Engineering for the Blind in Omaha, Neb.; the mayors, respectively, of New Orleans and Denver, DeLesseps Morrison and James Quigg Newton, Jr., the latter of whom had a great part in the reorganization of the Denver public health services; Dr. Glenn Seaborg, the nuclear chemist; and Adrian Sanford Fisher, counselor to the Atomic Energy Commission; Cord Meyer, Jr., the young veteran who is President of United World Federalists. Others are Thomas Reid, human relations expert of Baltimore, and Congressmen Richard Nixon and Glenn Davis of California and Wisconsin respectively.

GRANTS FOR RESEARCH IN ORAL CANCER

The National Cancer Institute has for the first time made available funds to dental schools to finance the study of oral cancer. Awards of nearly \$45,000

to 9 major dental colleges were recently made by the National Advisory Cancer Council "for the most part to pay the salaries of instructors who will teach early recognition of cancer of the mouth to dental students."

Medical authorities agree that in a large percentage of mouth cancer cases, the dentist is in the best position to recognize the disease in its earliest stages. The 9 dental colleges receiving grants are located in 7 states.

SERVICE AWARD TO SALLY LUCAS JEAN

The 1948 state service award of the New York State Association for Health, Physical Education and Recreation was recently presented to Sally Lucas Jean, Consultant in Health Education of the National Foundation for Infantile Paralysis.

DEATH OF RALPH E. TARBETT

Ralph Edwin Tarbett, Sanitary Engineer Director (Ret.), U. S. Public Health Service, died at the U. S. Marine Hospital, Baltimore, on January 23, following a heart attack. Recognized as an outstanding public health engineering authority in the United States, Mr. Tarbett had a 34 year career with the U. S. Public Health Service, having been appointed as the first sanitary engineer of the Service in 1913.

Mr. Tarbett has been deeply interested in stream pollution measures, was engaged in yellow fever prevention along the United States-Mexican border in the 20's, was Chief Sanitary Engineer of the Public Health Service Sanitation program following an outbreak of typhoid due to contaminated oysters, in 1945 was on the Public Health Service Board sent to Japan to study the medical and public health aspects of strategic bombing, and in 1946 directed the environmental aspects of the Cook County (Ill.) Public Health Survey.

Mr. Tarbett has been a member of the American Public Health Association

since 1928, and a Fellow since 1930. He was referee for the Committee on Professional Education for its reports on professional qualifications of public health engineers. He was the author of numerous technical articles and reports dealing with various phases of public health engineering.

PHARMACEUTICAL-MEDICAL RESEARCH FOUNDATION

The formation of the Pharmaceutical-Medical Research Foundation to make extensive studies relating to the chemical and physical changes that occur in tissues and to the physiology of the body was recently announced in the *Journal of the American Medical Association*. This is a joint effort of the pharmaceutical and medical professions. Devoted to scientific research, it will be supported in major part by the pharmaceutical industry, but it will be wholly a public institution in purpose, conduct, and service. Much of its initial basic research will be in the field of degenerative diseases.

The chairman of the committee which includes representatives both of the pharmaceutical industry and the medical profession that was organized to establish the new foundation, is R. L. Sensenich, M.D., President-elect of the American Medical Association.

DEMONSTRATION MENTAL HEALTH CLINIC

Psychiatric service will be offered to all residents of Prince Georges County, Maryland, with a population of about 140,000, at a demonstration mental health clinic recently opened. This is the first of such demonstration clinics to be organized by the U. S. Public Health Service and will be operated jointly by the Service and the Maryland State Department of Health.

Mabel Ross, M.D., child psychiatrist, formerly with the Johns Hopkins Hospital, is in charge of the clinic.

NEW YORK STATE FELLOWSHIPS IN PUBLIC HEALTH

Fellowships are available in New York State for young physicians interested in public health as a career. The Fellowships, which carry a stipend of \$3,600 per year, are for a period of 2 years or less, depending upon the qualifications of the applicant. Both field training and academic training are given. Tuition at a school of public health as well as necessary travel and other expenses are paid.

Further information may be obtained from Franklyn B. Amos, M.D., New York State Department of Health, State Office Building, Albany 1.

PROJECTS APPROVED FOR A THIRD OF HOSPITAL CONSTRUCTION FUNDS

As of January 9, the U. S. Public Health Service announced the approval of 92 applications for construction of hospitals, dispensaries, and health centers under the Hill-Burton Survey and Construction Act. The total estimated cost of these 92 projects is nearly 41 million dollars, of which one-third will be a charge against federal funds. The projects are in 10 states and largely in rural areas.

With the approval of these projects, 36 per cent of the \$1,125,000,000 in both federal and local funds contemplated by the Act, has been pledged.

NATIONAL ADVISORY CANCER COUNCIL

Early in January, Edward A. Doisy, M.D., of the St. Louis University School of Medicine, and John J. Morton, Jr., M.D., of the University of Rochester (N. Y.) School of Medicine, were added to the National Advisory Cancer Council of the National Cancer Institute. Dr. Doisy, a Nobel prize winner in Medicine in 1943, about 25 years ago first isolated *theelin* which led the way to the production of synthetic hormones. He is also responsible for the isolation and the later artificial production of vitamin

K which saved many new-born babies who would otherwise have died of hemorrhagic disease, and is at present working on antibiotics related to penicillin and streptomycin.

Dr. Morton, a distinguished surgeon and former President of the American Cancer Society has, through basic research, advanced the study of hormones and diseases of the colon.

NURSING IS FOR MEN TOO

The American Nurses Association, in a recent news release, calls attention to the vocational possibilities of nursing for men high school graduates. It points out that wartime experiences of the army and navy corpsmen amply proved that nursing is not a career for women alone. Further, men are especially well fitted for work in heavy industry and in hospitals with large divisions caring for orthopedic conditions. Although the number of men admitted to nursing schools increased from 45 in 1945 to 334 in 1947, there is still room for many more men students.

NATIONAL MALARIA SOCIETY

The 30th annual meeting of the National Malaria Society was held with the American Society of Tropical Medicine and the American Academy of Tropical Medicine in Atlanta, Ga., in December. The following officers were elected for 1948:

President—E. Harold Hinman, M.D., Wilson Dam, Ala.

President-Elect—Dr. Wendell Gingrich, Galveston, Tex.

Vice-President—Nelson H. Rector, Atlanta, Ga.

Director—E. L. Bishop, M.D., Chattanooga, Tenn. (for a four-year term)

Editor—Frederick L. Knowles, Memphis, Tenn.

Secretary-Treasurer—Martin D. Young, Sc.D., Columbia, S. C.

NEW YORK'S STATE REGIONS

Announcement has recently been made of the organization of the 6 New York

State health regions, and the appointment of the regional health officers. These regional offices will provide consultation for existing local health departments and will help in the development of local health units in the counties that do not now have them. They will also assist in program planning and with emergency assistance.

Five regions serve the area outside of New York City; the regions are made up of from 6 to 17 counties and range in population from 866,000 to one and two-thirds millions. The sixth region serves New York City. The regional health officers and their headquarters are as follows:

Buffalo—Archibald S. Dean, M.D., who has been serving as one of the former state district health officers and most recently assigned to the Buffalo area.

Rochester—Joseph P. Garen, M.D., who has most recently been state district health officer in Rochester.

Syracuse—Ray D. Champlin, M.D., who has recently been state district health officer in Oneonta.

Albany—Ralph M. Vincent, M.D., who was district health officer of the Binghamton area.

New York (for the suburban area)—Robert L. Vought, M.D., who has been district health officer in Saranac Lake.

New York (for the five counties of New York City)—Philip J. Raffle, M.D., who has already served for several years as the district health officer for the area suburban to New York City.

All are members of the American Public Health Association.

WEST VIRGINIA COUNTY STUDIES INTEGRATION OF NEW HEALTH ACTIVITIES

As the province of public health has broadened to encompass such functions as nutrition, mental health, dental health, chronic disease control, hospital planning, and medical care administration, a reexamination of basic administrative procedures has become increasingly necessary. An effort will be made in Monongalia County and Morgan-

town, West Virginia, to develop a program including these newer fields of public health. It is not to be considered, however, as a "demonstration project" of a model public health program. As much as possible the program will be developed through local and state resources, aided by no more federal subsidy for operating personnel than other counties enjoy.

Opportunities are provided for close relationships between the Health Department and the Monongalia Memorial Hospital as well as the University of West Virginia, with its two year Medical School and its School of Social Work.

The U. S. Public Health Service is assigning Milton I. Roemer, M.D., of the States Relations Division, as Director of the Monongalia County Health Department, to work in an experimental spirit, with plans to loan statistical personnel for concurrent studies of the program. Dr. Roemer will attempt an evaluation of the administrative problems involved in providing a comprehensive scope of public health services at the county level. It is hoped that information may be gained which will be of value as local health units are extended throughout the country, especially if they are faced with new responsibilities in the administration of medical services.

F. C. BISHOPP, PH.D., RECEIVES BRITISH AWARD

The British Embassy in Washington recently announced the awarding of His Majesty's Medal for Service in the Cause of Freedom to F. C. Bishopp, Ph.D., "in recognition of the valuable service you rendered to the Allied war effort in various fields of scientific research and development." Dr. Bishopp was active in the development of insecticides and equipment for the use of the military forces in combating malaria and other insect-borne diseases. At present he is assistant chief of the Bureau

of Entomology and Plant Quarantine in the U. S. Department of Agriculture.

A.W.W.A. ELECTS HONORARY MEMBERS

Abel Wolman, Dr. Eng., Chairman of the Executive Board of the A.P.H.A., and Louis R. Howson, C.E., were two of the three men elected to honorary Membership in the American Water Works Association in January, 1948. Dr. Wolman has been a member of the A.W.W.A. since 1918, and was President in 1943. Mr. Howson has been a member since 1916, and was President in 1942.

In electing Dr. Wolman to Honorary Membership, he was characterized as "a leader in the thought and practice of public health engineering." Mr. Howson was described as "a student of the economics of water supply who shares his knowledge freely with the water works industry."

CONFERENCE ON PUBLIC HEALTH STATISTICS

A Conference on Public Health Statistics will be held at the University of Michigan School of Public Health, Ann Arbor, June 14-18. Co-sponsor of the conference is the Association of State and Territorial Health Officers which formally approved the project at its Washington meeting in December.

The conference will discuss a pattern for the flow of statistical data from local to state and federal official health agencies so that they may be used effectively as administrative tools and as means of evaluating both local and state public health programs. The lecture and group discussion method will prevail.

Guests of the conference will be state health officers, directors of local health administration, directors of statistics, and a small sampling of local health officers from each state.

Among the faculty members are: Halbert L. Dunn, M.D., Chief of the Office

of Vital Statistics, U. S. Public Health Service; Marjorie T. Bellows, M.S.P.H., Statistician of the American Heart Association; W. Thurber Fales, Sc.D., Director of Statistics, Baltimore Health Department; and Ruth Puffer, Dr. P.H., Director of Statistical Service, Tennessee Department of Public Health.

ENGLISH TUBERCULOSIS ASSOCIATION ADOPTS JOURNAL

Word has been received from the Tuberculosis Association of England that it has adopted the journal *Tubercle* as its official organ. The January, 1948, issue of the journal was the first published under the terms of the merger.

PERSONALS

Central

WENDELL C. ANDERSON, M.D.,† recently became Director of Cancer Control of the Indiana State Department of Health. He was formerly one of the district directors of the Department but most recently has been doing postgraduate work in cancer control in Roswell Park Memorial Hospital, Buffalo, N. Y.

HARRY BECKER,† has become Director of the International UAW-CIO Social Security Department with offices in Detroit, Mich., where he will be in charge of developing a health and medical care program for the Union's members together with various social security benefits. He has been most recently Consultant in Medical Care Administration and Director of Administrative Methods Unit, Division of Health Services, U. S. Children's Bureau, Washington, D. C.

HARRY M. GUILFORD, M.D.,† Epidemiologist of the Wisconsin State Health Department since 1921, retired on January 31. He will continue to make his home in Madison.

ALICE HEATH,* Peoria, Ill., Health Department, has recently been appointed

Senior Health Education Consultant, Public Health Education Section, Washington State Department of Health.

HERMAN C. MASON, Ph.D.,* Chicago, Ill., has been appointed adviser to the Korean National Laboratories Seoul, Korea, Civil Affairs Division, Department of the Army.

CHANGES IN MINNEAPOLIS, MINN., CITY HEALTH DEPARTMENT

HELEN HESTAD was appointed Maternal and Child Health Nursing Consultant in the Bureau of Public Health Nursing. She was formerly Assistant Director in the Minneapolis Community Health Service.

GRACE HENSHAW BABCOCK was appointed as Mental Hygiene Consultant in the Bureau of Public Health Nursing. Mrs. Babcock was for a number of years Mental Hygiene Consultant, with voluntary public health nursing agencies in Minneapolis.

Eastern

MANFRED BOWDITCH,† formerly Director of the Division of Occupational Hygiene of the Massachusetts Department of Labor and Industries, has been appointed Director of Health and Safety of the Lead Industries Association with headquarters at 420 Lexington Avenue, New York, N. Y.

FRANCIS B. CARROLL, M.D.,* former Assistant Director of Medical Services, Veterans Administration, Boston, Mass., has been appointed to the position of Medical Director.

HERBERT M. DECKER,† Sanitary Engineer, has joined the research staff of Insect Control and Research, Inc., Baltimore, Md., which provides entomology and sanitation consultant service in food plants in Maryland and vicinity. Mr. Decker was formerly with the National Canners Association, New York, N. Y. and dur-

ing the war served overseas as an officer in the U. S. Army Sanitary Corps.

LOUIS K. DIAMOND, M.D., noted authority on Hematology and Assistant Professor of Pediatrics at Harvard Medical School, Boston, Mass., has been appointed technical director of the American Red Cross National Blood Program, Washington, D. C.

LOUISA ESKRIDGE,* on February 16 joined the staff of the Public Charities Association of Philadelphia, Pa., as Secretary of its newly created division of Public Health. She has most recently been a health education consultant with the U. S. Public Health Service assigned to District 3, Chicago, Ill.

NICHOLAS J. FIUMARA, M.D., M.P.H.,† former Navy Medical Officer has been appointed Director of the Division of Venereal Diseases of the Massachusetts Department of Public Health. Dr. Fiumara came to the State Health Department in 1941 as an Assistant Epidemiologist prior to his present appointment and was promoted successively to Assistant Health Officer and Health Officer.

GENERAL PAUL R. HAWLEY, retiring Medical Director of the Veterans' Administration, was guest of honor at a banquet given by the National Council on Rehabilitation in the Waldorf Astoria, New York, N. Y., on March 19. He was selected for this honor because his "reorganization of Medical Services on which the physical restoration of the disabled veteran is based, constitutes a unique contribution to the field of rehabilitation."

HUGO V. HULLERMAN, M.D.,* will take over his duties on May 1 as Assistant Director of Rhode Island Hospital in Providence, a voluntary general 500 bed hospital that serves annually more than 10,000 patients. Since

* Fellow A.P.H.A.

† Member A.P.H.A.

1944 Dr. Hullerman has been Assistant Director of the American Hospital Association. He also has administrative public health experience on both state and local levels.

CYRUS H. MAXWELL, M.D.,† on March 3 became Chief of Administration of School and College Health Service in the United States Office of Education. He had since 1937 been chief of the Bureau of Health Service in the New York State Education Department. Dr. Maxwell is President-Elect of the American School Health Association.

WADE W. OLIVER, M.D.,* began his new duties as Associate Director of the Division of Medical Sciences of the Rockefeller Foundation, New York, N. Y., on March 1. He retired as Professor of Bacteriology, Long Island College of Medicine, New York, N. Y., after 31 years of training young physicians. In his new work he will assist in the placement of doctors from all over the world coming to the United States for study under Foundation fellowships and scholarships.

HOWARD E. SEYMOUR, former associate, Personnel Service, National Tuberculosis Association, New York, N. Y., was named acting director of the Service following the recent resignation of V. J. SALLAK.† At the same time, Miss SELMA B. GERMOND, former consultant for rehabilitation training, was named as associate.

KENNETH D. WIDDEMER,* has resigned as Acting Executive Director of the Health Council of Greater New York and AUBREY MALLACH,† Associate Director, is temporarily responsible for administration of the Council.

Southern

T. PAUL HANEY, M.D.,* assumed duties as Director of Pinellas County Health Department, with headquarters in St. Petersburg, Fla., on Janu-

ary 5. He was formerly Director of Maternal and Child Health of the Florida State Health Department.

CHANGES IN FLORIDA STATE HEALTH DEPARTMENT:

ELIZABETH REED, R.N.† has been named Acting Director of the Division of Health Information.

L. L. CLARK, D.D.S., has been appointed Director of the Bureau of Dental Health. He was formerly doing both private and public health dental practice in Indiana.

J. E. SCATTERDAY, D.V.M., has been appointed to the newly created position of Public Health Veterinarian. He was formerly employed by the Alachua County Health Department, Gainesville, Fla.

H. J. DARCY,† Director of the Bureau of Sanitary Engineering of the Oklahoma State Health Department, received the 1948 Kenneth Allen Award of the National Federation of Sewage Works Associations on January 28 at a meeting of the Oklahoma Water and Sewage Conference in Stillwater. Presented every 3 years, the award is for "outstanding service in the sewerage and sewage treatment works field."

FRED J. WAMPLER, M.D.,* who has been a District Health Officer in the Virginia State Board of Health with offices in Luray, has resigned to accept appointment as Chief of Field Party for the Institute of Inter-American Affairs and has been assigned to Lima, Peru, where his address is in care of the American Embassy.

HOWARD M. KLINE, Ph.D.,† is serving as General Secretary of the National Conference on Health Goals to be held in Washington, D. C., May 1-4 under the auspices of the Federal Security Administration. He is on a

* Fellow A.P.H.A.

† Member A.P.H.A.

3 months leave from the American Public Health Association of whose Subcommittee on Medical Care he is the technical secretary.

Western

PAUL BALLINGER, R.S., has been appointed Director of the Bureau of Sanitation for the Los Angeles County Health Department. For the past 10 years Mr. Ballinger has been assistant to H. A. YOUNG, R.S., Director of the Bureau, who recently retired.

MILTON P. DUFFY,† Chief of the Bureau of Food and Drugs, California State Department of Public Health, has been granted a leave of absence to accept an appointment as expert consultant on the staff of General Douglas MacArthur in Japan.

HARRY S. JORDAN, has been appointed Junior Sanitary Engineer in the Sanitary Engineering Division of the Arizona Health Department. He has spent the last 5 years in the U. S. Army.

GORDON M. PARROTT, M.D., has recently been appointed Medical Health Officer in the City of Tacoma Health Department, Wash., serving as Assistant to the Director of Health, C. R. FARGHER, M.D.*

Other Areas

OSCAR FELSENFELD, M.D., who has been working on research on Salmonellae at the School of Tropical Medicine, San Juan, Puerto Rico, has accepted the newly created position of Director of Bacteriology at Cook County Hospital, Chicago, Ill.

Death

MARSHALL WILLIAM MEYER, M.D.,* Health Commissioner of Madison, Wis., died on January 22 in his office of a heart attack at the age of 46.

Before assuming the Madison Commissionership in November, 1947, he had been first District Health Officer and then Venereal Disease Control Officer of the Wisconsin State Board of Health, which he first joined in 1939 after several years of private practice both in Chicago and Wisconsin.

CONFERENCES AND DATES

- American Academy of Pediatrics. Statler Hotel, Buffalo, N. Y. April 29-May 2.
- American Association of Medical Social Workers. Atlantic City, N. J. April 19.
- American Association of Psychiatric Social Workers. Annual Meeting. Atlantic City, N. J. Week of April 18.
- American Association of Social Workers. Atlantic City, N. J. April 15-17.
- American Association for the Advancement of Science. Centennial Meeting. Washington, D. C. September 13-17.
- American College of Physicians. Annual Session. San Francisco, Calif. April 19-23.
- American Dairy Science Association. University of Georgia, Athens, Ga. June 14-16.
- American Hearing Society. National Conference and Annual Meeting. Pittsburgh, Pa. May 19-23.
- American Home Economics Association. 39th Annual Meeting. Minneapolis, Minn. June 21-24.
- American Hospital Association. 50th Anniversary Convention. Atlantic City, N. J. September 20-23.
- American Public Health Association. 76th Annual Meeting, Boston, Mass. Week of November 8.
- American Red Cross. San Francisco, Calif. June 20-24.
- American Water Works Association:
 - Annual Meeting. Atlantic City, N. J. May 3-7.
 - Arizona Section. Globe, Ariz. April 2-4.
 - Canadian Section at General Brock Hotel, Niagara Falls, Ont. April 12-14.
 - Illinois Section. Congress Hotel, Chicago, Ill. April 15-16.
 - Indiana Section. Purdue University. Lafayette, Ind. April 21-23.
 - Montana Section. Livingston, Mont. April 9-10.
 - Nebraska Section. Lincoln, Neb. April 22.
 - Pacific Northwest Section. Boise, Idaho. May 12-15.

* Fellow A.P.H.A.

† Member A.P.H.A.

Arizona Public Health Association. Gadsden Hotel, Douglas, Ariz. April 23-24.
 Canadian Public Health Association. Vancouver, B. C. May 18-20.
 Colorado Public Health Association. Shirley Savoy Hotel, Denver, Colo. May 21-22.
 Community Chests and Councils. Annual Meeting. Atlantic City, N. J. April 14-17.
 Connecticut Public Health Association. New Haven, Conn. May 12.
 First International Poliomyelitis Conference. Waldorf Astoria. New York, N. Y. June 12-17.
 Florida Public Health Association. Panama City, Fla. October 7-9.
 Fourth International Congresses on Tropical Medicine and Malaria. Washington, D. C. May 10-18.
 Georgia Public Health Association. Savannah, Ga. May 10-12.
 Idaho Public Health Association. Coeur d'Alene, Idaho. May 3-4.
 Illinois Public Health Association. Hotel La Salle, Chicago, Ill. April 15-16.
 International Conference of Social Work. Atlantic City, N. J. April 17-25.
 International Congress on Mental Health. London, England. August 11-21.
 International Council for Exceptional Children. 24th Annual Convention. Des Moines, Iowa. April 25-28.
 Iowa Public Health Association. Annual Meeting. Burlington, Iowa. May 27-28.
 Kansas Public Health Association. Hotel Jaywalk. Topeka, Kan. April 15-17.
 Massachusetts Public Health Association. Amherst, Mass. June 16-18.
 National Association of Sanitarians. Portland, Ore. June 7-9.
 National Conference on Family Life. Washington, D. C. May 6-8.
 National Education Association of the U. S. Cleveland, Ohio. July 5-9.

National Gastroenterological Association. New York, N. Y. June 7-10.
 National Organization for Public Health Nursing. Biennial Nursing Convention. Chicago, Ill. May 31-June 4.
 National Probation Association. Atlantic City, N. J. April 15-17.
 National Society for the Prevention of Blindness. Minneapolis, Minn. April 5-7.
 National Tuberculosis Association. Annual Meeting. New York, N. Y. Week of June 14.
 New England Health Institute. Amherst, Mass. June 16-18.
 North Dakota Public Health Association. Minot, N. D. October 28-29.
 Society of American Bacteriologists. Minneapolis, Minn. May 10-14.
 Southern Branch, American Public Health Association. New Orleans, La. April 12-14.
 Third National Congress of Cancerology. Havana, Cuba. May 2-7.
 Western Branch, American Public Health Association. Salt Lake City, Utah. May 25-27.
 West Virginia Public Health Association. Prichard Hotel, Huntington, W. Va., May 27-28.

Directory of Health Service

BLACK & VEATCH

CONSULTING ENGINEERS

4706 Broadway, Kansas City 2, Mo.

Water Supply Purification and Distribution; Electric Lighting and Power Generation, Transmission and Distribution; Sewerage and Sewage Disposal; Valuations, Special Investigations and Reports.

Established 1843

ANALYSTS BACTERIOLOGISTS CONSULTANTS

Chemical, Bacteriological, Biochemical Analyses, Industrial and Sanitary Problems, Microbiological Examinations

FOODS WATERS DRUGS BEVERAGES

Scientific Investigations

Inquiries Invited

BENDINER & SCHLESINGER
LABORATORIES

Third Avenue and Tenth Street
New York 3, N. Y.

Telephone: ALgonquin 4-2300

Serving the field of Public Health over 45 yrs.



OUR JOB

IS TO MAKE
YOUR JOB EASIER

DIXIE CUPS

HABIT TIME

ONE PINT PKG. 1896

Hettogalar
Aqueous Suspension
of Mineral Oil
Plain

Active Ingredient:
Mineral Oil 65%

DIRECTIONS—Bottle: One table-
spoonful. Children: One teaspoonful.
Important—Do not take directly
before or after a meal.
May be thinned with water, milk or
fruit juice if desired.

SHAKE WELL

WYETH INCORPORATED
PHILADELPHIA, PA.
U.S. PAT. 1,157,543 MADE IN U.S.A.

Wyeth PHILADELPHIA 3, PA.

American Journal of Public Health and THE NATION'S HEALTH

Volume 38

May, 1948

Number 5

Developments in the Use of the Newer Organic Insecticides of Public Health Importance*

JUSTIN M. ANDREWS, Sc.D., F.A.P.H.A., AND
S. W. SIMMONS, Ph.D.

*Scientist Director, Deputy Officer in Charge, and Senior Scientist, Chief, Technical
Development Division, Communicable Disease Center, U. S. Public
Health Service, Atlanta, Ga.*

IN June, 1946, Bishopp¹ reviewed comprehensively in this *Journal* the position of DDT in the control of insects of medical importance. His resumé covered the literature through most of 1945 and part of 1946. Since then, reports of experience with this compound have multiplied exceedingly. To them have been added numerous accounts of other insecticides, the accomplishments of which have been popularly represented in some instances as surpassing even the most fantastic predictions made about DDT. Without attempting to review minutely the formidable array of scientific and popular contributions concerning all of these substances, the following notes compend the characteristics of some of the more important insect killing chemicals having significance in public health practice.

For relatively exhaustive compilations

of insecticides, their diluents, and adjuvant chemicals, the following sources should be consulted. The first volume of Frear's *Catalogue of Insecticides and Fungicides*, published in 1947, deals exclusively with chemical insecticides.²

It lists the official names and formulas of several thousand chemical compounds, condensation products, and miscellaneous substances alleged to have insecticidal properties. Information is summarized concerning their synonyms, the organisms against which insecticidal tests have been made and results obtained, together with author references. The seventh edition of *Entoma*,³ also published in 1947, is an assembly of general information about insecticides and fungicides, their diluents, spreaders, penetrants, adhesives, etc., together with rosters of their trade names and the industrial sources from which these chemicals can be obtained. Cupples' list of *Proprietary Surface-active Agents of Possible Use in Insecticidal Prepara-*

* Special Review Article, prepared at the request of the Editorial Board

tions⁴ contains the commercial names and sources of insecticidal accessories, their physical properties, industrial uses, chemical composition, and the purposes for which they are suitable (i.e., emulsifier, detergent, wetting agent, etc.). This very useful summary was released by the U. S. Department of Agriculture in 1943 and merits revision. The *Blue Book* for 1947,⁵ issued by the publishers of *Soap and Sanitary Chemicals*, is an up-to-date listing of industrial sources for insecticides and associated chemicals.

There is at present no officially authorized procedure for designating non-proprietary names of insecticides for general use. The complex nature of these substances makes the use of exact chemical names impracticable and undesirable for this purpose. The only existing basis for the acceptance of generic names or designations is voluntary compliance with suggested practice on the part of governmental, professional, and commercial interests. This is time-consuming at best and is not always successful in the long run. In the meantime, it permits the entry into the literature of abbreviated laboratory designations, such as initials or accession numbers, or multiple trade names for the same compound. In later years, these may be difficult to identify with generic names in current use. The Interdepartmental Committee on Pest Control* has taken the initiative in promoting the standard usage of non-proprietary names of insecticides, rodenticides, etc., by recommending "common" names or designations to be defined and registered with the U. S. Patent Office to preempt their use as trade-mark names. Other

organizations having legitimate concern with this problem are the American Chemical Society, the American Association of Economic Entomologists, the American Medical Association, and the American Veterinary Medical Association. As far as possible, the names of insecticides used in this review are those endorsed by the Interdepartmental Committee. Important laboratory or trade synonyms are shown in footnotes.

DDT *

Shortly after Dr. Bishopp's article¹ appeared, a comprehensive review of *DDT and Other Insecticides and Repellents Developed for the Armed Forces*² was published by the U. S. Department of Agriculture. Since then the literature on DDT has continued to pyramid though much of it is concerned with problems of little immediate interest to public health or with refinements and further details on uses that had been suggested previously. Two semi-popular books have been published on DDT.^{7,8}

From the public health standpoint in this country, the most important development during the past two years has been the accumulation of vast practical knowledge in the use of DDT in civilian malaria control programs. During the calendar years 1945, 1946, and 1947, nearly 3.2 millions of house-spraying applications were made in rural areas or small towns in over 300 counties by the health departments of 13 states in coöperation with the U. S. Public Health Service. The average number of sprayings per house varied from nearly two in 1945 to not quite one and one-half in 1947, when 875,534 different houses were treated.⁹ This

* Composed of representatives from the Bureau of Entomology and Plant Quarantine of the Agricultural Research Administration and the Insecticidal Division of the Production and Marketing Administration (both of the U. S. Department of Agriculture), the U. S. Public Health Service, and the Food and Drug Administration (both of the Federal Security Agency), the Fish and Wildlife Service of the U. S. Department of the Interior, the Army, and the Navy.

* This seems to be the universally accepted designation for the various mixtures of the para-para and ortho-para isomers of dichloro-diphenyl-trichloroethane used as insecticides. The laboratory designation, *SPLY*, used by the Orlando Laboratory of the USDA Bureau of Entomology and Plant Quarantine, and the trade names *Gesarol* and *Nrocid* have appeared in previous literature. The initials *GNBA*, gesarol neocide base, American, have also been used.

extensive experience has produced basically standardized operational procedures¹⁰ with some regional variations as to the number, extent, and DDT content of the applications per year.^{11,12} The rate generally recommended in this country for indoor residual application against mosquitoes and flies remains, as in 1945,¹ 200 mg. per sq. ft.¹³⁻¹⁶ (one gal. of 5 per cent DDT mixture per 1,000 sq. ft.) of treated surface. Highly satisfactory anopheline control has been obtained for the entire season in unoccupied houses in southeastern Georgia with a single application of 200 mg. of DDT on walls, ceilings, and the backs and undersides of furniture.¹⁵

The insecticidal effectiveness and durability of DDT on various types of surfaces have been studied in reference to *Anopheles quadrimaculatus*,^{14, 17,18} the principal malaria vector east of the Great Divide, and house flies, *Musca domestica*.^{16, 19} In general, the results were similar though house flies were found slightly more susceptible to DDT than were anopheline mosquitoes¹⁶; the females of both were more resistant than the males.^{14, 16} Under laboratory conditions, residual effectiveness was lost faster when treated surfaces were exposed to house flies than to the same number of mosquitoes due, presumably, to the numerous body deposits of the house flies.¹⁶ Smoke and grease deposits also interfered with the effectiveness of DDT.¹⁸

Rough surfaces, as unplanned wood, wallpaper, wall-board, natural fabrics, pitted metal, etc., remained highly lethal for 6 months or more¹⁹; smooth surfaces, as glass, tile, plexiglass, etc., failed to retain toxic films of DDT for as long a period. Freshly shellacked or painted wood, linoleum, dried mud, cement, new metal screen, synthetic fabrics, etc., gave very inferior results.^{17, 18} The penetration of DDT into woods of various types and the effects of DDT concentration and the

volatility of solvents on the recoverability of DDT from sprayed wood surfaces have been studied.²⁰

There appeared to be little difference in effectiveness between the same concentrations of oil-borne and water-emulsified DDT¹⁷ though in native huts (thatched roof, mud walls) in India, the emulsion was preferable.²¹ Water-wettable DDT showed definite superiority to DDT-xylene deposits on cement, and better results on new metal and glass. The former product deteriorated faster on outside than interior surfaces.¹⁷

DDT was removed or denatured by dry-cleaning, paste wallpaper cleaner, ironing with a hot flat-iron, and vigorous brushing.¹⁷ It was reduced slightly by the first vacuum cleaning but not by subsequent cleanings. It was not removed to any great extent by sponging with soap and water or by light dusting.

Standard practices have been developed in the application of DDT as an anopheline larvicide.²² A method of using as little as 0.05 lb.²³ of DDT per acre dissolved in one gallon of fuel oil and applied as a mist from a hand-operated compressed-air sprayer was shown to be effective in controlling malaria mosquitoes and was more efficient and economical than any of the older larviciding techniques.²³⁻²⁵

Perhaps the most important recent development in the use of DDT in disease prevention is its extensive and successful use in the control of endemic or murine typhus fever by reducing rat flea populations.^{26, 27} Detailed procedures for this purpose have been developed.^{28, 29} During the last 3 years, these have been applied on a large scale by various state health departments in coöperation with the U. S. Public Health Service. Their use has been associated with significant reductions in the numbers of reported human cases of murine typhus fever, the incidence of rats positive for typhus complement-fixation, and the occurrence of the oriental rat flea,

Xenopsylla cheopis.³⁰ DDT is less effective against rat mites and lice than against *X. cheopis*.³¹

Practical methods of application have also been developed for use of DDT in the control of house flies³² and of blow flies.³³ DDT is relatively ineffective as a larvicide against these two types of flies and thus is used chiefly against the resting adults. It follows that determination of their normal resting habits and application of the spray in accordance with this information is essential to successful control. These publications emphasize the point that DDT should not be used as a substitute for adequate sanitary measures, particularly around food handling establishments.

Thoroughness of application to insure the deposit of DDT in resting places is also stressed in the control of cockroaches.* Stenburg³⁴ suggests DDT in a combination of a spray and a dust for this purpose, though the use of chlordane has gained wide favor in the control of these insects.

Residual sprays of DDT have been used with great success in the control of sandflies of the genus *Phlebotomus* in Italy,³⁵ Palestine,³⁶ and Peru.³⁷ This gives great hope for the prevention of sandfly-transmitted diseases such as dermal and visceral leishmaniasis, bartonellosis, sandfly fever, etc.

Thompson has shown that residual deposits of DDT are lethal to the common species of scorpion in the West Indies.³⁸

During 1946, and especially in 1947, there were widespread complaints that DDT was less effective than it had been

during the first year of general use. Investigations of some of them³⁹ indicated that they were concerned almost entirely with flies—not mosquitoes—even though the DDT applications had been directed against malaria mosquitoes instead of flies. Poor sanitation resulting in high levels of fly production was directly responsible for some of these conditions. It is believed that many of the complaints were largely psychological, deriving from a decreased tolerance to even small numbers of flies caused by a year or more of relative freedom from large numbers of flies as a result of the early applications of DDT.

Strains of *Musca domestica* shown to be naturally resistant to DDT have been reported from Italy.⁴⁰ It has been shown possible by laboratory exposure to DDT space sprays to develop a strain of house flies abnormally resistant to DDT,⁴¹ and the strain thus isolated was also unusually resistant to chlordane, pyrethrum and rotenone.⁴² It is concluded that the method of selection developed an unusually strong stock of flies rather than one having a specific resistance to DDT. To what extent this phenomenon entered into the basis for the complaints against DDT in the southeastern states during late 1946 and 1947 is not known.

Recent papers have adduced evidence suggesting that the contact repellency of residual DDT may be as important as its insecticidal qualities in reducing the numbers of *Anopheles maculipennis atroparvus*,⁴³ *Aedes aegypti*,⁴³ *Anopheles gambiae*,⁴⁴ and *Culex tarsalis*,^{45, 46} on sprayed resting places. It appeared in some instances,⁴⁴⁻⁴⁶ that mosquitoes may even engorge themselves within treated premises, avoiding lethal contact with sprayed surfaces, and survive the experience apparently unharmed. The implications of these observations are not in harmony with conclusions from previous work with *A. quadrimaculatus*^{47, 48} or *A. gambiae*.⁴⁹ If confirmed,

* Data on the effect of modern insecticides on cockroaches, bedbugs, ants, ticks, mites, and scorpions are included even though the species mentioned are not of established significance in the transmission of human diseases. Their behavior in association with man and the proved vectorial propensities of certain related species suggests that these arthropods may have increasing public health importance—and useful information concerning their wide-scale destruction is all too meager.

TABLE 1
DDT solubility in representative solvents

Solvent	DDT Capacity (gm./100 ml. solvent at 30° C.)	Flash Point (°C.)	Specific Gravity (at 20° C.)	Color
Cyclohexanone	100-120 ²¹	44° ⁷	0.948 ²¹	Water-white to pale yellow
Benzene	77- 83 ²¹	-8° ⁷	0.879 ²¹	Water white
Methyl Chloride (under pressure)	60- 70 ²¹			
Velsicol A R 50 Mono- and dimethyl Naphthalenes	65- 70 ²¹	109° ²¹	0.995 ²¹	Yellow
Velsicol N R 70 Polymethylnaphthalenes	approx. 65 ²¹	127° ²¹	1.03 ²¹	Green-black
Toluene	60- 65 ²¹	7° ²³	0.864 ²¹	Water-white
Xylene	approx. 60 ²¹	23° ²³	0.857 ²¹	Water-white
Acetone	50- 66 ²¹	-17° ²²	0.791 ²¹	Water-white
No. 2 Fuel Oil	approx. 10 ²¹			Tan
Cottonseed Oil	approx. 9 ²¹			Straw
Kerosene	approx. 8 ²¹			Water-white
95% Ethyl Alcohol	approx. 1.5 ²¹		0.809 ²¹	Water-white
Freon	less than 2 ²¹			

they will occasion a basic revision of present beliefs regarding the mode of action of DDT against mosquitoes and possibly other insects.

Solvents for DDT—Much of the early application of DDT as a larvicide and as an adulticide was made with the petroleum oils as solvents. Under World War II military field conditions, this presented no great logistical problem as kerosene and fuel oil were widely distributed due to their extensive uses for other purposes. However, the solubility of DDT in these products is relatively limited (see Table I). For economical application under civilian conditions, it was necessary to have carriers which held larger amounts of DDT per unit volume to reduce transportation and handling costs and to permit increased coverage per unit weight from airplanes, power sprayers, and even hand sprayers.

Thus, solvents were sought and tested for high DDT-dissolving capacities, coupled with such other essential qualities as high flash point to reduce fire hazards; proper physical characteristics for optimal droplet size; low toxicity to man, useful animals, and vegetation; non-corrosiveness to equipment and sprayed surfaces; freedom from inhibiting reactivity with DDT; non-

repellency to insects; exemption from tendencies to bleach, stain, or to extract underlying color; and minimal residual odor or other components.

Gunther,⁵⁰ Jones, *et al.*,⁵¹ have conducted extensive tests on more than 100 candidate solvents. They have published solubility data and have listed various physical properties of the more practical and economical solvents. In general, the DDT solvents may be classified on a strictly chemical basis as follows:

1. *Aliphatic hydrocarbons*, consisting of the crude oils and petroleum derivatives. These hold relatively small concentrations of DDT.
2. *Aromatic hydrocarbons*, chiefly velsicols, xylene, cyclohexanone, and naphthas. These are high capacity solvents.
3. *Chlorinated hydrocarbons*, exemplified by ortho-dichlorobenzene and trichloroethylene. These are more variable but in general carry large quantities of DDT.
4. *Liquefied gases*, comprising the "freons," dimethyl ether and others. These are low capacity solvents; their use frequently requires auxiliary solvents of high DDT-carrying ability.
5. *Vegetable oils*, such as sesame oil, castor oil, cottonseed oil, etc. These vary in their dissolving capacity, even among different batches; in general, they are poor solvents for DDT.
6. *Miscellaneous organic solvents*, of which alcohols, ethers, and ketones are of importance. They have variable capacities for DDT.

In cow manure infested with known numbers of house-fly larvae, 1 per cent BHC-xylene emulsion (0.1 per cent gamma) or 5 per cent BHC dust (0.5 per cent gamma) at 400 mg. BHC per sq. ft. prevented 90 per cent of flies from emerging.⁷¹ Fifty per cent emergence of adults occurred from mash media treated with BHC at 8 p.p.m.; DDT at 77 p.p.m.; thiourea, 81 p.p.m.; and borax, 92 p.p.m., respectively.⁹⁰ LD 95 was obtained against third-instar house-fly larvae with the incorporation of 15.3 mg. of gamma isomer per liter of artificial media. Second-instar larvae were more susceptible and pupae much more resistant. BHC was non-toxic to eggs but did kill the emerging larvae.⁹¹

BHC has been shown to be highly toxic⁸¹ to adult flies and, where odor is not a factor, shows promise for their control.^{82, 92} The knock down with BHC is more rapid than with DDT and residual action is equally effective over a period of several weeks.⁹² In laboratory tests, direct spray applications as low as 0.25 per cent BHC killed all adult flies.⁸⁴

BHC-xylene emulsions (0.5 per cent) were highly effective against the prepupal stage of the blowfly, *Lucilia cuprina*.⁹³

A 1 per cent dust applied against head lice caused complete immobilization in 20 minutes.⁸⁴ Against the body louse, BHC dust was more effective than either DDT or DDD.⁶⁷ In other tests with the body louse, 50 per cent were killed with 0.016 mg. of the gamma isomer per gm. of insect body weight as against equivalent kills with 0.30 mg. of p: p'-DDT per gm. of insect body weight.⁹⁴

A 1 per cent solution of 10 per cent gamma BHC in fuel oil, sprayed on open fields showed good control of the American dog tick.⁸⁵ Against the lone-star tick, *Amblyomma americanum*, effective control has been obtained with a 5 per cent dust rubbed into the hair of dogs. The action was slow, 12 to 14

hours being required to kill; feeding was stopped within 2 hours.⁹⁶ Dipping cattle in a 0.5 per cent solution of 50 per cent wettable BHC (10 to 13 per cent gamma isomer) gave protection against this parasite for 7 to 10 days.⁹⁷ In oil base preparations and water suspensions, BHC at 0.005 per cent gamma isomer killed adult females of an arsenic-resistant tick, *Boophilus discoloratus*.⁹⁸

Fleas, *Ctenocephalides canis*, were controlled in 4 hours' time with a 5 per cent BHC dust rubbed into the hair of dogs. Little or no residual action was indicated, however, as reinfestation occurred in 3 to 4 days even though an odor of BHC remained.⁹⁶

Against the bedbug, BHC has shown a high degree of toxicity⁸¹ and has given more effective control than several other insecticides tried, including DDD and DDT.⁶⁷

Roaches (*Periplaneta americana*, *Blatta germanica* and *Supella supellae-tillum*) were controlled in 5 room houses by 250 ml. of BHC dust containing 10 per cent of the gamma isomer. They were affected in 1 hour and killed in 12 hours, but residual effectiveness was limited; the eggs of the roaches were not injured.⁹⁹ Crude dusts containing 0.5 and 1.0 per cent BHC have killed high proportions of roaches, *P. americana*, with the 1.0 per cent dust driving the roaches out of cracks.⁸⁴

Snails of the genera *Planorbis* and *Bulinus*, intermediate hosts of *Schistosoma*, were controlled in laboratory and field tests within 24 hours by dust containing 5-6 p.p.m. of gamma BHC.¹⁰⁰

CHLORINATED CAMPHENE

Chlorinated camphene, with the approximate empirical formula $C_{10}H_7Cl_3$, contains 67-69 per cent chlorine.^{101, 102}

Chlorinated camphene is a colorless, odorless, non-volatile liquid, insoluble in water, and soluble in most organic solvents. It is stable to heat and light, and does not oxidize or polymerize. It is a powerful insecticide, effective against a wide range of insects, including beetles, flies, and mosquitoes. It is particularly effective against the house fly, *Musca domestica*, and the common house mosquito, *Culex pipiens*.

during the first few weeks following application, but declined much more rapidly in effectiveness. Chlordane exerts a relatively strong fumigant action against adult house flies and *A. quadrimaculatus* mosquitoes; its early effectiveness as a residual spray may be due largely to this property.⁷⁰

BENZENE HEXACHLORIDE *

Benzene hexachloride (1, 2, 3, 4, 5, 6-hexachlorocyclohexane), with an empirical formula of $C_6H_6Cl_6$, is a complex of 5 known isomers. The gamma isomer is the principal insecticidal ingredient, the alpha and beta isomers have some toxicity, and the delta and epsilon isomers are relatively non-toxic.⁷⁰⁻⁸² The commercial form is a light buff-to-tan colored powder having a persistent musty odor arising from small amounts of manufacturing impurities. BHC is chemically stable except in the presence of alkalis. It is insoluble in water but readily soluble in a wide range of common organic solvents.

The value of BHC was first reported by Slade⁸³ in 1945 and later by O'Kane and his associates⁸⁴ working independently. The toxic action of BHC against insects may be as a contact poison, as a stomach poison, as a fumigant, or as a combination of any of the three. The value of BHC as a fumigant has been shown against the German cockroach and other insects and the use of small amounts of this chemical allowed the content of other agents to be reduced as much as 50 per cent.⁸⁵

When oil sprays of BHC were applied to vegetation or surfaces such as mud or plaster walls there was considerable loss of effectiveness from absorption of the toxicant. Wettable powder formulations minimized this loss considerably.⁸⁶

Adult mosquitoes have been shown to

be susceptible to BHC.⁸¹ A kerosene solution containing 0.04 per cent gamma isomer controlled all anophelines, especially *A. culicifacies*, in India.⁸² In laboratory tests with *A. quadrimaculatus* adults, 5 per cent BHC (30 per cent gamma) applied at 200 mg. per sq. ft. effected lethal results comparable to the same amount of DDT for a period of 8 weeks.⁶⁵ The residual durability of BHC is limited as the compound is lost by evaporation; increased dosage is not likely to extend its effectiveness beyond 10 weeks. BHC was equally effective against *A. minimus*, *A. vagus* and culicines in field tests.^{21, 87} The paralytic action of BHC is said to be more rapid than either that of DDT or chlordane.⁶⁰ *Aedes aegypti* mosquitoes are reported⁸⁸ to have died after feeding on rabbits which received 25 mg. per kg. of gamma isomer 2 to 4 days before.*

As a mosquito larvicide, BHC at concentrations of 0.1 p.p.m. and 0.05 p.p.m. held in check larvae and pupae, respectively, of *Culiseta incidens*. In comparison, 0.5 p.p.m. solutions of DDT and DDD were effective against both larvae and pupae.⁶⁴ At 0.1 p.p.m., BHC controlled fourth-instar larvae of *A. quadrimaculatus*.^{60, 89} In field tests, one application of 10 lbs. per acre of a 0.5 per cent gamma isomer dust gave complete control of *Aedes* spp. larvae.⁸⁴

* Since the above was written, an article by E. F. Knipling, R. C. Bushland, S. H. Babers, G. H. Culpepper, and E. S. Raun entitled "Evaluation of Selected Insecticides and Drugs as Chemotherapeutic Agents Against External Blood-Sucking Parasites" was published in the *Journal of Parasitology* (34:55-71, 1948). The authors have tested the effect of 33 chemicals, most of them effective insecticides, administered internally to rabbits sometimes at lethal dosages, against one or more of the following ectoparasites fed subsequently on the treated rabbits: body lice (*Pediculus humanus corporis*), yellow fever mosquitoes (*Aedes aegypti*), ear mites (*Psoroptes equi* var. *cuniculi*), and the lone star tick (*Amblyomma americanum*). Gamma-benzene hexachloride, chlordane, chlorinated camphene, dicumaryl, sabadilla seed, chloromethyl *p*-chlorophenyl sulphone, and certain of the 3-indandione compounds. Of these, benzene hexachloride was most toxic to mosquitoes and ear mites and certain of the indandiones to lice.

* Also known as BHC, 666, and, especially in British literature, as Gammaxane, a trade name.

during the first few weeks following application, but declined much more rapidly in effectiveness. Chlordane exerts a relatively strong fumigant action against adult house flies and *A. quadrimaculatus* mosquitoes; its early effectiveness as a residual spray may be due largely to this property.⁷⁰

BENZENE HEXACHLORIDE *

Benzene hexachloride (1, 2, 3, 4, 5, 6-hexachlorocyclohexane), with an empirical formula of $C_6H_6Cl_6$, is a complex of 5 known isomers. The gamma isomer is the principal insecticidal ingredient, the alpha and beta isomers have some toxicity, and the delta and epsilon isomers are relatively non-toxic.⁷⁶⁻⁸² The commercial form is a light buff-to-tan colored powder having a persistent musty odor arising from small amounts of manufacturing impurities. BHC is chemically stable except in the presence of alkalis. It is insoluble in water but readily soluble in a wide range of common organic solvents.

The value of BHC was first reported by Slade⁸³ in 1945 and later by O Kane and his associates⁸⁴ working independently. The toxic action of BHC against insects may be as a contact poison, as a stomach poison, as a fumigant, or as a combination of any of the three. The value of BHC as a fumigant has been shown against the German cockroach and other insects and the use of small amounts of this chemical allowed the content of other agents to be reduced as much as 50 per cent.⁸⁵

When oil sprays of BHC were applied to vegetation or surfaces such as mud or plaster walls there was considerable loss of effectiveness from absorption of the toxicant. Wettable powder formulations minimized this loss considerably.⁸⁶

Adult mosquitoes have been shown to

be susceptible to BHC.⁸¹ A kerosene solution containing 0.04 per cent gamma isomer controlled all anophelines, especially *A. culicifacies*, in India.⁸² In laboratory tests with *A. quadrimaculatus* adults, 5 per cent BHC (30 per cent gamma) applied at 200 mg. per sq. ft. effected lethal results comparable to the same amount of DDT for a period of 8 weeks.⁶⁵ The residual durability of BHC is limited as the compound is lost by evaporation; increased dosage is not likely to extend its effectiveness beyond 10 weeks. BHC was equally effective against *A. minimus*, *A. vagus* and culicines in field tests.^{21, 87} The paralytic action of BHC is said to be more rapid than either that of DDT or chlordane.⁶⁹ *Aedes aegypti* mosquitoes are reported⁸⁸ to have died after feeding on rabbits which received 25 mg. per kg. of gamma isomer 2 to 4 days before.*

As a mosquito larvicide, BHC at concentrations of 0.1 p.p.m. and 0.05 p.p.m. held in check larvae and pupae, respectively, of *Culiseta incidens*. In comparison, 0.5 p.p.m. solutions of DDT and DDD were effective against both larvae and pupae.⁶⁴ At 0.1 p.p.m., BHC controlled fourth-instar larvae of *A. quadrimaculatus*.^{69, 89} In field tests, one application of 10 lbs. per acre of a 0.5 per cent gamma isomer dust gave complete control of *Aedes* spp. larvae.⁸¹

* Since the above was written, an article by E. F. Knipling, R. C. Bushland, S. H. Babers, G. H. Culpepper, and E. S. Raun entitled "Evaluation of Selected Insecticides and Drugs as Chemotherapeutic Agents Against External Blood-Sucking Parasites" was published in the *Journal of Parasitology* (34:55-71, 1948). The authors have tested the effect of 33 chemicals, most of them effective insecticides, administered internally to rabbits sometimes at lethal dosages, against one or more of the following ectoparasites fed subsequently on the treated rabbits: body lice (*Pediculus humanus corporis*), yellow fever mosquitoes (*Aedes aegypti*), ear mites (*Psoroptes equi* var. *cuniculi*), and the lone star tick (*Amblyomma americanum*). Gamma-benzene hexachloride, chlordane, chlorinated camphene, dicumarol, sabadilla seed, chloromethyl *p*-chlorophenyl sulphone, and certain of the 3-indandione compounds. Of these, benzene hexachloride was most toxic to mosquitoes and ear mites and certain of the indandiones to lice.

* Also known as BHC, 666, and, especially in British literature, as *Gammexane*, a trade name.

In cow manure infested with known numbers of house-fly larvae, 1 per cent BHC-xylene emulsion (0.1 per cent gamma) or 5 per cent BHC dust (0.5 per cent gamma) at 400 mg. BHC per sq. ft. prevented 90 per cent of flies from emerging.⁷¹ Fifty per cent emergence of adults occurred from mash media treated with BHC at 8 p.p.m.; DDT at 77 p.p.m.; thiourea, 81 p.p.m.; and borax, 92 p.p.m., respectively.⁹⁰ LD 95 was obtained against third-instar house-fly larvae with the incorporation of 15.3 mg. of gamma isomer per liter of artificial media. Second-instar larvae were more susceptible and pupae much more resistant. BHC was non-toxic to eggs but did kill the emerging larvae.⁹¹

BHC has been shown to be highly toxic⁸¹ to adult flies and, where odor is not a factor, shows promise for their control.^{82, 92} The knock down with BHC is more rapid than with DDT and residual action is equally effective over a period of several weeks.⁹² In laboratory tests, direct spray applications as low as 0.25 per cent BHC killed all adult flies.⁸⁴

BHC-xylene emulsions (0.5 per cent) were highly effective against the prepupal stage of the blowfly, *Lucilia cuprina*.⁹³

A 1 per cent dust applied against head lice caused complete immobilization in 20 minutes.⁸⁴ Against the body louse, BHC dust was more effective than either DDT or DDD.⁶⁷ In other tests with the body louse, 50 per cent were killed with 0.016 mg. of the gamma isomer per gm. of insect body weight as against equivalent kills with 0.30 mg. of p; p'-DDT per gm. of insect body weight.⁸⁴

A 1 per cent solution of 10 per cent gamma BHC in fuel oil, sprayed on open fields showed good control of the American dog tick.⁹⁵ Against the lone-star tick, *Amblyomma americanum*, effective control has been obtained with a 5 per cent dust rubbed into the hair of dogs. The action was slow, 12 to 14

hours being required to kill; feeding was stopped within 2 hours.⁹⁶ Dipping cattle in a 0.5 per cent solution of 50 per cent wettable BHC (10 to 13 per cent gamma isomer) gave protection against this parasite for 7 to 10 days.⁹⁷ In oil base preparations and water suspensions, BHC at 0.005 per cent gamma isomer killed adult females of an arsenic-resistant tick, *Boophilus discoloratus*.⁹⁸

Fleas, *Ctenocephalides canis*, were controlled in 4 hours' time with a 5 per cent BHC dust rubbed into the hair of dogs. Little or no residual action was indicated, however, as reinfestation occurred in 3 to 4 days even though an odor of BHC remained.⁹⁹

Against the bedbug, BHC has shown a high degree of toxicity⁸¹ and has given more effective control than several other insecticides tried, including DDD and DDT.⁶⁷

Roaches (*Periplaneta americana*, *Blatta germanica* and *Supella supellec-tilium*) were controlled in 5 room houses by 250 ml. of BHC dust containing 10 per cent of the gamma isomer. They were affected in 1 hour and killed in 12 hours, but residual effectiveness was limited; the eggs of the roaches were not injured.⁹⁹ Crude dusts containing 0.5 and 1.0 per cent BHC have killed high proportions of roaches, *P. americana*, with the 1.0 per cent dust driving the roaches out of cracks.⁸⁴

Snails of the genera *Planorbis* and *Bulinus*, intermediate hosts of *Schistosoma*, were controlled in laboratory and field tests within 24 hours by dust containing 5-6 p.p.m. of gamma BHC.^{100 *}

CHLORINATED CAMPHENE †

Chlorinated camphene, with the approximate empirical formula $C_{10}H_{10}Cl_2$, contains 67-69 per cent chlorine.^{101, 102}

* The authors have not confused snails with slugs—but believe that this remarkable observation should be brought to the attention of public health personnel.

† Most commonly known by its trade name Terphene, also in the literature as 2,2,5,5-tetrachloro-1,4-dimethyl-1,2,3,4-tetrahydronaphthalene.

Stearns, Parker, LeRoy, and Lynch first called attention to its insecticidal properties in 1946.¹⁰³ The solid form may be stored safely in most containers; concentrated solutions not entirely free from moisture require containers of specific materials.¹⁰²

In space-spray tests (Peet-Grady) comparing chlorinated camphene and aerosol grade DDT with the Official Test Insecticide (pyrethrum base), both chemicals were superior to the O.T.I. against the house fly. Further tests with varying dosages and concentrations showed DDT to be better than chlorinated camphene at concentrations of less than 0.1 per cent and volumes less than 0.3 ml., but at higher concentrations and volumes, their effectiveness was equal. Since chlorinated camphene does not produce rapid knock down,¹⁰³ the inclusion of 1 to 2 per cent of a paralytic agent is advisable in space spray formulations.

As a residual toxicant, this product is reported to compare favorably with DDT; however, the tests were made under conditions of long exposure, and the number of minutes required for complete paralysis was considerably greater for chlorinated camphene. In 60-minute exposure periods, residues of 200 mg. per sq. ft. of this compound were less effective than equal deposits of DDT.⁶⁵ This relation was confirmed under field conditions.⁶⁶

In tests against *A. quadrimaculatus*, 60-minute exposures of the adult insects to deposits of 200 mg. per sq. ft. of both DDT and chlorinated camphene gave comparable results for 8 weeks after spray application; beyond this interval, chlorinated camphene lost residual toxicity more rapidly than DDT.⁶⁵

Used against fourth-instar larvae of *A. quadrimaculatus*,⁸⁹ chlorinated camphene gave nearly complete control at 0.01 p.p.m. in 48 hours, and at this concentration was comparable to DDT but slower in action; at lower concentra-

tions, it was not equivalent to DDT. In laboratory and field tests with *Aedes sollicitans*,¹⁰³ chlorinated camphene compared favorably with DDT when applied at the rates of 0.2, 0.4 and 1.0 lbs. per acre.

As a fly larvicide, 1 per cent chlorinated camphene emulsions applied to manure at 100 to 200 mg. per sq. ft. were less effective than chlordane and benzene hexachloride but more effective than DDT. At 400 mg. per sq. ft., chlorinated camphene was not quite equal to chlordane and benzene hexachloride.⁷⁴ Using nymphs and adults of the bedbug as test insects with a direct spray method, 5.8 per cent chlorinated camphene was nearly comparable to DDT. As a residual toxicant, it was as effective as DDT against bedbug adults but somewhat slower in its action.¹⁰⁴

The product was superior to DDT in the control of German roaches with 2.5 per cent kerosene sprays or less, and equal to DDT at 5.0 per cent strength.¹⁰⁴

PIPERINE COMPOUNDS * AND PYRETHRUM

A synergist combined with an insecticide not only increases the initial effects of the insecticide by providing quicker knock down and greater kill, but often extends the duration of its residual effect. In this way, newer synergists have increased the effectiveness of pyrethrum in public health work. One of these is piperonyl cyclonene (cyclohexenone) which, because of its safety and efficiency in activating small amounts of pyrethrum, led to the study of related compounds.

Piperonyl cyclonene with pyrethrins has been used indoors with success in aerosols and household sprays in control-

* Piperonyl cyclohexanone (now piperonyl cyclonene)¹⁰⁵ and piperonyl butoxide are trade names accepted by the Insecticide Division of the Production and Marketing Administration, U. S. Department of Agriculture, for labeling purposes. They are generally used by the trade and in laboratories; they have no official endorsement.

ling mosquitoes, house flies, fleas, ants, gnats, and sandflies.¹⁰⁶ In laboratory tests, residual deposits of 10 mg. pyrethrins and 200 mg. piperonyl cyclonene per sq. ft. killed more than 75 per cent adult female *A. quadrimaculatus* mosquitoes during the first 23 weeks after applications. At similar concentrations, very little residual effectiveness was shown against female house flies but more effective results might be obtained at higher concentrations.⁶⁵ Success has been reported with dust combinations against roaches, body lice, and household ants.¹⁰⁶ The dust combinations show promise of value in murine typhus control for the reduction of rat ectoparasites but seem to lack the desired residual toxicity for this purpose, especially against rat fleas.

In comparison, combinations of piperonyl butoxide, a related synergist, and pyrethrum are especially effective against house flies but less so against mosquitoes. These combinations are likewise stable and safe to use. Dusts and wettable powders with piperonyl butoxide and pyrethrum have been reported as giving very satisfactory control of roaches, being effective for 60 days or longer.^{105, 106}

EFFECTS OF CERTAIN NEW INSECTICIDES ON WILDLIFE

As long as insecticides are used only in domestic surroundings, there is no danger of creating undesirable biologic imbalances. However, when these chemicals are applied over extensive, unoccupied areas, e.g., as ground- or aerially-dispersed fogs, mists, or dusts, to kill aquatic or terrestrial insects of importance to health, forest conservation, or agriculture, serious consideration must be given to the hazard they may present to wildlife species related to the economy and happiness of man. The peril to these forms may be obvious, direct, and immediate, or it may be insidious, indirect, and delayed. The measurement of

its final consequences is a time-consuming, expensive and highly specialized undertaking. The widespread area-application of insecticides and acaricides for public health purposes can be justified only by rational determination that the health values involved transcend those of all other factors contributing to man's welfare, including the preservation of useful wildlife. This was recognized in a joint statement of policy regarding the use of DDT in this country by the U. S. Army and the U. S. Public Health Service.¹⁰⁷

Preliminary and later trials with DDT for the control of mosquitoes and forest and agricultural pests demonstrated that it was severely damaging to a wide variety of animal life. Cold-blooded forms such as fish, crabs, crayfish, frogs, turtles, and snakes were relatively more sensitive to its effects¹⁰⁸⁻¹¹² than were birds and small mammals.¹¹³⁻¹¹⁶

In view of the early findings, a series of investigations was undertaken by several governmental research agencies at various locations throughout the country to determine the overall effects of the use of DDT and to ascertain at what dosage, if any, and in what manner and physical state, it could be used routinely without being significantly harmful to organisms of economic or recreational importance. The U. S. Fish and Wildlife Service and the Bureau of Entomology and Plant Quarantine assayed the effects of single treatments using relatively large doses. In reviewing these studies, some of which were made coöperatively, Cottam and Higgins¹¹¹ concluded that single treatments for the control of forest insects at the rate of 1 lb. per acre were not detrimental to terrestrial wildlife but that dosages of 5 lbs. per acre were dangerous. These findings may be of importance if area-wide applications are made for the reduction of arthropods of public health importance.

The U. S. Public Health Service, work-

ing in coöperation with the U. S. Fish and Wildlife Service, has confined most of its investigations to the influence of smaller applications repeated routinely. Tarzwell^{63, 117} found that, while fish could withstand relatively large single doses, they were affected adversely by repeated applications of small quantities down to certain levels. Airplane sprays and aerosols at discharge rates of 0.1 lb. of DDT per acre applied over ponds each week for 2 seasons caused no significant change in plankton¹¹⁸ or fish populations.¹¹⁷ Similar results were reported by Hess¹¹⁹ following a season's treatment of one of the Tennessee Valley Authority's reservoirs. During a single summer, this rate of application over the watered portion of a wildlife refuge in southeastern United States had no apparent effect on bird or mammal populations in adjoining areas.¹²⁰ Ground applications of DDT to watered areas of 0.05 lb. per acre repeated each week¹¹⁷ were effectively larvicidal against mosquitoes and not dangerous to fish. Dusts were less toxic than oil solutions, but DDT emulsions, which kill fish at concentrations of more than 0.1 p.p.m.,^{109, 110, 117} were found to be so dangerous that their use was not recommended.

Limited studies with other insecticides have shown some to be less toxic and others more toxic than DDT. Chlorinated camphene⁶³ is very poisonous to fish and thus is unsatisfactory as a larvicide. DDD was less toxic to fish than DDT; however, routine treatments at 0.1 lb. per acre killed fish. Chlordane was nearly as toxic as DDT and should be used at dosages less than 0.1 lb. per acre.

TOXICITY OF INSECTICIDES

With the exception of DDT, most of the insecticides discussed in this paper are so new that their limitations and their full scope of usefulness in public health practice have not yet been thoroughly investigated. There has been even less time for studying their toxicity to mammals, including man. Until comprehensive information on this subject is available, it is desirable to review data not only from public health literature but from that of agriculture and other biological sciences. This is necessary both for present safety and for the final evaluation of insecticides, which must be chosen as much for their harmlessness to man and domestic animals as for their destructive effects on insects threatening human health.

TABLE 2

Lethal Doses of the Newer Insecticides Reported by Various Authors

Compound	Animal	Route	Formulation	L.D.O.	L.D. 50	L.D. 100	Authority
DDT	rats	P.O.	corn oil	70	115	230	Parker and Beacher ¹⁰⁴
DDD	rats	P.O.			2,500		Lehman ¹²¹
Chlordane	mice	I.V.	emulsion	30	approx. 50	70	Food & Drug ¹²²
	rats	P.O.			225-250		Ingle ¹²³
Benzene hexachloride 12% gamma	mice	P.O.			600		Furman ¹²⁴
Piperonyl butoxide	rabbits	P.O.			5,300		Dove ¹⁰⁶
	dogs and rats	P.O.			7,950-10,600		
Chlorinated camphene	white rats	P.O.	kerosene	160	280	400	Parker and Beacher ¹⁰⁴
	white rats	P.O.	corn oil	73	120	145	
	dogs	P.O.				25 or less	Food & Drug ¹²⁵

L.D.O. equals largest dose which killed none of ten or more animals. L.D. 50 equals smallest doses which killed half of ten or more animals. L.D. 100 equals smallest dose which killed all of ten or more animals. All doses are in terms of milligrams per kilogram of body weight. P.O. = Peroral; I.V. = intravenous.

It is often observed that the lethal dose of each of the newer insecticides, including DDT, varies widely for different and even for the same species of animal and by the same method of application, except intravenous administrations which show sharp dosage-mortality relationships. This suggests irregular absorption and perhaps variation in the reserve detoxifying power of the liver or other tissues as an explanation for the experimental results. However, the importance of species differences should not be underestimated. In practice, one cannot study the toxicity of an insecticide for rats and, with certainty, predict its safety for man. Furthermore, one solvent or formulation may greatly enhance the absorption and, therefore, the effective toxicity of an insecticide. Thus the same concentration of an insecticide may be absorbed more extensively when prepared in vegetable oil than in other organic solvents which are inherently more toxic. Some of these facts are illustrated in Table 2, which shows the acute lethal doses of the various insecticides discussed in this article.

Table 3, modified from Lehman,¹²¹

TABLE 3

*A Comparison of the Acute Oral Toxicity for Rats of the Newer Insecticides with DDT*¹²¹

Insecticide	L.D. 50 mg./kg.	Ratio to DDT
Beta Isomer, Benzene Hexachloride	6,000	1/24
DDD	25,000	1/10
Delta Isomer, Benzene Hexachloride	1,000	1/4
Alpha Isomer, Benzene Hexachloride	500	1/2
Chlordane	500	1/2
DDT	250	1
Gamma Isomer, Benzene Hexachloride	125	2

compares the acute toxicity of the various insecticides with that of DDT. There is considerable parallelism between the toxicity of the various compounds to insects and to warm-blooded animals. Thus, the least toxic compound may not be the safest since it may have to be used in higher concentration to obtain effective insecticidal action. In any event, since acute toxicity bears no relation to chronic toxicity, the acute

toxicity is chiefly of value in judging the safety of a substance only for a short time after exposure.¹²¹ It is emphasized that the chronic toxicity to man of most of the insecticides discussed in this paper is entirely unexplored.

DDT—This compound has been studied extensively from the standpoint of its toxicity, yet much remains to be learned. An excellent summary of present information based on much original work with 107 references to the literature has been made by Stammers and Whitfield.¹²² They conclude that "... DDT when used as an insecticide, with reasonable intelligence and the precautions normal to the use of modern insecticides, is harmless to man and animals. It is, nevertheless, possible by misuse in its application, to incur risk to man and animals. The possibilities of cumulative effects from storage of DDT in milk and tissues of sheep and cattle require further investigation."

An interesting report of acute DDT poisoning in 28 men following the ingestion of a 10 per cent DDT, 90 per cent wheat flour mixture has been given by Garret.¹²³ The exact amount consumed was not known but some of the men must have taken several grams of DDT. Vomiting, numbness, and partial paralysis of the extremities, mild convulsions, loss of proprioception and vibratory sensation in the extremities, and hyperactive knee-jerk reflexes were the immediate toxic effects. The symptoms were transient except in the three men who had taken the largest portions.

There have been reports of several deaths alleged or intimated to be due to the ingestion or inhalation of DDT.^{122, 124-126} In view of its demonstrated accomplishments in the fields of applied public health and agricultural entomology on the one hand, and, on the other, the presence of this insecticide in millions of homes and the frequent and prolonged exposure of the many individuals employed in its ap-

plication, it is of paramount importance to ascertain correctly the actual hazard to human life of DDT under normal circumstances. Thus far,^{122, 127, 128} the evidence against the compound as a cause of death when used prescriptively is negligible, though instances of accidental deaths due to DDT or its accompanying diluents, adjuvants, etc., or to both, have undoubtedly occurred.

Perhaps the most complete account of a fatal poisoning involving a DDT formulation is that¹²¹ of a 58 year old man who drank 120 ml. of a commercial preparation containing DDT, 5 per cent; "Lethane" (384 special), 2 per cent; xylene, 7 per cent; and deodorized kerosene, 86 per cent, following it with a quart of milk and several glasses of beer. The symptoms consisted of the rapid onset of epigastric pain and the vomiting of bloody material. These continued with varying intensity until death in coma on the 7th day. No urine was passed from 2 hours after ingesting the DDT until the 6th day, when the patient was catheterized. Thirty-six hours after poisoning, spastic contractions of the fingers and wrists began. The NPN on the 6th day was 150 mg. per cent. Examination on that day revealed an enlarged tender liver, unequal non-reacting pupils, and no tremor or pathologic reflexes. Autopsy findings included gastric hemorrhage, centrolobular necrosis with fatty degeneration of the remaining liver parenchyma, and tubular degeneration of the kidneys. This careful study emphasizes the danger of acute oral poisoning with insecticides. However, in view of the author's demonstration that kerosene by mouth produced in rabbits the same and only slightly less severe damage than corresponding amounts of the commercial insecticide or of 5 per cent DDT in kerosene, many readers will conclude that the diluent of the insecticides as well as the DDT contributed to the fatal outcome of this accident and that the clinical

and pathologic findings were probably a composite picture of the effects of DDT and of kerosene.

Another well studied but even less convincing report¹²⁶ of a death believed to be due to DDT concerns a 47 year old man who had been working in a room sprayed with 6 per cent DDT in kerosene. Symptoms (pruritic eruption on trunk and extremities) occurred 24 hours thereafter but death did not supervene until the 57th day* after exposure! Lesions simulating periarteritis nodosa were noted at biopsy and autopsy, as a consequence of which, the authors advance the suggestion that DDT may be an allergen capable of inducing hypersensitivity. In view of the minute amount of DDT consumed, the relatively long interval between exposure and death, the initiation prior to exposure of some of the symptoms mentioned, the failure of other investigators to demonstrate experimentally allergic properties of DDT,¹²⁷ and the paucity of pronounced clinical or pathologic manifestations of the type commonly associated with DDT poisoning, the authors' conclusions are untenable until validated by confirmatory evidence. Pending that time, this paper is representative of a type which may occasion much harm by providing an ostensible basis for compensation claims or by interfering with the fullest utilization of a powerful agent for improving health, comfort, and economy.

DDD—This analog of DDT has been reported¹²¹ to have a toxicity for rats (Table 2) about one-tenth that of DDT.

The pathology of chronic DDD poisoning in dogs consists of adrenal cortical atrophy and a high-grade liver damage including, chiefly, fatty degeneration and, to a lesser extent,

* The authors' summary states that "death occurred 25 days following exposure to DDT . . ." Nevertheless, the date of exposure was given earlier in the article as November 10; that of expiration, January 6.

atrophy, necrosis, and cirrhosis.^{129, 130}

Benzene hexachloride—The commercial product (approximately 12 per cent gamma isomer) has been considered of rather low toxicity¹³¹ whether given by mouth or applied to the skin of cattle and mice in excess of what would be used in agricultural practice. There is some evidence that the gamma isomer is a central nervous system stimulant while the alpha isomer is a depressant. Bushland, Radeleff, and Smith¹³² found no ill effects to domestic animals from benzene hexachloride (10 per cent gamma isomer) when used every 4 days as a dip in 1.5 per cent concentration. However, 3 out of 3 cows were killed when a preparation containing 50 per cent gamma isomer was used at the same concentration and 1 out of 3 when the concentration was 0.75 per cent.

Dogs fed 10 mg. per kg. of gamma isomer daily show mild changes in the liver, bone marrow, lymphoid tissues, adrenal cortex, and cerebrum. Anatomically the lesions do not seem to account for death, and the possibility that the true cause is vascular collapse or sensitization must be considered.¹³⁴

Dogs fed 60 mg. per kg. of alpha isomer daily show at death great emaciation, atrophy of various tissues, marked liver damage, moderate kidney damage, and lesser injury to other viscera. The alpha isomer is stored largely in the fat, liver, and adrenals.¹³⁴

Although in single oral doses, the toxicity of the isomers of benzene hexachloride decreases in the order: gamma, alpha, delta, and beta, it has been observed in chronic toxicity experiments that the beta isomer is most toxic. The contrast is probably due to the fact that some isomers, not so readily destroyed by the tissues, are stored chiefly in tissues of high steroid content. After 12 weeks on 500 p.p.m. diets, female white rats showed the following concentrations in the fat (mg. isomer per gm. of fat): beta, 7.5; alpha, 2.4; delta, 0.5;

and gamma, 0.4. There is evidence to show that the gamma isomer is destroyed in the liver and that the liver hypertrophies and presumably becomes more efficient in the task.¹²⁹

Chlordane—This compound was shown to have marked toxicity for sheep and goats.¹³⁰⁻¹³² Chlordane wettable powder and emulsion formulations with 1.5 per cent active ingredients were used as dips at 4 day intervals, a dosage level higher than would be used in actual practice; 8 dips were given to surviving animals. Two or more of each group of 5 goats or sheep died after 3 or more dips. The principal clinical manifestations of chlordane poisoning were neurological—optic nerve or optic center impairment, ataxia, convulsions, and collapse. Animals killed by chlordane showed congestion of the brain and spinal cord, subserosal petechial hemorrhages most frequent on the antemesenteric border of the small intestine, peripheral and midzonal necrosis of the liver, and occasional variable lesions of the kidneys, stomach, and heart.

Ingle¹³³ found the acute and chronic toxicity of chlordane essentially the same as that of DDT for rats. The time lag between the administration of an acute lethal dose and death averaged 1 day for DDT and 4 days for chlordane. He also noted greater liver damage with DDT, greater pulmonary damage with chlordane.

Chlorinated camphene—This chemical was found to be slightly more toxic to white rats than was DDT when either was administered in corn oil.¹⁰⁴

Solutions of chlorinated camphene are absorbed readily through the skin and persons handling such solutions require adequate protection.¹³⁴

Piperine compounds—Dove¹⁰⁶ has given evidence establishing the remarkably low toxicity of piperonyl butoxide (see Table 2) which is recommended for use in the field, household, and food processing plants.

REFERENCES

1. Bishopp, F. C. Present position of DDT in the Control of Insects of Medical Importance. *A.J.P.H.*, 36:593-606, 1946.
2. Frear, Donald E. H. A Catalog of Insecticides and Fungicides. *Chemical Insecticides*, 1, 1947, 203 pp. Waltham, Mass.
3. Langford, George S. (Editor). *Entomology, a Directory of Insect and Plant Pest Control*. 7th ed. Eastern Branch, Am. Assoc. Econ. Ent., 1947. College Park, Md., 416 pp.
4. Cupples, H. L. Proprietary Surface-active Agents of Possible Use in Insecticidal Preparations. U. S. Dept. Agri., Bur. Ent. & Pl. Quarantine, *Processed Cir. E-607*, 1943, 40 pp.
5. *Blue Book, an Annual Buyers' Guide, Directory and Reference Volume for Manufacturers and Distributors of Soaps, Insecticides, Disinfectants, Polishes, Cleaners, and Allied Chemical Specialties*. 19th ed. New York, 1947.
6. DDT and other Insecticides and Repellents Developed for the Armed Forces. U. S. Dept. Agri., Bur. Ent. & Pl. Quarantine, *Misc. Pub. No. 606*, 1945. Orlando, Fla. Lab.
7. West, Trustham Frederick, and G. A. Campbell. *DDT, the Synthetic Insecticide*. London: Chapman. 1946, 301 pp.
8. Leary, James C., Fishbein, William I., and Salter, Lawrence C. *DDT and the Insect Problem*. New York: McGraw-Hill. 1946, 176 pp.
9. Andrews, Justin M. What's Happening to Malaria in the USA. *A.J.P.H.* In Press.
10. Printed and filmed materials on DDT residual practices:
 - a. DDT . . . for Control of Household Pests. Handbook prepared by Bur. Ent. & Pl. Quarantine, Agri. Res. Admin., U. S. Dept. Agri. and the U. S. Public Health Service, Fed. Sec. Agency. March, 1947.
 - b. DDT Residual Spray Operations. Handbook prepared by Communicable Disease Center, U. S. Public Health Service, Fed. Sec. Agency, February, 1947.
 - c. Spray Time. 5-028. 35-mm. film strip, 83 frames, U. S. Public Health Service, 1945.
 - d. Hand Spraying of DDT. 5-011.2. 35-mm film strip, 72 frames, U. S. Public Health Service, 1946.
 - e. Mixing of DDT Emulsions. 5-012. 35-mm film strip, 77 frames, U. S. Public Health Service, 1945.
 - f. Power Spraying of DDT. 5-002.1. 35-mm film strip, 95 frames, U. S. Public Health Service, 1945.
 - g. Safe Practices in Handling DDT. 5-005. 35-mm film strip, 37 frames, U. S. Public Health Service, 1945.
 - h. Equipment and Hand Spraying of DDT. 5-084.0. 35-mm film strip, 67 frames, U. S. Public Health Service, 1947.
 - i. The Story of DDT. 16-mm sound moving-picture, 800 ft., Brit. Info. Serv., 1945.
 - j. DDT, Weapon against Disease. 16-mm sound moving-picture, U. S. Army F. B. 195, 1945.
 - k. "DDT". 16-mm sound moving-picture, 600 ft., U. S. Navy, MN-3726 E, 1944.
11. Tetzlaff, Frank. Operation of the U. S. Public Health Service Malaria Control Program. *Pub. Health Rep.* In Press
12. Hinman, E. H., and Cutkomp, L. K. Block Residual Spraying of Premises with DDT for the Control of Malaria. *Am. J. Trop. Med.*, 27:449-461, 1947.
13. Federal Proposal for DDT and DDT Emulsion Concentrate Specs. *Soap & San. Chem.*, 23(8):137, 139, 1947.
14. Fay, R. W., Simmons, S. W., and Clapp, J. W. Extended Laboratory Investigations on the Toxicity of DDT Residues to Adults of *Anopheles quadrimaculatus*. *Pub. Health Rep.*, 62:149-158, 1947.
15. Quarterman, Kenneth D. Some Factors Influencing the Residual Effectiveness of DDT and Chlor-dane in Anopheline Mosquito Control. *J. Nat. Mal. Soc.* In Press.
16. Fay, R. W., Buckner, A. J., and Simmons, S. W. Laboratory Evaluation of DDT Residual Effectiveness against House Flies, *Musca domestica*. *Pub. Health Rep.* In Press.
17. Fay, R. W., Cole, E. L., and Simmons, S. W. The Effect of Surface and Surface Treatment on the Residual Toxicity of DDT against Adult *Anopheles quadrimaculatus* Mosquitoes. *Soap & San. Chem.* In Press.
18. Clapp, J. M., Fay, R. W., and Simmons, S. W. The Comparative Toxicity of DDT to *Anopheles quadrimaculatus* when Applied on Different Surfaces. *Pub. Health Rep.*, 62:158-170, 1947.
19. Munro, H. A. V., Beaulieu, A. A., and Delisle, R. Toxicity of DDT Residual Sprays on Various Surfaces. *Soap & San. Chem.*, 23(8):123, 131, 1947.
20. Schmitz, William R., and Goette, Mary. Penetration of DDT. *Soap & San. Chem.*, 24(1):118, 123, 1948.
21. Ribbands, C. R. Use of Residual Films of DDT and Gammexane (g-hexachlorocyclohexane) in Malaria Control. *Bull. Ent. Res.*, 37:567, 1947.
22. Printed and filmed materials on DDT larvicidal practices:
 - a. Larviciding. Handbook prepared by Communicable Disease Center, U. S. Public Health Service, Fed. Sec. Agency, August, 1946.
 - b. DDT as a Mosquito Larvicide. 5-074.0. 35-mm film strip, 81 frames. U. S. Public Health Service, 1947.
 - c. DDT as a Mosquito Larvicide. 4-035.2. 16-mm moving-picture, 1000 ft., U. S. Public Health Service, 1947.
23. Simmons, S. W., Ferguson, F. F., and Upholt, W. M. Larviciding for the Control of Malaria Mosquitoes. *Mosq. News.*, 7:139-144, 1947.
24. Ferguson, Frederick F. Control of Anopheline Mosquito Larvae by the use of DDT-oil Mists. *Pub. Health Rep.*, 62:296-302, 1947.
25. Mathis, W. V., Ferguson, F. F., and Simmons, S. W. Comparative Studies of DDT Dusts, DDT-Oil Sprays, and Paris Green Dusts Used Routinely in Anopheline Larvae Control. *Pub. Health Rep.*, 62:95-102, 1947.
26. Davis, David E. The Control of Rat Fleas (*Xenopsylla cheopis*) by DDT. *Pub. Health Rep.*, 60:485-489, 1945.
27. Davis, David E. The Use of DDT to Control Murine Typhus Fever in San Antonio, Texas. *Pub. Health Rep.*, 62:449-463, 1947.
28. Ludwig, R. G., and Nicholson, H. P. The Control of Rat Ectoparasites with DDT. *Pub. Health Rep.*, 62:77-84, 1947.
29. Printed and filmed materials on DDT and murine typhus fever control:
 - a. DDT for the Control of Murine Typhus Fever. Prepared by the Office of Malaria Control in War Areas, U. S. Public Health Service, May, 1947.
 - b. Evaluating DDT Dusting in Murine Typhus Control. 5-026. 35-mm film strip, 101 frames, U. S. Public Health Service, 1945.
 - c. Rat Poisoning with 1080 Water. 5-065. 35-mm film strip, 59 frames, U. S. Public Health Service, 1946. (This contains shots of DDT dusting operations to control rodent ectoparasites).
30. Wiley, John S. A Preliminary Report concerning DDT Dusting and Murine Typhus Fever in Nine Southeastern States. *Pub. Health Rep.*, 63:41-44, 1948.

31. Unpublished data, Communicable Disease Center, U. S. Public Health Service, Fed. Sec. Agency.
32. Baker, W. C., Scudder, H. I., and Guy, E. L. The Control of House Flies by DDT Sprays. *Pub. Health Rep.*, 62:597-612, 1947.
33. Baker, W. C., and Schwartz, L. G. Preliminary Studies on the Control of Blow Flies with DDT. *Pub. Health Rep.*, 62:500-507, 1947.
34. Stenborg, R. L. The Technique of Application and Control of Roaches and Bedbugs with DDT. *Pub. Health Rep.*, 62:669-681, 1947.
35. Hertig, M., and Fisher, R. A. Control of Sandflies with DDT. *Bull. U. S. Army Med. Dept.*, 83:97, 1945.
36. Jacusiel, F. Sandfly Control with DDT Residual Spray. Field Experiments in Palestine. *Bull. Ent. Res.*, 38:479-489, 1947.
37. Hertig, Marshall, and Fairchild, G. B. The Control of *Phlebotomus* in Peru with DDT. *Am. J. Trop. Med.*, 28:207-231, 1948.
38. Thompson, George A. Effect of DDT Residual Deposits on Scorpions. *J. Econ. Ent.*, 39:537, 1946.
39. By personnel of the Communicable Disease Center, U. S. Public Health Service, Savannah, Ga.
40. Sacca, Giuseppe. Sull'esistenza de Mosche Domestiche Resistenti al DDT. *Riv. di Parasitol.*, 8(2-3), 1947.
41. Lindquist, A. W., and Wilson, H. G. Development of a Strain of Houseflies Resistant to DDT. *Science*, 107:276, 1948.
42. Wilson, H. G., and Gahan, J. P. Susceptibility of DDT-Resistant Houseflies to Other Insecticidal Sprays. *Science*, 107:276-277, 1948.
43. Kennedy J. S. The Excitant and Repellent Effects on Mosquitoes of Sub-lethal Contacts with DDT. *Bull. Ent. Res.*, 37:593-607, 1947.
44. Muirhead-Thompson, R. C. The Effects of House Spraying with Pyrethrum and with DDT on *Anopheles gambiae* and *A. melas* in West Africa. *Bull. Ent. Res.*, 38:449-461, 1947.
45. Reeves, W. C., Washburn, G. E., and Hammon, W. McD. Western Equine Encephalitis Control Studies in Kern County, California, 1945. I. The Effectiveness of Residual DDT Deposits on Adult *Culex* Populations. *Am. J. Hyg.*, 47:82-93, 1947.
46. Hammon, W. McD., and Reeves, W. C. Western Equine Encephalitis Control Studies in Kern County, California, 1945. II. An Evaluation of the Effectiveness of Certain Types of Mosquito Control Including Residual DDT on Virus Infection Rates in *Culex* Mosquitoes and in Chickens. *Am. J. Hyg.*, 4:93-102, 1947.
47. Metcalf, R. L., Hess, A. D., Smith, C. E., Jeffrey, G. M., and Ludwig, C. L. Observations on the Use of DDT for the Control of *Anopheles quadrimaculatus*. *Pub. Health Rep.*, 60:753-774, 1945.
48. Gahan, J. B., Travis, B. V., and Lindquist, A. W. DDT as a Residual-type Spray to Control Disease-Carrying Mosquitoes. Laboratory Tests. *J. Econ. Ent.*, 38:236-240, 1945.
49. Kartmann, Leo, and da Silveira, Mario M. Effects of Short Contact with DDT Residues on *Anopheles gambiae*. *J. Econ. Ent.*, 39:356-360, 1946.
50. Gunther, F. A. Dichlorodiphenyltrichloroethane I. Solubility in Various Solvents. *J. Am. Chem. Soc.*, 67:189, 1945.
51. Jones, Howard A., Fluno, Helen T., and McCullough, George T. Solvents for DDT. *Soap & San Chem.*, 21:110-115, 1945.
52. Jordan, Otto. *Technology of Solvents*. New York, 1937. 348 pp.
53. Calvery, Herbert O., and Neal, Paul A. Toxicity of DDT, Solvents, Emulsifiers, Activators, and other Adjuvants. U. S. Dept. Agri, *Misc. Pub.* 606:68-71, 1946.
54. Russell, P. F. (Editor) *The Use of Aircraft in the Control of Mosquitoes*. *Am. Mosq. Cont. Assoc.*, New Brunswick, N. J., 1948.
55. Kruse, C. W., and Metcalf, R. L. An Analysis of the Design and Performance of Airplane Exhaust Generators for the Production of DDT Aerosols for the Control of *Anopheles quadrimaculatus*. *Pub. Health Rep.*, 61:1171-1181, 1946.
56. Kruse, Cornelius W. The Airplane Application of DDT for the Emergency Control of Common Flies in the Urban Community. In Press.
57. Suerli, H., and Schmitz, W. R. The Operation and Physical Evaluation of Routine Applications of DDT Larvicide, by Airplane. *Mosq. News*. In Press.
58. Peterson, H. E. Low Pressure Aerosols, Research Dept., Continental Can Company, Inc., *Bull. No. 14*, 1947.
59. Rhothane D3 and DDT in Insecticidal Formulations. *Tech. Bull.* (undated), Rohm and Haas Philadelphia.
60. Deonier, Christian C., and Jones, Howard A. TDE, 1, 1-dichloro-2, 2-bis (p-chlorophenyl) Ethane, as an Anopheline Larvicide. *Science*, 103:13-14, 1946.
61. Ginsburg, Joseph M. Comparative Toxicity of DDT Isomers and Related Compounds to Mosquito Larvae and Fish. *Science*, 105:233-234, 1947.
62. Mathis, Willis, Ferguson, F. F., and Upholt, W. M. The Relative Effectiveness of DDT and DDD as Anopheline Mosquito Larvicides under Field Conditions. *Pub. Health Rep.* In Press.
63. Farzwel, Clarence M. Effects of Routine DDT Mosquito Larviciding on Wildlife. *J. Nat. Mal. Soc.* In Press.
64. Herms, William B. Investigations with DDT and other New Insecticides in 1945. *Calif. Agri. Expt. Sta. Cir.* 365:98-100, 1946.
65. Fay, R. W., Cole, E. L., and Buckner, A. J. Comparative Residual Effectiveness of Organic Insecticides Against House Flies and Malaria Mosquitoes. *J. Econ. Ent.*, 40:635-639, 1947.
66. McCauley, Robert H., Fay, R. W., and Simmons, S. W. A Comparison of the Residual Effectiveness of Certain Insecticides Against *Anopheles quadrimaculatus*. *Pub. Health Rep.* In Press.
67. Busvine, J. R. Newer Synthetic Contact Insecticides. *Nature*, 158:22, 1946.
68. Knippling, E. F. Newer Synthetic Insecticides. *Soap & San Chem.*, 23:127-131, 1947.
69. Kearns, C. W., Ingle, Lester, and Metcalf, Robert L. A New Chlorinated Hydrocarbon Insecticide. *J. Econ. Ent.*, 38:661-668, 1945.
70. Hyman, Julius and Company. Information and Technical Data Concerning the Chlorinated Hydrocarbon Insect Toxicant "Octa-Klor". Denver, Colo. Julius Hyman & Co., *Rev. Bull.* No. 1, Feb., 1947.
71. Brett, Charles H., and Rhoades, W. C. Control of the Red Harvesting Ant with Velsicol 1068. *J. Econ. Ent.*, 39:663-664, 1946.
72. Knippling, E. F. Recent Developments in Insecticides of Interest to Pest Control Operators. *Pests*, 15:10-14, 1947.
73. Schmitt, John B. A Recommended Cure of the Ant Problem. *Pests*, 15:50-52, 1947.
74. Baker, W. C. Tests To Evaluate the Relative Toxicity of Certain Insecticides for the Control of House-Fly Larvae in Cow Manure. *Pub. Health Rep.* In Press.
75. Cuthomp, Laurence K. Residual Sprays to Control *Anopheles quadrimaculatus*. *J. Econ. Ent.*, 40:328-333, 1947.
76. Weed, A. Benzene hexachloride. *Soap & San Chem.*, 22:115, 1947.
77. Raucourt, M., and Bouchet, R. L. A New Synthetic Organic Insecticide, Hexachlorocyclohexane. *Chimie et Industrie*, 56:449, 1946.

78. Melander, B. Chemical Constitution (of Hexachlorocyclohexane) and Insecticidal Effect. *Svenska. Kem. Tid.*, 58:231, 1946.
79. Guilhon, M. J. Insecticidal Property of the Isomers of Hexachlorocyclohexane. *Compt. Rend. Acad. Agr. France*, 22:754, 1946.
80. Haller, H. L. Wartime Development of Insecticides. *Indust. & Engin. Chem.*, 39:467, 1947.
81. Chamlin, G. R. The Chemistry of Benzene Hexachloride and Its Insecticidal Properties. *J. Chem. Educ.*, 23:283, 1946.
82. Bishopp, F. C. New Insecticides. A Progress Report on Results Being Obtained in Preliminary Test Studies. *Agr. Chem.*, 1:19-22, 39-40, 1946.
83. Slade, R. E. A New British Insecticide, the Gamma Isomer of Benzene Hexachloride. *Chem. Trade J. & Chem. Eng.*, 116:279, 1945.
84. O'Kane, W. C. Results with Benzene Hexachloride (as an insecticide). *J. Econ. Ent.*, 40:133, 1947.
85. Srivastava, A. S., and Wilson, H. F. Benzene Hexachloride as a Fumigant and a Contact Insecticide. *J. Econ. Ent.*, 40:569, 1947.
86. Barlow, F., and Hadaway, A. B. Loss of DDT and Gammexane by Absorption. *Bull. Ent. Res.*, 38:335, 1947.
87. Puri, J. M., and Drishnawami, A. K. Some Insecticides Against Anopheline Adults and Larvae, Part IV. *Indian J. Malariology*, 1:193, 1947.
88. Garnham, P. C. C. Mortality of *Aedes aegypti* feeding on Rabbits Receiving Oral Gammexane. *Nature*, 160:156, 1947.
89. Deonier, C. C., Jones, H. A., and Incho, H. A. Organic Compounds Tested Against Larvae of *Anopheles quadrimaculatus*—Laboratory Tests. *J. Econ. Ent.*, 39:459, 1946.
90. McGovran, E. R., and Piquett, P. G. Toxicity of BHC to House Fly Larvae. *J. Econ. Ent.*, 38:719, 1945.
91. Du Chanois, Robert, F. Toxicity of Gamma-benzene Hexachloride to the Preimaginal Stages of the Housefly. *J. Econ. Ent.*, 40:749, 1947.
92. Cory, E. N., and Langford, G. S. Fly Control in Dairy Barns and on Livestock by Cooperative Spray Services. *J. Econ. Ent.*, 40:425, 1947.
93. Shanahan, G. J. Toxicity of Benzene Hexachloride, "666," to Prepupae of *Lucilia cuprina*. *J. Austral. Inst. Agr. Sci.*, 12:148, 1946.
94. Busvine, J. R. Comparative Toxicities of Various Contact Insecticides to the Louse (*P. humanus* L.) and the Bedbug (*C. lectularius*). *Am. App. Biol.*, 33:271, 1946.
95. Glasgow, R. D., and Collins, D. L. Control of the American Dog Tick, a Vector of Rocky Mountain Spotted Fever; Preliminary Tests. *J. Econ. Ent.*, 39:235, 1946.
96. Roberts, R. Benzene Hexachloride for Animal Parasites. *J. Econ. Ent.*, 39:539, 1946.
97. Portman, R. W. Dipping in Benzene Hexachloride to Control *Amblyomma americanum*. *J. Econ. Ent.*, 40:134, 1947.
98. Whitnall, A. B. M., and Braden, B. An Arsenic Resistant Tick and Its Control with Gammexane. *Bull. Ent. Res.*, 38:353, 1947.
99. Hynes, H. B. N. Use of Gammexane (g-hexachlorocyclohexane) Dust Against Domestic Cockroaches. *Nature*, 159:200, 1947.
100. Halawani, A. Effect of Gammexane (g-hexachlorocyclohexane) on the Snails *Planorbis* and *Bulinus*, the Intermediate Hosts of *Schistosoma* in Egypt. *J. Roy. Egypt. Med. Assoc.*, 29:197, 1946.
101. Stearns, L. A. Progress Report on a New Insecticide. *Soap & San. Chem.*, 23:117, 1947.
102. Stearns, L. A., Parker, W. L., MacCreary, D., and Connell, W. A. A Chlorinated Bicyclic Terpene Used to Control Certain Fruit and Vegetable Insects. *J. Econ. Ent.*, 40:79, 1947.
103. Stearns, L. A., Parker, W. L., LeRoy, W., and Lynch, E. E. Results with 3956 (a chlorinated bicyclic terpene) as a Mosquito Larvicide. *Proc. New Jersey Mosq. Exterm. Assoc.*, 33:150, 1946.
104. Parker, W. L., and Beacher, J. H. Toxaphene, a Chlorinated Hydrocarbon with Insecticidal Properties. *Delaware Agr. Exp. Sta. Bull. No. 264*, 1947. 26 pp.
105. McAllister, L. C., Jones, Howard A., and Moore, D. H. Piperonyl Butoxide with Pyrethrins in Wettable Powders to Control Certain Agricultural and Household Insects. *J. Econ. Ent.*, 40:906-909, 1947.
106. Dove, W. E. Piperonyl Butoxide, a New and Safe Insecticide for the Household and Field. *Am. J. Trop. Med.*, 27:339-345, 1947.
107. Use of DDT for Mosquito Control in the United States. A Joint Statement of Policy by the United States Army and the U. S. Public Health Service. *Pub. Health Rep.*, 60:469-470, 1945.
108. Ellis, M. M., Westfall, B. A., and Ellis, M. D. Toxicity of Dichloro-diphenyl-trichloroethane (DDT) to Goldfish and Frogs. *Science*, 100:147, 1944.
109. Ginsburg, Joseph M. Toxicity of DDT to Fish. *J. Econ. Ent.*, 38:274-275, 1945.
110. Eide, P. M., Deonier, C. C., and Burrell, R. W. The Toxicity of DDT to Certain Forms of Aquatic Life. *J. Econ. Ent.*, 38:492-493, 1945.
111. Cottam, Clarence, and Higgins, Elmer. DDT and its Effect on Fish and Wildlife. *J. Econ. Ent.*, 39:44-52, 1946.
112. Tiller, R. E., and Cory, Ernest N. Effects of DDT on Some Tidewater Aquatic Animals. *J. Econ. Ent.*, 40:431-433, 1947.
113. Hotchkiss, Neil, and Pough, Richard H. Effects on Forest Birds of DDT Used for Gypsy Moth Control. *J. Wildlife Manag.*, 10:202-207, 1946.
114. Mitchell, R. T. Effects of DDT Spray on Eggs and Nestlings of Birds. *J. Wildlife Manag.*, 10:192-194, 1946.
115. Coburn, Don R., and Treichler, Roy. Experiments on Toxicity of DDT to Wildlife. *J. Wildlife Manag.*, 10:208-216, 1946.
116. Stickel, Lucille F. Field Studies of a *Peromyscus* Population in an Area Treated with DDT. *J. Wildlife Manag.*, 10:216-218, 1946.
117. Tarzwell, Clarence M. Effects of DDT Mosquito Larviciding on Wildlife. Part I. The Effects on Surface Organisms of the Routine Hand Application of DDT Larvicides for Mosquito Control. *Pub. Health Rep.*, 62:525-554, 1947.
118. Bishop, E. L. Effects of DDT Mosquito Larviciding on Wildlife. Part 3. The Effects on the Plankton Population of Routine Larviciding with DDT. *Pub. Health Rep.*, 62:1263-1265, 1947.
119. Hess, A. D., and Kenner, G. G. Jr. Effect of Airplane Distributed DDT Thermal Aerosols in Fish and Fish Food Organisms. *J. Wildlife Manag.*, 11:1-10, 1947.
120. Erickson, Arnold B. Effects of DDT Mosquito Larviciding on Wildlife. Part 2. Effects of Routine Airplane Larviciding on Bird and Mammal Populations. *Pub. Health Rep.*, 62:1254-1262, 1947.
121. Lehman, A. J. The Pharmacology of the Newer Insecticides. *J. Econ. Ent.* In Press.
122. Stammers, F. M. G., and Whitfield, F. G. S. The Toxicity of DDT to Men and Animals. *Bull. Ent. Res.*, 38:1-73, 1947.
123. Garrett, R. M. Toxicity of DDT for Man. *Alabama State M. A. J.*, 17:74, 1947.
124. Smith, Nathan J. Death Following Accidental Ingestion of DDT. *J.A.M.A.*, 136:469-471, 1948.
125. Hill, K. R., and Robinson, G. A Fatal Case of DDT Poisoning in a Child, with an Account of Two

Accidental Deaths in Dogs. *Brit. M. J.*, 2:845-847, 1945.

126. Hill, W. R., and Damiani, C. R. Death Following Exposure to DDT. *New England J. Med.*, 235:897-899, 1946.

127. Neal, P. A., and von Ottingen, W. F. Toxicity and Potential Dangers of DDT to Humans and Warm-blooded Animals. *Med. Ann. District of Columbia*, 15:15-19, 1946.

128. Miller, Seward E. DDT in Medical Practice. *Current Med. Dig.*, July, 1946, pp. 27-33.

129. *Quarterly Progress Report No. 6.* War Dept., Office of the Surgeon General, Research Contract No. M-6134. Division of Pharmacology, U. S. Food and Drug Adm. December 31, 1947.

130. Nelson, A. A., and Woodward, G. Adrenal Cortical Atrophy and Liver Damage Produced in Dogs by Feeding 2, 2-bis-(parachlorophenyl)-1,1-dichloroethane (DDD). *Federation Proceedings*. In Press.

131. Furman, Deane F. Toxicity of Benzene Hexachloride to Mammals. *J. Econ. Ent.*, 40:518-521, 1947.

132. Bushland, R. C., Radeleff, R. D., and Smith, C. L. The Effect on Livestock of Sprays and Dips

Containing New Chlorinated Insecticides. *J. Econ. Ent.* In Press.

133. Ingle, Lester. Toxicity of Chlordane to White Rats. *J. Econ. Ent.*, 40:264-268, 1947.

134. *Quarterly Progress Report No. 5.* War Dept., Office of the Surgeon General, Research Contract No. M-6134. Division of Pharmacology, U. S. Food and Drug Adm. September 30, 1947.

ACKNOWLEDGMENT—The authors gratefully acknowledge the assistance of the following members of the Technical Development Division of the Communicable Disease Center of the U. S. Public Health Service at Savannah, Ga., in the preparation and critical review of this article: Mr. Walter C. Baker, Dr. Richard W. Fay, Miss Mary Goette, Dr. Wayland J. Hayes, Jr., Mr. Jens Jensen, Mr. Willis Mathis, Dr. Robert H. McCauley, Dr. H. P. Nicholson, Mr. Kenneth Quarterman, Mr. H. Stierli, Dr. Clarence Tarzwell, and Dr. William M. Upholt.

Field Training Fellowships for Public Health Engineers

The Michigan Department of Health is again offering summer field training opportunities to persons desiring experience in public health engineering work. The training period is three months, during which time the students will be assigned to county health departments as assistants to the staff public health engineers.

Applications will be accepted from graduates or undergraduates of recognized professional schools with training in public health or sanitary engineering, dairy science, food technology, bacteriology, etc. Undergraduates must have

completed their junior year of study. Stipends to assist with living expenses are paid by the W. K. Kellogg Foundation; the amount is approximately \$150 per month. The program is approved by the Veterans Administration and veterans are eligible for the maximum subsistence allowance in addition to the stipend. Ownership of a car is desirable and car owners will receive an allowance for driving their automobiles.

For information write to Mr. John M. Hepler, Director, Bureau of Engineering, Michigan Department of Health, Lansing 4, Mich.

Is the Rh Factor a Public Health Laboratory Function?*

ANNA I. VAN SAUN, F.A.P.H.A.

Director, Division of Laboratories, Board of Health, Paterson, N. J.

WHEN the discovery of the Rh factor was announced by Landsteiner and Wiener¹ in 1940, preceded by the clinical observations of Levine and Stetson² in 1939, it is probable that none of these people thought that Rh factor determinations would ever be made in a public health laboratory. The hospital and research laboratory seemed the logical place for such work. The inability of most hospitals to handle this problem at that time, together with a lack of understanding of the value of the Rh factor by some pathologists, pointed to the need of a central laboratory for this work.

In 1944³ Dr. Theodore Graham, Chairman of the Maternal Welfare Committee of the Passaic County Medical Society, believing that one of the functions of a Board of Health is to keep down the infant and maternal death rate, proposed to Dr. Frederick P. Lee, the Health Officer, that we take up Rh determinations in our laboratories with a view to establishing an Rh-negative blood donors club. He pointed out that since ours is the only public health laboratory in Passaic County (serving communities totalling 250,000 people) we receive most of the blood specimens sent by physicians in conformity with the state law requiring a blood test for syphilis on all antepartum women.

We agreed to take over the work which was to include Rh factor determinations on specimens from the blood bank

of one of our largest hospitals. This latter work would be terminated when the hospital could handle it and was terminated in 1945.

Blood grouping has been added to our work since marital incompatability of the blood groups is sometimes responsible for accidents of pregnancy and childbirth.

For the past three years we have received a total of 21,000 specimens of blood from antepartum women. We thus became, as far as we know, the first public health laboratory in the country to perform Rh tests.⁴

Our most pressing problem was securing immune serum for our work. In 1944 there was very little on the market, but we managed to obtain enough for our first tests from three different sources together with some given us by friends and a small quantity from two of our own patients. We have had but two patients whose blood possessed a high enough titer to warrant its use for anti-Rh serum and these patients were not coöperative.

Since serum continued to be scarce we decided to try comparative tests with human and animal sera, using the human serum slide test of Diamond, a test which had already been used by Tisdall⁵ for large numbers of specimens and an animal serum slide test with which a good deal of experimental work had been done.* We obtained human slide

* Presented before the Laboratory Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 9, 1947.

* A necessity for the slide test is a good viewing apparatus having gentle heat. One may now be obtained together with indelibly marked slides, from a firm which distributes typing serum.

testing sera from three different sources. These sera checked with the human serum tube test and possessed the advantage of being cheaper than the tube test or animal anti-Rh serum. We found that in our hands the animal serum tended to give occasional false positives. Such a case was recently noted by Pettit and Evans in a Pasadena hospital laboratory.⁶

At first most of the Rh typing serum was secured from sensitized mothers of erythroblastotic infants, but in 1945 Hill, et al.⁷ prepared a serum by injecting Rh positive blood into previously immunized individuals. This serum he lyophilized. It has given excellent results in this laboratory but should be tested with known Rh sub-types before use.

Wiener⁸ has recently announced that he has prepared an immune serum by immunizing normal male donors.

Comparative tests with 250 lots of human tube testing sera have taught us that no serum is perfect though the serologists responsible for the preparation of such sera do their best to make them so.

We have found that if a tube test serum begins to deteriorate it may be noted quickly by the use of a good method of reading and by testing it with a relatively large number of specimens. We follow a method suggested by Wiener⁸ which makes use, not only of a macroscopic reading but also of a direct tube reading under the microscope.

We follow implicitly the method put out by the purveyor of a testing serum. We do not retitrate the serum nor do we dilute further what seems to be a strong serum.

Anti-Rh serum should not be purchased too far in advance and, of course, contaminated serum should never be used. We never use hemolyzed patients' blood for any sort of serological work.

In our opinion no one serum is safe to use without being checked by other

sera. We are well aware of the fact that the busy hospital laboratory, probably understaffed and limited for time and money, will use one serum. What that serum is to be will depend upon the person in charge, his experience with the Rh factor, and the training of his technicians.

Our experience has shown us that a central laboratory is highly desirable for routine Rh testing of antepartum women. A laboratory which might test a dozen specimens of blood a week would be in no position to judge of the value of a testing serum.

We believe that the National Institute of Health has embarked on an attempt to standardize anti-Rh and blood grouping sera. This is something which is badly needed. We have received various lots of mislabeled anti-Rh sera and sera too weak to be safe to use, as well as some which were apparently incompletely absorbed.

Since we are in close touch with our obstetricians it has seemed advisable to test, not only for positivity and negativity, but also to sub-type all Rh negative women, their husbands, and children.

Agglutinins and blocking bodies are determined on all Rh-negative women. At first we used the original technique suggested by Wiener,⁹ but at present we use modifications suggested by Diamond, et al.^{10, 11}

All women developing these reactions are retested throughout their pregnancies at the discretion of their physicians. All such reactions, if positive, are reported by telephone and all reports are made to the physician only.

Any woman who gives a history of abortions or other accidents of pregnancy, even though she tests positive with the 85 per cent serum, is sub-typed. Only two such women have been found to be in the Rh-negative class though this particular sub-typing has only been carried on in 1947. Neither of these

TABLE 1
Detailed Comparison of the Work of Three Years on the Rh Factor

Year	Pos.	Neg	Uns	Total	Total Exam.	* Rh Only	Blood Group	Ag. & B.B.	Pos. Ag. & B.B. on Men	Sub-type on Men	Prime	Double Prime	Rho Men	Rho Women	Blood Bank	Sub-Types on Pos. Women
1944	2,152	373	..	2,525	2,525	..	2,525	4	4	..	2	..	..	..	749	..
7 mo. 1945	4,572	912	8	5,492	7,514	89	5,484	310	8	48	38	15	1	..	787	..
1946	7,554	1,710	42	9,306	21,092	153	9,348	2,806	22	1,221	66	36	11	..	..	23
1947	3,379	994	5	4,378	9,740	345	4,373	834	18	403	61	28	8	2	..	23
6 mo. Total	17,657	3,989	55	21,701	40,871	587	21,730	3,954	52	1,672	167	70	4	30	1,536	..

* Refers to further tests on known Rh negative women.

TABLE 2
Marital Combinations
June, 1944-June, 1947

Wife Negative Husband Positive	Wife Positive Husband Negative	Both Negative
1,036	32	206
* Both Positive	155	
Total Women Negative	—	2,507
Total Husbands Tested	—	1,406
Total Children Tested	—	59

the Rh factor has been determined.

TABLE 3
Infants Reported Erythroblastotic or Stillborn for Three Years

Erythroblastotic		Stillborn	
Rh Negative Mother Negative Rh Antibodies	Rh Positive Mother Not Tested for Rh Antibodies	Rh Negative Mother Negative Rh Antibodies	Rh Negative Mother Positive Rh Antibodies
17 { 9 lived 8 died	6 { 2 lived 4 died	11	6
Infants Reported Normal		Rh Negative Mother Positive Rh Antibodies	
Rh Negative Mother — Positive Rh Antibodies		19	

women had agglutinins or blocking bodies.

Out of 1,036 men sub-typed who were positive with the 85 per cent serum, 30 proved to be in the Rh-negative class.

Although this paper is not written from the clinical standpoint we feel that perhaps a few details concerning the number of erythroblastotic and stillborn infants we have had on our records might be of interest to public health laboratories engaging in this work.

A complete card index is kept of our cases and we supply physicians with cards upon which they enter facts regarding the termination of the pregnancy, condition of mother and child, and other facts of interest to us.

We occasionally issue a card to an Rh-negative woman but only with the permission of her physician. Cards are soon to be provided by the Passaic Co. Medical Society for all persons Rh tested in our laboratory.

Women on our records who have had erythroblastotic or stillborn infants are in three classes: those who are Rh-negative and have had no agglutinins or blocking bodies, those who are Rh-negative and have agglutinins or blocking bodies, or both, and those who are Rh-positive.

Of 2,507 Rh-negative women, 46 have borne erythroblastotic infants, the infant mortality with either class being about 50 per cent. Seventeen have had stillborn infants. Nineteen normal infants were born to women having agglutinins and blocking bodies.

There were 6 Rh-positive women who had erythroblastotic infants. Two of these children lived and 4 died. We were not able to explain these anomalies, although they might be due to differences in the blood groups. In one case it was not.

A family was noted, three of whose members possessed the rare Rh' Rh'' factor. Two of these persons are women. One other person, a man, not of this family, also possessed this type.

Apparently the physicians of Passaic County are thoroughly convinced that the Rh factor is indeed a function of this particular public health laboratory. They assure us that the work we have done is very worth while. It is too early to note the effect of this work on the infant and maternal death rate.

The trend seems to be toward an increasing use of public health laboratories for Rh factor tests. Levine¹² has recently suggested the use of the public health laboratory for Rh factor determinations and we understand that several state laboratories are already doing this work.

While our work is based on the public health laboratory approach and does not touch on the transfusion problem which should very properly be left to the hospital laboratory, we are occasionally asked to do an Rh and blood grouping test in an emergency. Many hospitals still do not Rh type patients who are to receive transfusions, and transfusion reactions are still being reported.

The Rh Negative Blood Donors Club has now on its rolls more than 80 active members. All names of Rh-negative persons are sent to the Secretary of the Passaic County Medical Society who in turn contacts these persons, suggesting membership in the club.

Our work has been necessarily limited at times by the shortage of testing serum. We feel that testing for the more unusual types such as Hr, discovered by Levine in 1941,^{13, 14} is best left to the research laboratory.

SUMMARY

The work of three years on the Rh factor in a public health laboratory is described.

A central Rh testing laboratory is suggested for groups of communities.

The use of human anti-Rh testing serum is preferred.

The sub-typing of Rh-negative women, their husbands, and children,

and determinations of Rh antibodies are recommended.

A successful Rh-negative blood donors club is described.

NOTE: Thanks are due to Dr. Alexander Wiener and Dr. Philip Levine for many kindnesses shown us and to Dr. Frederick P. Lee for advice and criticism as well as to Miss Evelyn Brown, Mrs. Agnes Juneiman, Miss Grace Donahue, and Miss Elinor Fairweather who have been responsible for the actual performance of this work.

REFERENCES

1. Landsteiner, K., and Wiener, A. S. Agglutinable Factor in Human Blood Recognizable by Immune Sera for Rhesus Blood. *Proc. Soc. Exper. Biol. & Med.*, 43:223, 1940.
2. Levine, P., and Stetson, R. E. Unusual Case of Intra Group Agglutination. *J.A.M.A.*, 113:126, 1939.
3. van Saun, A. I. Rh Factor and Blood Group Determinations. *Bull. Passaic Co. Med. Soc.*, Aug., 1944, pp. 4-6.
4. Lee, F. P., van Saun, A. I., and Brown, E. L. Rh Factor and the Public Health Laboratory. *J.A.M.A.*, 128:19, 1945.
5. Tisdall, L. H., and Garland, D. M. Large Scale Testing for Rh Negative Blood. *J.A.M.A.*, 129:1079-1080, 1945.
6. Pettit, R. D., and Evans, E. False Positive Rh Typing Obtained with Commercial Anti-Rho Serum. *Am. J. Obst. & Gynec.*, 53:596-598, 1947.
7. Hill, J., Haberman, S., and Velez Orozco, A. Preparation of Potent Anti-Rh Typing Serums by Injection of Rh Positive Blood into Previously Immunized Individuals. *J.A.M.A.*, 128:944-946, 1945.
8. Wiener, A. S. Technique of Rh Testing. *Am. J. M. Technol.*, 12:95-99, 1946.
9. Wiener, A. S. A New Test (Blocking Test) for Rh Sensitization. *Proc. Soc. Exper. Biol. & Med.*, 56:173-176, 1944.
10. Diamond, L. K., and Abelson, N. M. Demonstration of Anti-Rh Agglutinins—Accurate and Rapid Slide Test. *J. Lab. & Clin. Med.*, 30:204-212, 1945.
11. Diamond, L. K., and Denton, R. L. Rh Agglutination in Various Media with Particular Reference to the Value of Albumin. *J. Lab. & Clin. Med.*, 30: 821-830, 1945.
12. Levine, P. Present Status of the Rh Factor. *Am. J. Clin. Path.*, 16:597-617, 1946.
13. Levine, P. *Yearbook of Pathology and Immunology*, 1941, pp. 508-513.
14. Levine, P., Burnham, L., Katzin, E. M., and Vogel, P. Role of Iso-immunization in Pathogenesis of Erythroblastosis Fetalis. *Am. J. Obst. & Gynec.*, 42:925-937, 1941.

Blood Grouping and Rh Typing in a State Public Health Laboratory*

ROBERT A. MACCREADY, M.D., AND ROBERT T. MCGEE

*Assistant Director and Junior Bacteriologist, Division of Communicable Diseases,
State Department of Public Health, Boston, Mass.*

IN spite of the safeguard of routine cross-matching, an incorrectly typed blood is sometimes used and can damage or even kill. The free distribution of blood on a state-wide scale, therefore, involves a staggering responsibility. Realizing that blood released from the state blood bank *must* be correctly labeled, the Massachusetts program from the start has included the blood grouping and Rh typing of every unit of blood by two completely independent but co-operating laboratory units within the department. From our experience the wisdom of this course has become perfectly obvious. If there is any disagreement whatsoever in the typing of a blood it is used for fractionation products only. It is never released as whole blood, even though the discrepancy is completely liquidated upon repeat checking by the two laboratory units.

The entrance of the Massachusetts Department of Public Health Diagnostic Laboratory into a state blood typing program a year ago arose, in fact, in response to the needs of the Massachusetts blood program whose mobile units are now collecting about a thousand bloods a week—a participation in a new public health field recently well discussed by Janeway.¹ Meanwhile the Massachusetts Legislature had passed an act expanding the department's laboratory approval program to include blood

grouping, Rh testing, and cross-matching, and the Diagnostic Laboratory's activities were increased accordingly to include evaluation of some 63 hospital and private laboratories within the state desiring approval for these tests. As soon as possible blood grouping and Rh typing of prenatal bloods, as requested by physicians, were added to further augment the services of the Blood Grouping Section of the State Diagnostic Laboratory. These three activities—check typing for the state mobile blood collecting units, evaluation of laboratories performing blood typing tests, and blood grouping and Rh typing of prenatal bloods—compose our state public health laboratory services in the blood typing field, and will be discussed in order in this paper. We hope later to include some research which is certainly indicated in a venture of this scope. An overall statistical summary of the Rh typings is shown in Table 1.

TABLE 1

Statistical Summary of Rh Typing During First Ten Months at Diagnostic Laboratory

Typings	Number *	Per Cent
Rh+	16,165	83.1
Rh—	3,131	16.1
Rare Rh+	146	0.8
	19,442	100.0

* Includes repeat typings on a number of individuals who returned for second and later donations. Unexplained discrepancies are excluded from this tabulation.

* Presented before the Laboratory Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 9, 1947.

Dr. Louis K. Diamond has been our consultant from the beginning, and we are indebted to him for invaluable help

in the organization of this blood typing program, as well as to our own staff and the cooperating members of the Biologic Laboratories. We are grateful also to the Blood Grouping Laboratory of Boston for very generous financial assistance which has been granted to us during this formative period.

BLOOD GROUPING AND RH TYPING FOR
THE MASSACHUSETTS BLOOD DISTRIBUTION PROGRAM

The two mobile bank units collect blood 5 days each week from the various communities throughout the state, roughly some thousand bloods a week. Whether this blood is ultimately distributed as whole blood or processed into fractions for distribution, it is typed both in the field and again at the central Diagnostic Laboratory. Different methods and sera are used in the two laboratories.

The blood group of each donor is determined in the field by the slide test on finger blood, using either human blood grouping sera obtained from the Blood Grouping Laboratory at the Children's Hospital in Boston, or human blood grouping globulins manufactured by the department's Biologic Laboratories after the method described by Melin.² At the same time, and on the same slide, the Rh factor is determined by the slide testing method of Diamond and Abelson³—originally proposed by them for detection of Rh antibodies—using 85 per cent (anti-Rh₀ or anti-D) hyper-immune serum from the Blood Grouping Laboratory at the Children's Hospital in Boston. The reading is facilitated by the use of a portable slide viewing box, as described in Diamond and Abelson's original article. Because donor lines must move fairly rapidly in a successful bleeding clinic (slow lines discourage donor attendance), only 85 per cent (anti-Rh₀ or anti-D) typing serum is used at this time. At the Diagnostic Laboratory,

however, both 85 per cent (anti-Rh₀ or anti-D) serum and 87 per cent (anti-Rh₀' or anti-C+D) serum are employed. The blood group and Rh factor are recorded by the field technician on a master working sheet, the results of which are not released until the blood is subsequently checked by the Diagnostic Laboratory.

The check typing by the Diagnostic Laboratory of the department is performed upon the pilot tube of clotted blood, which is collected from the donor at the time of the bleeding. Another pilot tube contains blood in acid-citrate-glucose solution, and is permanently attached to the unit of donor blood for cross-matching tests by the hospital at the time of transfusion.

Serum from the pilot tube of clotted blood is withdrawn for serological tests for syphilis by the Wassermann Laboratory, and cells are withdrawn by the Diagnostic Laboratory's Blood Grouping Section for the check blood grouping and Rh typing tests. To avoid any possible error in blood identity, the Wassermann Laboratory withdraws the serum itself from the pilot tube, and the Blood Grouping Section likewise withdraws the cells which it needs. The remaining clotted blood is left in the original pilot tube for possible recheck until all testing and retesting of the day's run is completed. We feel that these precautions are very important to eliminate divided responsibility regarding the identity of any blood, serum, or cells under testing, because the danger of confusing specimens handled by several workers can become very real indeed!

At the Diagnostic Laboratory the test tube method for blood grouping and Rh typing is used with early-immune anti-Rh serum in contrast to the slide method with hyper-immune anti-Rh serum, which is used in the field. A check typing by a different method and serum is a more substantial check than if the same method and serum were used.

Suspensions of approximately 3 per cent cells in saline are made by transferring cells from the pilot tube of clotted blood by means of applicator sticks. With a little practice the proper strength of the suspension can be judged accurately enough by its color alone. Like the field, the Diagnostic Laboratory uses blood grouping sera from the Blood Grouping Laboratory, or blood grouping globulins from our own Biologic Laboratories. Anti-Rh sera, however, are all obtained from the Blood Grouping Laboratory. The Rh factor is routinely tested with 85 per cent (anti-Rh₀ or anti-D) serum, but, unlike the field, all negatives are retested in addition with 87 per cent (anti-Rh₀' or anti-C+D) serum.

The usual tube technique for blood grouping and for Rh typing is followed.⁴ We have found a wooden rack convenient for holding the tubes in our routine tests. The typing sera are dropped into the tubes *before* the cell suspensions are added so that each tube can be checked to make certain the serum has actually been placed in every tube. The blood grouping preparations are allowed to remain at room temperature, while the Rh preparations are incubated for one hour in a water bath at 37° C. All tubes, both for blood grouping and Rh typing, are centrifuged at low speed for one minute before each and every reading. (Because anti-A and anti-B agglutinations are more easily read after centrifugation, and an occasional weak agglutination will be missed without it, we spin at low speed all the blood grouping tests as well as the Rh typing preparations.) By having an extra set of centrifuge carriers, loading and unloading of a set of tubes in the carriers can conveniently be performed during the otherwise wasted minute while a second set is spinning in the centrifuge. All tubes are read macroscopically by at least two independent workers, and all macroscopic negatives

re-read microscopically. When completed, the results of the run are compared with the results of the field typing. If there are any discrepancies, the blood units involved are excluded from distribution as whole blood, and are fractionated instead, even though the discrepancy is liquidated on the repeat tests always performed by the central and field laboratory units. This procedure is followed to save time, and to avoid all possible chances of error.

Bloods which show macroscopic or microscopic agglutination with 85 per cent (anti-Rh₀ or anti-D) serum are labeled as "Rh positive" and so recorded on the card mailed to the donor, and bloods which are negative macroscopically and microscopically with 87 per cent as well as 85 per cent serum are labeled and recorded as "Rh negative." Bloods which are negative with 85 per cent (anti-Rh₀ or anti-D) serum, but positive with 87 per cent (anti-Rh₀' or anti-C+D) serum are labeled as "rare Rh positive sub-group," and the card mailed to the donor is stamped with the following words:

RARE RH+ SUB-GROUP
DONATE TO RH+ ONLY
RECEIVE FROM RH- ONLY

There has been so much confusion even among physicians about the significance of the Rh sub-types that it seemed wise to include the explanatory phrase. Although a blood which is negative with 85 per cent serum and positive with 87 per cent serum is nearly always an Rh' (Cde), we have used the phrase "rare Rh+ sub-group" as academically more accurate, because without 30 per cent (anti-Rh" or anti-E) serum it is impossible to exclude the rare occurrence of an Rh'" (Rh' Rh") blood. Anti-Rh" (anti-E) serum would be difficult to obtain in the amounts necessary for the volume of Rh typing which we are routinely performing. Furthermore, the likelihood of sensitization to the Rh"

(E) factor by transfusion alone is too remote to be of practical consideration in routine blood typing, since the incidence of the Rh⁺ sub-type is less than 0.2 per cent and it has been shown to be a very weak antigen.^{5, 6} We therefore do not use 30 per cent (anti-Rh⁺ or anti-E) serum in our large-scale routine blood-typing program. To avoid any secretarial errors in copying, all reports are stamped and checked by the participating laboratory workers themselves.

INVESTIGATION OF DISCREPANCIES

The importance of a thorough study of each disagreement between the field and central laboratory was realized at the outset, and the studies have been almost as enlightening as the discrepancies have been annoying. Of the 16,210 bloods typed by the field unit and central laboratory, there have been 63 disagreements on the blood grouping, and 140 disagreements on the Rh factor.

Where disagreement occurred between the field technician and the Diagnostic Laboratory, a complicated series of recheck typings is performed by the Diagnostic Laboratory. The blood is then resubmitted to the field technician for a second typing. This recheck is entirely independent, since the technician does not then know the findings of the Diagnostic Laboratory, nor can she possibly recall her original report on the blood some days before.

All 50 of the completely studied blood group or ABO discrepancies have been liquidated by agreement of the two laboratory units upon rechecking. In contradistinction to some of the discrepancies in Rh typing, they were all caused by human errors in performance or reading; none was the result of aberrant factors in the blood or typing sera.

Our form provides for a similarly involved series of rechecks by the Diagnostic Laboratory, followed by the field technician's independent recheck. As in the ABO discrepancy studies, the Diag-

nostic Laboratory has rechecked the Rh factor by both the tube and slide methods, and in the slide method has used both its regular lot of serum, and serum of the same lot number used in the field, to learn whether the discrepancy is caused by a difference in the typing sera, or by a human error in performance. It will be noted that disagreement here between field and Diagnostic Laboratory is more apparent than real, for the Diagnostic Laboratory agreed with the field technician when it used the slide test and the same lot of serum. It is essentially a discrepancy between sera rather than between laboratories. Interesting and disturbing variations, which occurred during a period when the "cix" lot of serum was used, are now under investigation by a colleague. Studies so far suggest that they may be explained by this reagent containing also a rare variant of the anti-Rh₀ serum.⁷ If this further study should add new knowledge about immunity to the Rh factor, such knowledge has been made possible only by the existence of two independently operating laboratory units where every discrepancy is subjected to thorough investigation.

Unfortunately, since anti-Rh agglutinins are not a normal constituent of human serum, we cannot employ a procedure comparable to the "reverse typing" so useful for checking blood groups, in which the unknown serum is tested against known A and B cells. However, in addition to the regular tests, we recheck all bloods with the albumin technique.⁸ We have lately at times included tube-testing with hyper-immune serum with the cells under test suspended in the donor's own serum, when results have been otherwise equivocal.

One hundred and eleven of the 140 Rh discrepancies were completely studied. Seventy-five were explained by a reversal of the field technician's original findings upon recheck; 13 were liquidated upon reversal of the Diagnostic

Laboratory's first findings; and 23 remain unexplained.

As a direct result of the several disagreements where an Rh-positive slide test was read in the field, but a negative reading was made at the Diagnostic Laboratory—some explained and some unexplained—we now include slide tests on all prenatal bloods which are Rh-negative by the routine tube test at the Diagnostic Laboratory.

Uncomfortable and crowded quarters, and congestion of donors during certain hours of the day are unsatisfactory working conditions, which have been very difficult to avoid in a mobile clinic, which must accept facilities as they find them. In addition, fatigue from constant repetition of a single task, rare clerical errors, and simple technical inadequacy in performing the tests have all contributed to the mistakes in the field. A number of the errors were due to a single inadequately trained laboratory worker, whose technique greatly improved after further tutelage at the central laboratory. The inexperienced may confuse rouleaux formation in the slide test with true agglutination. At times during the warm weather coagulation seemed to take place before anti-A or anti-B agglutination could occur. For this reason heparin is now to be added to the anti-A and anti-B typing sera. It is already used in the anti-Rh slide typing sera, where it successfully combats coagulation.

We are skeptical of laboratories which report no difficulty at all in their Rh typing. Unless their work is checked on a large scale by a second independent laboratory unit, they are not likely to learn of their occasional mistakes. You cannot have discrepancies if you do not have another laboratory with which to be discrepant! We should therefore welcome discussion from representatives of blood typing laboratories, which have conducted large-scale Rh typing programs in parallel with other laboratory

units, especially if the other laboratory unit employs a different method and different serum.

EVALUATION OF LABORATORIES PERFORMING BLOOD GROUPING, RH TESTING, AND CROSS-MATCHING

Strong indication that local hospitals are committing unsuspected errors from time to time, especially in their Rh testing, is shown by their results on our series of unknown bloods which were sent for evaluation of laboratories desiring approval for blood grouping, Rh testing, and cross-matching under the department's laboratory approval program. Samples of bank blood preserved in acid-citrate-glucose solution were sent to 63 laboratories for blood grouping, for Rh testing, and for use in special cross-matching problems. The results of the blood grouping and Rh typing tests are tabulated in Table 2.

TABLE 2

Statistical Summary of Results of Test Specimens Submitted to Laboratories for Evaluation

	Total Specimens Tested *	Errors in Blood Grouping	Errors in Rh Typing
Series I	777	8	61
Series II	502	6	34
Series III	211	0	5
	1,490	14	100

* Obtained by multiplying the number of bloods tested by each laboratory by the number of participating laboratories.

As would be expected, there were many more errors in Rh typing than in blood grouping. The 100 Rh typing errors out of 1,490 blood specimens are about 7 per cent—an uncomfortably high percentage of inaccuracies. Actually 23 laboratories performed perfect or nearly perfect typing, while 69 of the 100 Rh errors were committed by just 13 laboratories. Some of them were due to inadequate typing serum, including serum of animal origin, but many were due to poor training and inade-

quate supervision of technicians in this important procedure. While Rh typing tests are easy to perform correctly, they are likewise easy to perform incorrectly. A number of laboratory workers have assumed that they must be doing the Rh work accurately, because they "get about the right number of positives." Certainly occasional errors will hardly be detected by such casual means, and a laboratory's degree of accuracy can be established only by careful evaluation studies, or by an extended performance in parallel with another laboratory. A strong plea is made for more adequate supervision and appraisal of laboratories performing blood grouping, Rh typing, and cross-matching tests.

BLOOD GROUPING AND RH TYPING OF PRENATAL BLOODS

The typing of prenatal bloods upon request is the third activity which the Blood Grouping Section now performs. Its justification as a public health laboratory procedure stems partly from the lack of convenient typing services in certain more rural communities, and partly from its unreliability in some other communities. But because the law requires a blood specimen for a serological test for syphilis at the first visit of an expectant mother to her physician, and because the specimen which is collected for a serological test may be used also for blood typing tests, the great convenience of the state service to both doctor and patient is perhaps the reason most attractive to the many physicians who have welcomed the service. The discomfort and inconvenience of a second venipuncture is avoided: the physician needs only to fill out the necessary additional forms.

The clotted blood specimens received at the Diagnostic Laboratory containing requests for prenatal tests are treated exactly as already described for the pilot tubes received from the mobile blood units. The Wassermann Laboratory

draws off the serum which it needs for the tests for syphilis, and the Diagnostic Laboratory Blood Grouping Section makes a cell suspension for its tube test from the clotted blood remaining in the specimen tube. Although the physician is primarily interested in the Rh factor rather than the blood group, it is administratively convenient for us to include blood grouping on prenatal bloods exactly as on bank bloods. Bloods which are negative by the 85 per cent (anti-Rh₀ or anti-D) serum are tested with 87 per cent (anti-Rh₀' or anti-C+D) serum, and the Rh report is stamped as POSITIVE, NEGATIVE, or RARE Rh+ SUB-GROUP, as the results of the tests indicate.

For an Rh-negative patient, the following instruction to the physician is stamped on the report:

IMPORTANT—Since patient is Rh-negative, submit husband's blood for Rh testing—use enclosed forms.

For a patient belonging to a rare Rh positive sub-group, this slightly different wording is used:

IMPORTANT—Since patient belongs to rare Rh positive sub-group, submit husband's blood for Rh testing—use enclosed forms.

The forms which are sent to the doctor for use in submitting the husband's blood include the following note:

NOTE: Pregnant patients, whose bloods are Rh negative or belong to a rare Rh positive sub-group, and whose husbands are Rh positive, should have blood sera titrated for antibody content, especially multiparous patients, and patients with a history of previous transfusions, late miscarriages, jaundiced or anemic babies, or other evidence of Rh sensitization. Such titrations of antibody content should be performed at a qualified private laboratory; the Department of Public Health is not prepared to perform such service.

In case of transfusion, patients whose bloods are Rh negative, or belong to a rare Rh positive sub-group, should receive only Rh negative blood.

Much confusion about the Rh factor has arisen apparently in the minds of some physicians as well as the laity, even to the point of belief that any Rh-negative mother cannot or should not become pregnant. At the suggestion of Dr. Diamond we prepared an informative flier entitled "The Rh Factor and Pregnancy," which we enclose whenever a negative or rare Rh-positive subgroup report is sent to the physician. We have seen fit, further, to supply the waiting rooms of the bleeding clinics with this flier, for the wording is not too technical for lay consumption, and reassurance is needed for the mild hysteria which has been aroused among the general public.

Without publicity upon our part beyond the original announcements, the service is growing. The first full month we typed a modest 138 prenatal bloods. A half year later we now handle weekly some three hundred prenatal bloods sent to the laboratory for the Wassermann and blood typing tests, in addition to a thousand-odd bloods received from the mobile bank units. Apparently the great importance and convenience of the service meet a definite need of the physicians of the Commonwealth.

While most of the discrepancies in the typing of the bloods collected by the state blood program were the result of mistakes made in the field, where precision is more difficult, rather than by the Diagnostic Laboratory, we are still a little uneasy that the prenatal bloods done by the Diagnostic Laboratory do not have a second typing by an independent laboratory unit. For this reason, we now include Rh slide tests on all prenatal bloods which give an Rh-negative or rare Rh-positive tube test. Although statistical analysis made possible by our discrepancy studies implies an accuracy of at least 99.8 per cent for the Diagnostic Laboratory, by the operation of an independent second laboratory unit also testing prenatal bloods,

we could be sure of still greater accuracy.

SUMMARY

The Massachusetts Department of Public Health is engaged in a large-scale blood grouping and Rh typing program. This program arose in response to the needs of the state blood bank, which now collects some thousand bloods each week. All donors are typed in the field by the slide method, and a pilot tube of clotted blood is rechecked independently at the Diagnostic Laboratory by the tube method. The occurrence of discrepancies from time to time, especially in Rh typing, is eloquent evidence of the value of this double checking in any blood grouping and Rh typing program, and enlightening information has been gained by complete investigations of all disagreements.

In addition the department evaluates laboratories in the state desiring approval for blood grouping, Rh typing, and cross-matching. The results of unknown bloods sent to participating laboratories in several series reveal an uncomfortably high percentage of errors, particularly in Rh testing. Since errors in typing and cross-matching can cause disasters, the great need for more adequate supervision of laboratories performing blood typing tests is therefore stressed.

The program includes also blood grouping and Rh typing of prenatal bloods, as requested by physicians, and the test is conveniently performed upon the same specimen submitted for the required prenatal test for syphilis. The service is valuable as a state public health activity, and the volume of the work is growing. It is hoped that disastrous results, which have previously occurred when Rh-positive blood has been given to pregnant Rh-negative women, will be prevented by this program, as well as more intelligent management of mother and child made possible.

REFERENCES

1. Janeway, C. A. Blood and Blood Derivatives—A New Public Health Field. *A.J.P.H.* 36:1 (Jan.), 1946.
2. Melin, M. Chemical, Clinical, and Immunological Studies on the Products of Human Plasma Fractionation. XXV The Preparation of Anti-A Isoagglutinin Reagents from Mixed Blood of Groups O and B. *J. Clin. Investigation* 24:662 (Sept.), 1945.
3. Diamond, L. K., and Abelson, N. M. The Demonstration of Anti-Rh Agglutinins—an Accurate and Rapid Slide Test. *J. Lab. & Clin. Med.* 30:204 (Mar.), 1945.
4. Potter, E. L. Rh: Its Relation to Congenital Hemolytic Disease and to Intragroup Transfusion Reactions. Chicago: Yearbook Publishers, Inc., 1947, pp. 271-279.
5. Diamond, L. K. Personal communication to the authors.
6. Weiner, A. S. Rh Factors in Clinical Medicine. *J. Lab. & Clin. Med.*, 30:957, 1945.
7. Cummer, J. W. Personal communication to the authors.
8. Diamond, L. K., and Denton, Ronald L. Rh Agglutination in Various Media with Particular Reference to the Value of Albumin. *J. Lab. & Clin. Med.* 30:821, 1945.

ADDENDUM

Since the presentation of this paper we have discontinued the use of early-immune serum in the tube test and now employ a modification of the test described by Wiener and Hurst (*Exper. Med. & Surg.*, 5:284, 1947) using testing serum high in blocking antibodies

(hyper-immune serum) with 25 per cent human albumin (20 per cent bovine albumin is equally satisfactory). Early-immune sera are fragile, but hyper-immune sera are more stable, are more easily obtained, and may be used conveniently either in the tube (with albumin) or on the slide.

The Production and Proper Use of Rh Typing Reagents^{*}

LOUIS K. DIAMOND, M.D.

Infants' and Children's Hospitals, Boston; the Department of Pediatrics, Harvard Medical School; and the Blood Grouping Laboratory of Boston, Inc.

A SHORT time after its discovery in 1941, it became evident that the new Rh blood type was of clinical importance in transfusion of the Rh-negative individual—man, woman, or child—and sometimes in the pregnancy of an Rh-negative woman. It therefore became desirable to carry out Rh typing both on the recipient and on the donor of the blood transfusion and on prenatal specimens from obstretical patients. From the onset, there was difficulty in procuring a suitable Rh typing reagent and in obtaining clear-cut agglutination with it. Animal sera were found to give results which were often difficult for the beginner to interpret correctly. Human sera were more satisfactory, but obtaining them depended almost entirely on identifying Rh-negative women sensitized through pregnancy with Rh-positive infants, and such patients are relatively scarce. In addition, it was found that these sera were not always sufficiently high-titered to give clear-cut results. What was even more puzzling, many such women produced sera which failed to agglutinate Rh-positive cells suspended in saline solution. It became necessary, therefore, to investigate the reasons for such difficulties in technique and to learn and describe proper methods of Rh typing using the sera avail-

able at the time and thereafter. It was even more important to produce large amounts of Rh typing reagent, particularly during the war when the armed forces required such serum in performing whole blood transfusion as an emergency as well as a standard therapeutic measure.

In 1943, under a contract from the Office of Scientific Research and Development of the National Research Council, these problems were undertaken by our laboratory, and in the last two years the work has been continued with support in part from the U. S. Public Health Service.

The sensitization of an Rh-negative individual to the Rh factor, either through blood injection or through pregnancy, in the case of the woman who bears Rh-positive children, results in two types of antibody. First, an agglutinin that acts on red blood cells suspended in saline as well as in natural media (plasma and serum). Then with continued pregnancies or sensitization through large transfusions or multiple transfusions, the production of an antibody which fails to act on saline-suspended red cells but agglutinates, with varying speed, Rh-positive cells suspended in plasma, serum, or fractions of these, of which the most satisfactory has been albumin. We have called the first the early-immune antibody, the second the hyper-immune antibody.

The standard techniques can be described under the following terms: (1)

^{*} This study was supported in part by a research grant from the U. S. Public Health Service.

Presented before the Laboratory Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 9, 1947.

slide test, using either oxalated blood or finger blood, (2) tube incubation test, (3) capillary tube test (Chown). These are illustrated in Chart 1.

The tube incubation test was the first used and the most successful, according to the original method of Levine and of Landsteiner and Wiener. Using the weak animal sera and the relatively weak human sera available in 1941, this was the necessary technique for such testing, since 37° C. incubation for an hour and then centrifugation was the only certain method of producing agglutination of Rh-positive cells by these somewhat impotent antibodies. In subsequent years, as more and more powerful human sera became available, the length of time of incubation could be shortened, and most recently most sera will produce agglutination within 10 or 15 minutes, even without incubation.

The capillary tube test, as developed by Chown, was most satisfactory in that it permitted incubation for ½ hour or more in a very narrow tube and was

particularly saving of serum. Instead of 20 tests possible from one ml. of serum, the Chown capillary tube method permits about 100. It also is fairly easy to read and does not require equipment of the expensive variety such as water baths or centrifuges.

The slide test method, using either oxalated whole blood or blood taken directly from a finger prick, is done relatively easily and most rapidly if the serum is sufficiently potent and avid to give macroscopic agglutination of Rh-positive blood within 2 to 3 minutes.

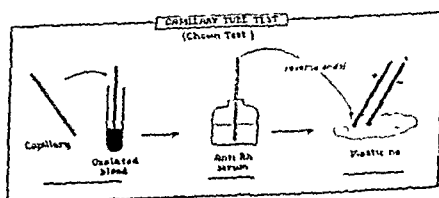
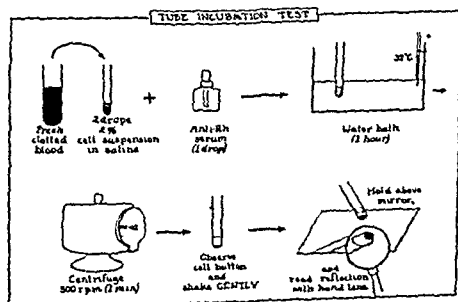
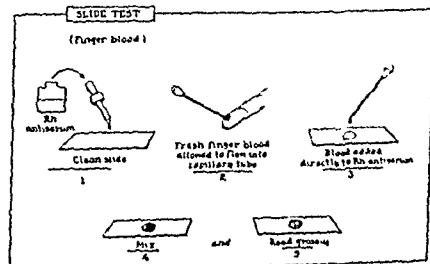
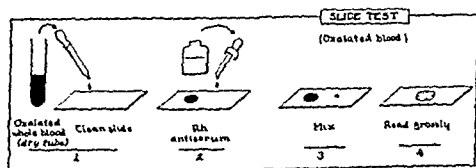
The slide test technique has been the most satisfactory in most instances, because of its speed and ease of reading even for the inexperienced technician. In addition, slide testing serum is more abundant and more stable.

Some of the errors that have made Rh typing unreliable are, first, the use of weak sera obtained either from animal or human sources, which fail to produce agglutination of Rh-positive cells even when fresh, without prolonged incuba-

FIGURE 1

Rh SENSITIZATION

Tests for Rh Antigens



tion. Too vigorous shaking of the clumped cells after standing or after centrifugation, with such weak sera, often breaks up the clumps into such small masses that they are not visible macroscopically or may be overlooked even microscopically because of the small agglutinates. It is important, therefore, to have a potent serum and not to shake the tube too vigorously before reading. The next error results from the use of a hyper-immune or "blocking" serum or a serum containing both the hyper-immune and the early immune types, which will fail to give satisfactory agglutination of saline-suspended red cells. In general, it is always safer to use red cells suspended in their own serum or in plasma or, if obtainable, in albumin, and perform these tests with potent serum using either a 2 per cent concentration of cells for test tube tests or a 40–50 per cent suspension of cells for the slide test. In the use of the slide test, it is advisable to have an Rh-negative control specimen since too long a period of observation, particularly with a slow serum, may lead to drying and rouleaux formation that is mistaken for positive agglutination. One should read as positive only the cells that show clear-cut, gross agglutination, within 3 minutes or less, before the slide preparation has begun to dry.

Another important consideration in the proper use of Rh typing reagents is the knowledge that individuals having the rare sub-types Rh' or Rh" (in the English nomenclature, C and E) are just as likely to develop sensitization to the common Rh blood type, Rh₀ (or in the English nomenclature, D), as are Rh-negative persons. For transfusion purposes, therefore, it is important to test the recipients of blood and women undergoing prenatal tests with an anti-Rh₀ or anti-D or so-called "standard" Rh typing reagent. Anyone negative to this reagent is susceptible

of sensitization to this common factor which is present in 85 per cent of the white population.

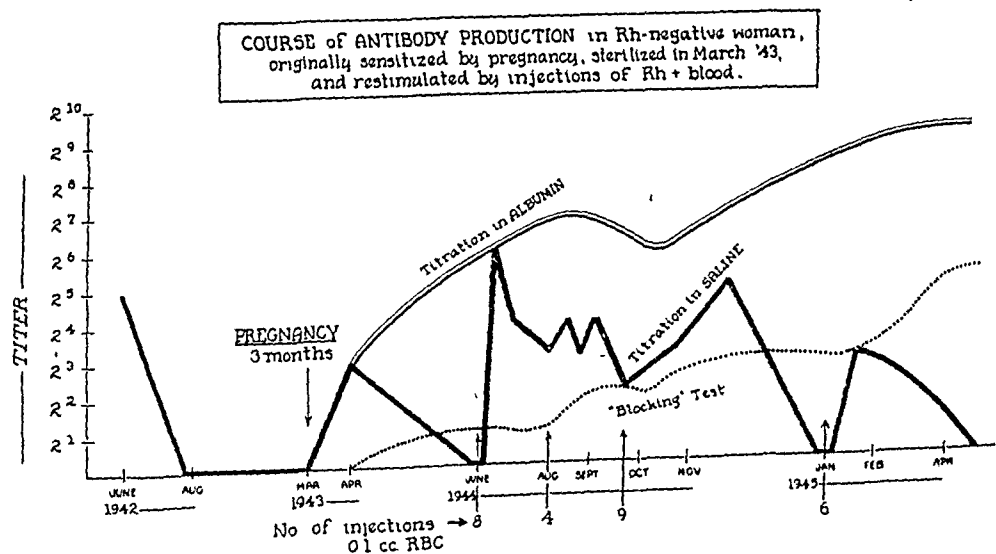
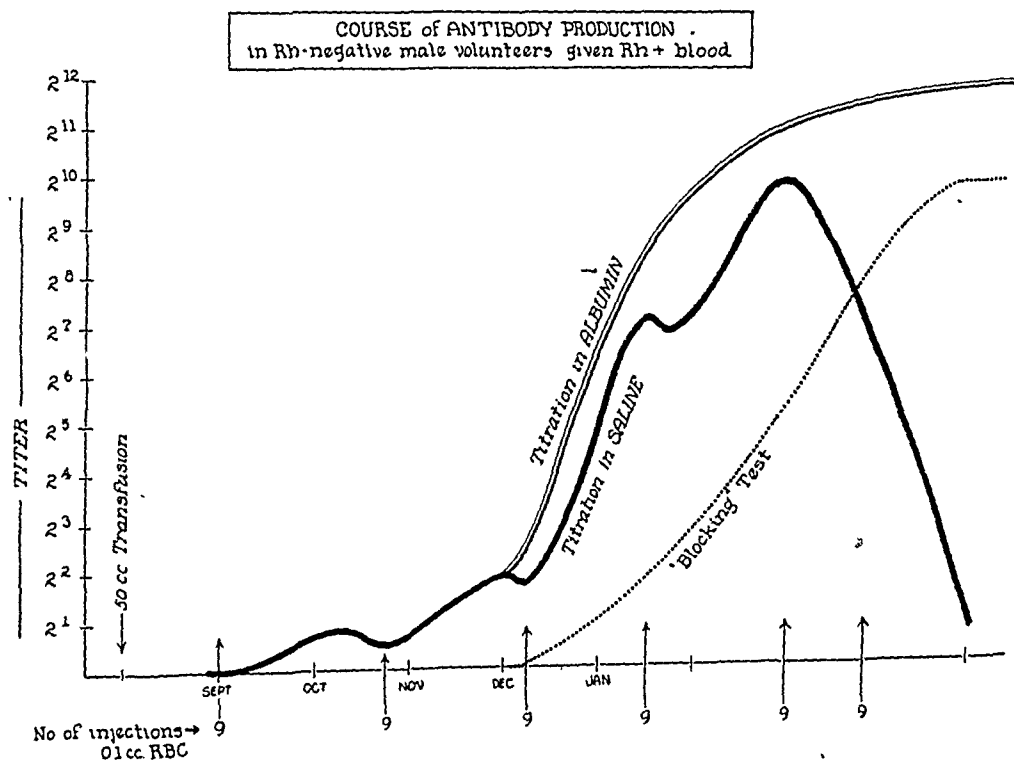
Although it is difficult to sensitize an Rh₀ individual who lacks the Rh' or Rh" sub-types to these rare types (and statistically the chances of doing so are very small), such a difficulty may become important in the women with obstetrical complications. For this reason it has become the practice in many hospitals and blood banks to use an 87 per cent serum, or if possible all three Rh typing reagents on donors of blood transfusions and on the husbands of Rh-negative women. Since a serum containing the anti-C and anti-D factors (the 87 per cent serum) is much more common and more easily obtainable, whereas the Rh' or E factor is relatively rare (<0.2 per cent), the anti-C and D serum has become the standard for use in blood banks on donors' blood specimens. In an effort to determine the need for such a routine, several thousand cases of Rh sensitization were reviewed. In no case was there any evidence that the injection of a C-positive or E-positive blood sample without the D factor produced sensitization in an Rh-negative individual. On the other hand, any number of cases were encountered in which because an 87 per cent serum had been used and a person identified as Rh-positive when actually she (in most cases this occurred in women patients) was negative to the D factor—the most common and most important of these—Rh sensitization occurred because such a D-negative person was then given Rh-positive blood containing the D factor. It therefore seems, from a practical standpoint, that it would be much wiser to use only an 85 per cent anti-D serum in all obstetrical clinics and possibly in all blood banks. This does not mean that the more inclusive sera, and in fact several different sera, having specificities anti-C, anti-D, anti-E, and anti-c and others if available,

should not be stored and used on special investigative problems in a laboratory equipped both by experience and by trained personnel to carry out such tests.

As to the production of Rh typing reagents, three sources of human serum

are available. First, the accidentally immunized man or woman who has a high-titered serum (in the case of the latter pregnancy being the most common cause for such sensitization); second, the woman who has been sensitized but has low titered antibodies but can be re-

FIGURE 2
Rh SENSITIZATION



stimulated to the production of more potent agglutinins; and third, volunteers, of proper blood type (chiefly Rh-negative, although Rh' and Rh'' subjects can also be used) who may be stimulated through injection of Rh-positive blood.

Because of our contact with large obstetrical services (the Blood Grouping Laboratory receives specimens from several hospitals having a combined delivery rate of about 15,000 babies per year), we have been fortunate in being able to obtain fairly frequent contributions from women who have had infants with erythroblastosis fetalis and have high-titered agglutinins at the end of gestation or shortly thereafter. Unfortunately, many of these women are handicapped by anemia, or debility following childbirth, or a combination of these factors, so that not too much blood may be taken at one time. More disturbing is the rather rapid fall in anti-Rh titer which tends to occur in most women within a few months after the end of gestation so that their blood does not remain valuable for too long a time.

It is therefore desirable to have a large panel of donors, either women* restimulated by suitable injections of Rh-positive blood or male subjects initially stimulated and later restimulated so that the useful Rh reagent may be obtained frequently and in sufficient volume.

Our method of stimulation is shown in Chart 2. The first represents the stimulation of volunteer Rh-negative male donors, the second of a female donor originally sensitized through three pregnancies.

An initial stimulation can be produced by as little as 50 ml. of whole blood given intravenously. Intramuscular or subcutaneous blood has not proved satisfactory.

The use of a cell-free Rh antigen would be ideal, but to date no uniformly satisfactory free source has been discovered by the many workers in this field, and therefore fresh Rh-positive cells remain the only satisfactory stimulus. They may be given in very minute amounts, to properly sensitize individuals, that is, as little as 0.1 to 0.2 ml. of blood. Larger amounts may be satisfactory, but we have observed disturbing chills, headache, pain in the back, and even fever in highly sensitized individuals from as little as 1 ml. of whole blood injected intravenously.

The production of the rarer typing sera, such as pure anti-Rh' (anti-C) and anti-Rh'' (anti-E) and the anti-Hr sera, has not been satisfactory to date, and as the source of these we are still dependent upon the identification of women sensitized by pregnancy with the specific incompatible factor. Here, again, we have been fortunate so that we have available fairly large amounts of the four most useful sera and very small amounts of the two remaining very rare sera.

As to the stabilization of the Rh typing reagents, which tend to deteriorate rapidly *in vitro*, it is obvious that bacterial contamination must be carefully avoided. Unfortunately, the usual bacteriostatic or antibacterial agents, such as acroflavin, the mercurials, and various dyes, cause relatively rapid deterioration of the Rh typing reagent. The early-immune or saline agglutinins are more easily affected than the hyper-immune or albumin forms. It has been necessary, therefore, to avoid such bacteriostatic agents in Rh serum. Refrigeration is necessary for the saline agglutinins though not so important for the hyper-immune forms which are heat-stable. The latter can often be kept at room temperature for long periods without much loss of potency.

Finally, it has been an unfortunate practice in many laboratories dispensing

* All such women, subjected to restimulation, should be either beyond the childbearing age or have been sterilized for reasons of health, to avoid harm to future gestations.

these reagents, to dilute them as much as possible, in a natural desire to make a small amount of potent material go as far as possible. This has increased the rate of deterioration almost in direct proportion to the amount of dilution.

As shown in 1944 by Cameron and Diamond, the addition of plasma or serum or, still better, albumin, not only improves the avidity and titer of Rh typing reagents and probably other blood grouping sera, but also stabilizes them by reducing the rate of deterioration. It has become our practice, therefore, to add albumin to all such reagents. This material is preferable to serum and plasma because both of the latter may cause disturbing rouleaux formation, which is not found when albumin is used. A mixture of albumin and serum in the proportion roughly of about 1:1 may help conserve the rather expensive fraction of blood. However, it is important in such instances to use only AB serum or plasma. Bovine albumin is cheaper and just as satisfactory as human albumin.

By the addition of bovine albumin, sera with high titers may be diluted to conserve the reagent and yet avoid rapid deterioration through lowering of the protein content.

Our present method of preparing these Rh reagents is to stimulate the production of high-titered anti-Rh serum by proper injection of Rh-positive cells into Rh-negative sensitized men or women. After bleeding at the most suitable time (often with replacement transfusion in order to prevent depletion of the donor, and allow re-bleeding sooner), the serum is separated sterilely. Quite often, additional Rh typing reagent can be obtained by washing the clot with saline or with a saline and albumin mixture, and allowing settling for 24 hours in the refrigerator. Such sera are then titrated and diluted or fortified to the titer and avidity recently advised by the National Institute of Health.

Thirty per cent bovine albumin is added to the serum during the final dilution, so that the end product has an albumin content of no less than 20 per cent. This permits not only better storage and diminished rate of deterioration, but may increase the avidity of the reagent. The serum may then be stored at 4° C., although refrigeration at -10° and lyophilization or drying in vacuum may be a better method of preservation. To date, we have used only storage at ordinary refrigerator temperature (4° C.) and the sera have shown satisfactory activity many months after first production.

One additional important step is the neutralization of the natural anti-A and/or anti-B isoagglutinin if the donor belongs to Group O, A, or B. This often presents a real problem. To date, we have used chiefly Witebsky's AB substances as prepared first by Eli Lilly and Company and more recently by Sharp and Dohme Laboratories. Proper preparation of saliva from secretor individuals of the proper group may also give suitable AB soluble substances to neutralize such sera. Finally, blood cells themselves may be used, as for example, Group A cells added to the Rh serum of a Group B individual until neutralization of all the anti-B isoagglutinins has been achieved. This is a more difficult and troublesome procedure than the addition of the soluble substances. Complete neutralization must be verified by control tests with Group A and Group B, Rh-negative cells, and such tests must be repeated at frequent intervals, since neutralization does not always seem to be a stable process, particularly where the AB soluble substances have been so used.

DISCUSSION AND SUMMARY

1. In the past five years Rh typing has been recognized as an important and a practical laboratory test. The Blood Grouping Laboratory of Boston has grown at a phenomenal rate since its formation in 1942. Similar labo-

ratories, in hospitals, under the sponsorship of city, county, or state medical groups have been organized all over the country. In fact, it has become an accepted public health responsibility in many states to type all women prenatally, in an effort to protect the Rh-negative individuals from sensitization to the Rh factor, should blood transfusion be necessary during pregnancy or in the puerperium. Certainly such protection, so easily performed, by typing specimens referred to the state laboratory for routine and required serological test of prenatal patients, offers great protection to the individual. In addition, the Rh-negative woman, being so identified, may be watched more carefully by her obstetrician and with suitable testing of the husband and of the patient's blood, particularly in the second or later pregnancy, earlier detection of Rh antibodies may help avoid some of the catastrophes occurring at term to infants with erythroblastosis fetalis. Finally, since large numbers of men, women, and children at some time or other have a serologic test performed in state laboratories, would it not be a simple and protective measure to carry out blood grouping and Rh typing on all such specimens? Through this, the individual, knowing his or her own blood type and Rh factor may help the physician to avoid improper transfusion or blood injection which in so many instances has led to serious transfusion accidents, and in pregnancy cases, to serious harm to infants of sensitized mothers. For all these purposes, the proper use and the increased production of Rh typing reagents are a necessity. Further work is necessary in

order to offer the fullest protection to everyone.

2. The proper use of anti-Rh sera requires that the tests be performed on relatively fresh cells, that certain precautions in technique be observed, that sera for test tube testing on saline-suspended red cells be recognized as different from sera containing the hyper-immune component acting only on cells suspended in plasma, serum, or other protein media, such as albumin. The slide test has proved one of the most satisfactory and most rapid methods of Rh typing. To avoid errors it is advisable that controls be set up, such as known Rh-positive and Rh-negative cells, which can be tested in the laboratory at regular intervals. Under these circumstances, a minimum of errors may be expected.

3. Rh typing reagents, particularly of the standard types, that is, anti-D and anti-C + D, can be obtained from recipients of blood transfusion and from women who have been sensitized through pregnancy. They can be produced in larger quantities by immunizing experimental subjects and by restimulating men and women accidentally sensitized. This is done by injection of the right type and the right amount of Rh-positive blood at suitable intervals. Such sera must then be carefully neutralized to remove their normal isohemagglutinins, diluted to the proper point for required avidity and titer, and stabilized by the use of plasma, serum, or, still better, albumin. For the latter purpose, bovine albumin has been found most satisfactory and cheapest.

Human Waste Disposal from Railroad Passenger Cars*

ABEL WOLMAN, DR. ENG., F.A.P.H.A., AND
LLOYD K. CLARK, F.A.P.H.A.

*Professor of Sanitary Engineering, The Johns Hopkins University, and Consultant
Director, Sanitation Research Project, Association of American Railroads;
and Project Manager, Sanitation Research Project, Association of
American Railroads, Baltimore, Md.*

THE distinguished Professor William T. Sedgwick said in an address¹ before the New England Railroad Club in Boston on November 14, 1899:

I have felt for a good while that we must have . . . some better method of taking care of the excrement . . . of people who are traveling by rail. . . . the present arrangement is unsanitary I confess that I do not today see a . . . practicable remedy. . . . but I believe that the scattering of germs . . . is a serious thing, and sooner or later it has got to be stopped.

At this same meeting, Dr. Samuel H. Durgin,² a past President of the American Public Health Association and at that time Chairman of the Boston Board of Health, remarked that the A.P.H.A. had appointed a committee to submit the best and latest notions for railroad car sanitation to the Association for transmittal to the railroad managements.

Dr. Kenneth F. Maxcy, in a recent report,³ discloses that in 1903 Dr. P. B. Barringer of Charlottesville, Va., in a paper⁴ presented before the Virginia Medical Society meeting, expressed the opinion that infected roadbeds were an unsuspected source in the spread of typhoid fever. He estimated that there were over 370 cases of typhoid traveling over each mile of road in the United

States each year. On this basis he believed that the old roadbeds were permanently infected because the cool moist soil under the ties and ballast provided a natural cultural medium to sustain, forever, the typhoid bacillus dropped in the excrement from persons infected with typhoid fever.

Dr. Barringer's plausible hypothesis apparently received wide acceptance among the sanitarians of his day, despite the lack of convincing evidence. Although some investigators expressed doubt as to its validity, the existence of a sanitary problem was generally recognized.

One of the earliest real issues in which contamination from passenger trains was brought sharply into focus arose in Seattle, Wash.⁵ In 1906 the Chicago, Milwaukee and Puget Sound Railway Company applied to the City Council of Seattle for a franchise to build and operate a railway line along the Cedar River, the source of water supply for Seattle. The City Council was preparing to deed the necessary right-of-way to the railroad company when a storm of protests arose from the local populace, and the mayor was restrained by court action from signing the deeds. The residents believed that the railroad passengers could unduly pollute their drinking water supply.

After preliminary charges were heard, a joint committee was formed to repre-

* Presented before the Engineering Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 8, 1947.

sent all aggrieved parties. Following the report of the joint committee, an ordinance was passed permitting the railroad to be constructed as originally petitioned and regulations were placed in force to control all sources of pollution in the watershed including the railroad.

George C. Whipple⁶ was one of the first to call attention to another important health aspect peculiar to railroad transportation. In his text on "Typhoid Fever" published in 1908, he said: "In some places trains . . . are compelled to have their doors locked. While this prevents contamination of the roadbed, the continual damage to the health and comfort of passengers by reason of deprivation of toilet privileges might easily be a . . . serious matter. . . ."

In spite of these early strictures, however, improvements in railway sanitary devices found their place primarily in regulations concerning them rather than in actual installations. According to Crowder,⁷ the *Interstate Quarantine Regulations* passed in 1894 dealt briefly with disinfection of wastes from sick persons. This was followed by regulatory action by individual states starting with Texas in 1904. The state laws subsequently passed were without interstate coördination, so that one state required what a neighbor state specifically prohibited.

The period from 1912 to 1920 saw many attempts among health agencies to bring about coördinated regulations which were agreeable to all concerned.⁷⁻⁹ Finally a *Standard Railway Sanitary Code* was evolved from the regulations drawn up by the Director General of the railroads during World War I. This code was approved by the Conference of State and Provincial Health Officers of North America and in 1921 the *Code* and the *Interstate Quarantine Regulations* were brought into agreement with each other. During the same year the *Code* was approved by the American Railway Association.¹⁰

The *Sanitation Manual for Land and Air Conveyances Operating in Interstate Traffic* was promulgated by the U. S. Public Health Service on October 2, 1942.¹¹ The *Sanitation Manual* was an enlargement of the *Interstate Quarantine Regulations* of 1921. Finally, the latest revisions of the *Interstate Quarantine Regulations* were published on May 16, 1947.¹²

The many sanitary codes that have been prepared obviously deal with phases of railroad sanitation other than the subject of human waste disposal. All the material reviewed, however, is distinguished by the assumption, unsupported by any epidemiological data, that the discharge of raw feces and urine to the railway roadbeds constitutes a health menace and may spread disease. Dr. W. C. Rucker, then Assistant Surgeon General of the U. S. Public Health Service, was one of the first, and apparently the only person until recently, who publicly questioned this universally accepted hazard. Speaking before a meeting of the Chicago Medical Society in 1914,¹³ he said: "From an aesthetic point of view, the practice (track pollution by interstate carriers) is reprehensible, yet no one has brought forward indisputable evidence that disease is, or may be, generally spread in this way." "Track pollution is undoubtedly a dangerous practice under certain circumstances, and watersheds should always be protected from pollution; however, the knowledge which we have at hand does not indicate that all track pollution results in human disease. What we require first is exact knowledge of the amount of disease spread by track pollution. . . ." "Having that, it will be easy enough to put control measures in operation."

I. JOINT COMMITTEE ON RAILWAY SANITATION, ASSOCIATION OF AMERICAN RAILROADS

The developments which led to the

adoption of the *Standard Railway Sanitary Code* were followed with keen interest by the railroads. Individual lines through their medical departments cooperated whenever possible in the preparation of the regulations. Experience in the building of the railroads had demonstrated the need for sanitary control in railroad operation.¹⁴⁻¹⁸ Indeed, railroads frequently led the way in applied preventive measures, as evidenced by one southwestern railway which inaugurated a comprehensive malaria control program in 1917.¹⁹

The first joint action on the part of the railroads was the appointment in 1921 of a special committee on sanitary matters to consider recommendations of the Public Health Service that ice be separated from the drinking water in the car water dispensers. From this beginning, the committee handled other problems on drinking water supplies, and in 1922 a Joint Committee on Drinking Water Supplies was formally organized. The scope of the activities of the Joint Committee soon enlarged and in 1928 it was redesignated as the Joint Committee on Railway Sanitation. The Joint Committee was made up of representatives of the Medical and Surgical Section and of the Mechanical Division and the Engineering Division of the Association of American Railroads. In addition, representatives were invited from the U. S. Public Health Service and the Department of Health and National Welfare of the Dominion of Canada. The Joint Committee published its first report on railway sanitation²⁰ in 1931, following it later with a supplemental report.²¹

II. REGULATIONS GOVERNING HUMAN WASTE DISPOSAL

Regulations governing the disposal of human wastes from railroad passengers have not changed much over the years. At least as early as 1888, local ordinances required the locking of toilet

room doors in stations and coach yards and while passing through cities and watersheds of drinking water supplies. More recently these restrictions were liberalized to permit the door to remain open upon the condition that retention tanks or soil cans were provided or that the hoppers were directly connected to the sewer.

In the *Sanitation Manual* for 1942 the Public Health Service expressed the belief that the ultimate solution of the problem of sewage disposal on railroad cars would be the permanent installation of retention tanks on the cars to receive the flushings from the toilet hoppers. These tanks would be emptied as necessary when the cars were being serviced in the coach yards, by connection to sewer system inlets. Recognizing the many difficulties involved in such an arrangement, the Service recommended to the Association of American Railroads that the carriers work toward such a goal by experimental and engineering study.

The Joint Committee on Railway Sanitation was of the opinion that the use of retention tanks was open to serious question, especially in view of the mechanical difficulties and the space limitations on the cars. Therefore, the committee proposed a program of research and investigation into the entire problem to find the most suitable means for handling and disposing of sewage wastes. The program was approved by the Association, but action was withheld during the war until January, 1946, when the Consultant Director was retained under whom the work was organized and subsequently directed, personnel was procured, and office and laboratory facilities provided.

III. RAIL CARRIERS AND THE SPREAD OF DISEASE

The first question confronting the Project investigators was the same question posed by Dr. Rucker in 1914;

namely, to what extent have the rail carriers been responsible for the spread of disease? Since the literature discloses virtually no exact data on the subject, Dr. Kenneth F. Maxcy, Epidemiologist, was retained to review all the pertinent evidence and to report upon his findings and conclusions. Aside from the public health implications, some quantitative indication of risk was essential as a basis for further investigation of corrective procedures and devices.

In his study,³ Maxcy reasoned that "if the disposal of sewage along railways has been a public health menace, this fact should be indicated by the unusual incidence of typhoid fever from about 1900 up to about 1920 among persons particularly exposed to this source of infection, (1) by reason of location and residence in proximity to tracks and terminals, (2) by reason of being employed in work on railways, or (3) by reason of being consumers of a water supply which might be polluted by railways at some point in collection or distribution."

With this premise and despite an exhaustive survey, Maxcy was unable to discover convincing evidence that wastes from railroad passengers caused an outbreak of typhoid fever among persons in the three classifications mentioned above for the period 1900-1921. A study of the literature from 1920 to 1945 on all recorded enteric disease outbreaks failed, furthermore, to incriminate sewage wastes from passenger trains. Maxcy's report concludes that "It can be stated with reasonable assurance that information at present available fails to establish the existence of a public health menace resulting from the method of disposal of fecal wastes employed by railways. This by no means proves the negative—that such a menace does not exist. It is reasonable to assume, however, that this practice has in the past been a relatively unimportant route of dissemination of the pathogenic organ-

isms which cause the commonly recognized enteric infections."

It is an interesting commentary on this whole problem that neither the public health agencies nor the railroads had ever authoritatively canvassed this basic hypothesis upon which virtually all the codes and regulations rested. A similar dearth of data on the habits of railroad passengers, data essential to the development of any corrective, parallels the same half century of debate.

IV. STUDY OF EXISTING PATENTS

Inquiries directed to railroads in the United States and Canada, to foreign railways, and to American railroad car builders, disclosed that only one company²² had considered improved methods for human waste disposal to the extent that models were prepared and placed in test. The devices, considered impracticable, did not progress beyond the experimental stage.

When the search turned to the Patent Office, however, this particular field was found to be thoroughly exploited.²³ Inventors have been busy designing new hoppers and methods of treatment and retention almost since passenger trains began running. The patents now in effect may be generally classified as providing for (a) a means for holding the wastes to prevent discharge in stations, (b) disinfection by electrical or steam heaters or by chemicals with and without prior comminution of solids, and (c) incineration of solid materials.

V. INVESTIGATION OF PRESENT DISPOSAL PRACTICES

It was evident early in the Project that development work could not proceed intelligently without a thorough knowledge of existing conditions on toilet use. Careful search revealed that these conditions had never been ascertained previously. The habits of the railroad passenger in the use of toilets and the nature and quantity of the toilet

wastes therefore required detailed field study.

The first investigation,²¹ in 1946, was confined to coach passengers. A similar investigation is now being completed on sleeping cars and overnight coaches on long-distance schedules and on passenger coaches in branch-line use.

The first study was conducted on the cars and trains of the Pennsylvania Railroad. A standard passenger coach was used in the New York-to-Washington schedule during daylight hours, and in the Pittsburgh-to-Washington schedule on an overnight run. A passenger coach with reclining seats was used on the overnight run from Chicago to Washington.

Data were obtained on a total of 30 separate runs. The toilet habits of more than 2,000 persons were studied

while they were traveling a total of 6,251 passenger-hours over a total distance of 320,000 passenger miles.

The men's and women's toilets in each coach were equipped with recording apparatus (Figure 1) which included: (1) a counter to register each opening of the toilet room door; (2) a water meter inserted in the water line to the toilet hopper; and (3) a flush recorder actuated by a mercury switch attached to the flush lever. The flush recorder operated with a chart which showed the individual flush and the length of time the flush lever was depressed. Male and female passengers were counted and recorded on each run after every major station stop. Entries to and exits from the toilets were observed and recorded.

Each test car was equipped with a

FIGURE 1—Arrangement of Equipment on Test Cars

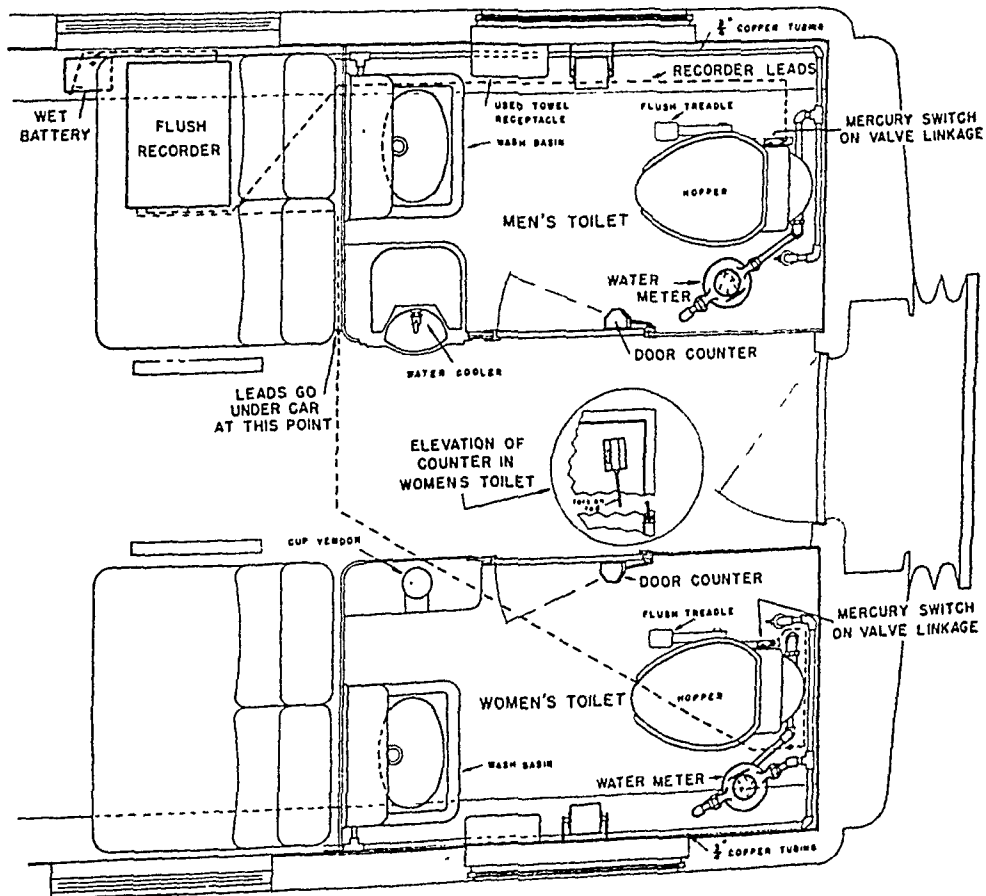


FIGURE 2—Retention Tank Installed in Test Car No. 4241



retention tank to receive all of the material flushed from the toilet hoppers (Figure 2). The retention tank was removed at the end of each run, its contents passed through a grinding mechanism, and an aliquot portion of the macerated material was removed for analysis for solids content.

A. Toilet Room Occupancy

The data obtained on toilet room occupancy (Table 1) on the Pennsylvania Railroad coaches reveal that on the average, the women's room was entered once for every 6.8 passenger-hours. The men's room was entered more frequently—once for every 4.9 passenger-hours. The duration of occupancy for both sexes varied from 1 to 26 minutes, while

TABLE 1
Summary of Occupancy Results

Schedule	Male			Female		
	Average Entries per Hour	Passenger-Hours per Entry	Average Occupancy, Minutes	Average Entries per Hour	Passenger-Hours per Entry	Average Occupancy, Minutes
New York-Washington	6.5	5.2	7.8	3.9	6.2	3.5
Pittsburgh-Washington	3.4	7.5	3.4	1.9	10.9	3.3
Chicago-Washington	4.4	4.0	3.2	2.0	6.1	5.5
Average	4.8	4.9	2.9*	2.6	6.8	3.5*
Combined Male and Female Average, all schedules						
	Average Entries per Hour			3.7		
	Passenger-Hours per Entry			5.6		
	Average Occupancy, Minutes †			3.1		

* New York-Washington and Pittsburgh-Washington Schedules only.

† Based on total for all schedules.

TABLE 2
Average Number of Passenger-Hours per Flush

Schedule	Passenger-Hours		Flushes Recorded		Average Number Passenger-Hours per Flush	
	Male	Female	Male	Female	Male	Female
New York-Washington	1,196.0	757.3	119	68	10.1	11.1
Pittsburgh-Washington	875.0	512.9	52	24	16.8	21.4
Chicago-Washington	1,705.0	1,215.0	259	179	6.6	6.8
Totals	3,776.0	2,485.2	430	271	...	...
Averages	.....	.....	...	...	8.8	9.2
Combined Totals	6,261.0		701		...	
Combined Averages	.....		...		8.9	

the average was approximately 3 minutes.

The toilet rooms on trains in transcontinental service were occupied more frequently. There was an entry for every 3.5 passenger-hours for both sexes.

For all of the toilet rooms studied the average entry occurred every 11 minutes. The individual passenger entered once every 4 hours.

B. Flushing of the Hopper

Hoppers in the shorter scheduled trains were flushed 701 times in the 30 runs that were studied. This is an average for male and female combined of 8.9 passenger-hours per

flush (Table 2). So far, 6,354 flushes have been recorded on the transcontinental trains—an average of 3.5 passenger-hours per flush.

The duration of the flush—i.e., the length of time the flush lever is depressed—was found to average 3 seconds for all schedules for both sexes.

The interval between flushes for the short schedules was about 27 minutes. Nearly 50 per cent of all intervals between flushes were less than 15 minutes (Figure 3). Ten per cent were greater than 60 minutes.

Only about one-half of the short distance passengers flushed the hopper after entering the toilet room.

FIGURE 3

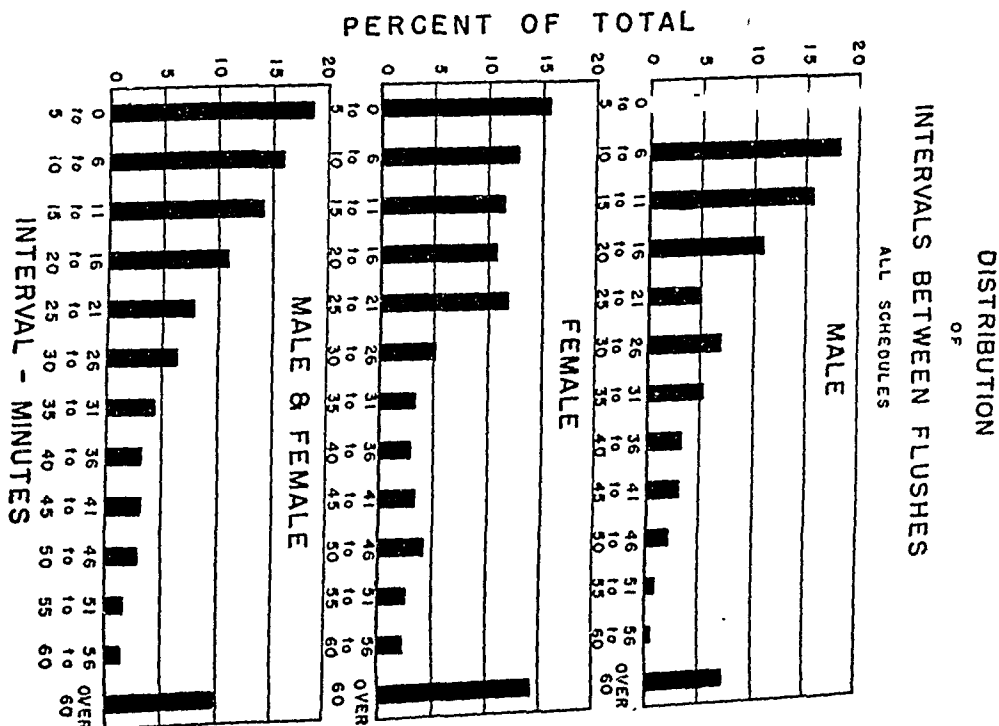


TABLE 3
Contents of Solids in Various Discharges—Averages for All Runs

Sex	Insoluble Solids						Soluble Solids						Total	
	Volatile			Non-Volatile			Volatile			Non-Volatile			Total Volatile Solids	Total Non-Volatile Solids
	p.p.m.	%		p.p.m.	%		p.p.m.	%		p.p.m.	%		p.p.m.	%
Male—Average	3,107	31		723	7		3,838	39		3,136	32		6,251	63
Female - Average	3,234	35		382	4		3,614	39		2,805	31		6,030	66
Combined Male and Female														
Over-all Average	3,158	33		586	6		3,749	39		3,003	31		6,166	64
Over-all Maximum	6,840			1,600			7,400			10,460			17,300	
Over-all Minimum	1,430			0			1,410			67			1,551	
													839	
													21,880	
													2,390	

C. Water Consumption

The quantity of water drawn through the toilet hoppers was less than had been anticipated. An average of only 8 gallons of flushing water was consumed by the test coach in the New York-to-Washington and the Pittsburgh-to-Washington schedules. About 25 gal. were consumed by both sexes from Chicago to Washington. An average of 120 gal. was metered for the overnight coach operating between Chicago and Los Angeles, while the Chicago-to-Portland run averaged about 220 gal.

Although the shorter schedules gave an average of 1.5 quarts of water per flush, as compared with about 1.0 qt. per flush for the cross-country trips, the per-passenger-hour consumption favored the long distance traveler by nearly three to one (0.4 qt. per passenger-hour as compared to 0.15 qt. per passenger-hour). These figures vary widely, however, depending upon the type of flushing valve and the flushing action employed.

D. Nature of Wastes

To determine the nature of the wastes, 1 gal. samples of the captured material, after maceration, were delivered to the National Institute of Health at Bethesda, Md., where solids determinations were made on multiple samples from each of three separate schedules. Two representative samples were delivered to the Blue Plains Sewage Treatment Plant at Washington, D. C., for determination of the Biochemical Oxygen Demand.

Total solids were found to average about 10,000 p.p.m., of which about 60 per cent were soluble solids. There was little variation between sexes. Detailed data are shown in Table 3.

The average of the results of the tests for B.O.D. was found to be 2,100 p.p.m., or a strength of sewage roughly 9 times that of ordinary domestic sewage.

In addition to the normal constituents of the sewage, the nature and number of foreign objects were determined by examining the contents of the retention tanks at the conclusion of each run. The foreign objects consisted of one man's handkerchief, a miniature whiskey bottle, heads of two brass screws, and miscellaneous cigarette and cigar butts, cigarette packages, cigar wrappers, chewing gum, and orange peels.

Interrogation of the servicing personnel in the coach yards revealed that frequent hopper stoppages by foreign objects can be expected. In order to obtain more information on the subject, therefore, a questionnaire was sent to representative railroads throughout the coun-

try. The replies from twenty-nine railroads revealed no fewer than 58 different kinds of objects causing hopper shortages ranging from radiator caps to human fetuses. These objects were classified into the following categories:

Cloth Objects	Bottles and Jars
Wearing Apparel	Tin Cans and Containers
Leather Articles	Food
Paper and Cardboard	Miscellaneous

E. Quantities of Wastes Discharged

Having determined the content of solids in the toilet wastes and knowing the quantities of water used, the total amount of sewage solids deposited from the test cars to the right-of-way has been calculated.

For the combined total of 701 flushes there was an average weight of sewage solids per flush of 0.026 lb. dry weight (Table 4).

The total sewage solids deposited from the test cars to the roadbed per average hour were 0.121 lb. dry weight. The overall average of total wastes contributed per 100 passenger-hours was 0.258 lb. dry weight.

On the average the test coaches deposited approximately 0.00235 lb. dry weight per mile of track for a single run. Assuming the coach to make one run daily throughout the year, the average yearly deposition per mile of track from a single coach amounts to 0.858 lb. dry

weight. The New York-to-Washington schedule gave results about 3 times greater than this average, due, no doubt, to the crowding of coaches on these trains.

Assuming that the values for the solids content are representative of all toilet wastes from railroad cars, it is interesting to compute what will be the total weight of sewage solids deposited throughout the country from all railroad passengers. Passenger coaches traveling approximately 1 billion miles per year²⁶ at an average speed of 35 miles per hour²⁷ will thus release annually about 3,460,000 lb. dry weight of sewage solids. Spread over 160,000 miles of track in passenger traffic,²⁷ this quantity averages about 0.20 oz. dry weight per yard for coach passengers. Assuming that 65 per cent of all passenger-miles are traveled in coaches,²⁸ the final estimate becomes 0.302 oz. dry weight per yard of track per year.

F. Field Inspection

The quantity of sewage wastes deposited on the roadbed on a country-wide basis seems to be almost insignificant. It is realized, of course, that a great deal of the passenger traffic is confined to specific sections of track. For instance, the Pennsylvania Railroad reports that during 1946 passenger coaches traveled a total of 78,628,188 miles between

TABLE 4

Toilet Wastes per Flush in Pounds *

Schedule	Insoluble Solids		Soluble Solids		Total Solids	
	Dry Weight	Wet Basis	Dry Weight	Wet Basis	Dry Weight	Wet Basis
New York-Washington.						
Male	0.015	0.106				
Female	0.013	0.093	0.027	0.197	0.042	0.303
Weighted Average	0.014	0.101	0.026	0.188	0.039	0.281
			0.027	0.194	0.041	0.295
Pittsburgh-Washington						
Male	0.013	0.090				
Female	0.008	0.058	0.023	0.166	0.036	0.256
Weighted Average	0.011	0.077	0.010	0.074	0.018	0.132
			0.018	0.128	0.029	0.205
Chicago-Washington						
Male	0.009	0.064				
Female	0.013	0.096	0.008	0.059	0.017	0.123
Weighted Average	0.011	0.077	0.016	0.112	0.029	0.208
			0.011	0.082	0.022	0.159
Average of All Schedules						
Male	0.011	0.076	0.015	0.104	0.026	0.180
Female	0.012	0.087	0.016	0.114	0.028	0.201
Weighted Average	0.011	0.079	0.015	0.107	0.026	0.186

* The figure submitted by the National Institute of Health showed solids on the dry weight basis. When sewage solids are deposited to the roadbed in the normal course of operations, however, they contain a high percentage of moisture. Studies in the laboratory indicate that the solids of a representative toilet discharge including feces, urine, and toilet paper average about 86 per cent moisture. This figure was found to agree closely with the figures given by Keefer²⁵ of 77.2 per cent moisture for feces and 96.3 per cent urine, assuming equal weights of each distributed in one toilet use.

New York and Washington. This represents the heaviest through passenger traffic in the United States. At an average speed of 55 miles per hour,* sewage solids from this traffic will amount to about 0.7 lb. dry weight per yard per year. This figure may be increased by about 54 per cent²⁶ to account for other-passenger carrying cars, such as Pullmans, parlor cars, etc., so that the final quantity becomes 1.067 lb. dry weight per yard per year.

The calculated quantities of sewage solids discharged between Washington and New York indicate that at least a certain amount of recognizable feces should be found by actual inspection of the roadbed. Examinations of sections of Pennsylvania Railroad right-of-way on the north and south approaches to Baltimore revealed that on the average there were evidences of 13 discharges per mile containing recognizable fecal matter.

The extent of dispersion of the normal toilet flush from a moving train has been studied to some extent. Examination of the roadbed reveals that when a hopper is discharged at 60 miles per hour, the material will be spread out over a distance of 100 to 150 feet, and over a width of 10 to 12 feet at mid-distance. The fecal matter in the flush is usually confined to a much smaller area, being not more than 30 feet in length and 4 to 5 feet wide. Due to the train speed, the solid matter is usually found plastered against the exposed side of the ties which face the oncoming train.

Not all of the flushed material reaches the roadbed. As many car repairmen will testify, a goodly portion is thrown against the undercarriage of the car and on the steps if they are non-retractable.

G. Bacteriological Examination of Ballast

A limited bacteriological examination has been conducted on the ballast taken from the Pennsylvania Railroad trackways near Baltimore carrying heavy passenger traffic. Samples were taken from the surface of the ballast and from depths of 6 to 12 inches and examined for the presence of coliform organisms. Preliminary results show that 50 per cent of the surface ballast supported no coliform growth, while the remainder gave counts of approximately 4 coliform organisms per sq. cm. of surface area of stone. The subsurface ballast gave positive results for coliforms in all samples, 80 per cent of the samples showing counts of fewer than 50 per sq. cm. of surface area. This ballast has

been in service about 10 years according to the railroad authorities. Similar examination of five samples of new unused ballast gave all negative results.

VI. PRESENT STUDIES

Simultaneously with the study of the existing methods of toilet waste disposal and the use of toilet facilities, the Project has experimented on a great many treatment methods and devices. These efforts have been directed toward programs for comminution and disinfection.

Subdivision of particles was considered desirable not only to simplify the disinfection process, especially if disinfection is to be accomplished by heat, but also to convert feces, paper, and cloth articles into a sufficiently finely divided state to reduce visibility on controlled discharge at high train speeds. Such a device must be rugged because of metal and glass objects; it must be small and a low power-consumer. The search is continuing for the ideal grinder, but a commercial unit exhaustively tested in the laboratory has been installed on a hopper on a test car of the Pennsylvania Railroad operating between New York and Washington. So far it has proved satisfactory operating under summer conditions.

Extensive research has revealed that disinfection of macerated toilet wastes by heat is well within the realm of practicability. Much experimentation remains to be done on the preferred methods of applying the heat, but the source of heat is apparently sufficient when supplied either by electrical means or by steam, or by a combination of the two. These means are being employed in a test apparatus mounted on the Pennsylvania car carrying the grinder. Although sufficient data are not available at this time to warrant conclusions, it may be stated that a temperature not exceeding 160° F. and a holding time of not more than a few seconds will produce the desired negative coliform results.

* Based on P.R.R. timetables

Because of infrequent use the railroads might not feel justified in the purchase of treatment units for hoppers in coaches on branch lines. For such conditions consideration is being given to the development of a simple receptacle to hold all of the flushings until the terminal is reached, where receptacle and contents might be destroyed. For some conditions holding in stations may be all that is necessary. Certainly one cannot escape the conviction when traveling through the great unpopulated expanses in the West that discharge of human wastes, treated or raw, would have little effect on the local morbidity rates or on potential hazards.

The results of further laboratory and field studies will be released at intervals by the Project. In the meantime, direct consultation with public health agencies, professional groups, and others proceeds in order to correct, as rapidly as possible, aesthetic and public health hazards in the disposal of human wastes in railroad transportation.

ACKNOWLEDGMENT — The data presented herein have been obtained through the co-operation and assistance of the Pennsylvania Railroad, the Baltimore and Ohio Railroad, the Joint Committee on Railway Sanitation, and officers of the Association of American Railroads.

The detailed accumulation, calculation, and tabulation of the data in the studies on patents, toilet use, and nature of wastes, ballast and right-of-way deposits are primarily the accomplishments of the following members of the Sanitation Research Project: William A. Hazlett, Mechanical Engineer; Frederick G. Whelan, Electrical Engineer; Patrick N. Owens, Assistant Sanitary Engineer; and Ralph F. Vaccaro, Bacteriologist. The burden of typing, proofreading, and editing has been carried by F. Marie Ridley, Secretary, and Clara-Louise Kuehn, Laboratory Assistant.

REFERENCES

1. Sedgwick, W. T. Remarks on Railroad Sanitation. *Proc. N.E. RR. Club*, Nov. 14, 1899, p. 4.
2. Durgin, Samuel H. Car Sanitation. *Proc. N.E. RR. Club*, Nov. 14, 1899, p. 22.
3. Maxcy, Kenneth F. An Inquiry into the Public Health Hazard of Sewage Disposal from Railway Conveyances. *Tech. Rep. No. 2*, Joint Comm. on Ry. Sanitation, Assoc. of Amer. RRs., New York, N. Y., Nov. 8, 1946.
4. Barringer, P. B. An Unappreciated Source of Typhoid Infection. *Med. Rec.*, Dec. 19, 1903, p. 971.
5. Sedgwick, W. T. On the Protection of Public Water Supplies from Pollution during the Construction, Maintenance, and Operation of Railroads, etc., with Appendices by J. W. Alvord, A. C. Abbott, Charles Harrington, W. T. Sedgwick, and J. R. Freeman. *The Seattle Municipal Water Plant*, Seattle, Wash., 1914, p. 134.
6. Whipple, G. C. *Typhoid Fever, Its Causation, Transmission, and Prevention*. New York: Wiley, 1908.
7. Crowder, T. R. The Evolution of Railway Sanitation. *The Pullman News*, 2:5, 1923.
8. Bracken, H. M. Report of Proceedings, Meeting of the American Medical Association Committee on Railway Sanitation at Chicago. *Bull. A.M.A.*, 8: 151, 1913.
9. Railway Sanitation. *J.A.M.A.*, 66, 8:586, 1916.
10. *Standard Railway Sanitary Code (Exhibit A). Circular No. M&S-241*, Med. and Surg. Sec., Assoc. of Amer. RRs., New York, N. Y., Sept. 15, 1942.
11. *Sanitation Manual for Land and Air Conveyances Operating in Interstate Traffic*. U. S. Public Health Service, Federal Security Agency, Washington, D. C., 1943.
12. *New Interstate Quarantine Regulations*. U. S. Public Health Service, Federal Security Agency, Washington, D. C., 1947.
13. Rucker, W. C., Asst. Surg. Gen. Common Sense in Public Health Administration. *Pub. Health Rep.*, 29:12, 1914.
14. Minutes of the Meetings of the Board of Directors, Baltimore and Ohio Railroad, July-August, 1834.
15. Jonah, Col. F. G. *Notes on Construction of St. Louis Brownsville and Mexican Railway*. Amer. Ry. Eng. Assoc., 31:324, 1930. Library of Assoc. of Amer. RRs., Washington, D. C.
16. Bartlett, E. M. Railway Sanitation. *Balto. and Ohio RR. Employees Magazine*, May, 1915.
17. McCormick, E. O., Vice President, Southern Pacific Railway. An Address before the World's Insurance Congress, San Francisco, Calif., October 7, 1915. Library of Assoc. of Amer. RRs., Washington, D. C.
18. "Newt" (Pseud.). Reasons for Excessive Labor Turnover. *Ry. Mech. Engr.*, 93:9, 1919. Library of Assoc. of Amer. RRs., Washington, D. C.
19. *Malaria Control, a Demonstration of Its Value to Railroads Based on Experience of the St. Louis Southwestern Railway Lines, 1917-1920*. Office of the Sanitary Engineer, St. Louis Southwestern Railway Lines, Texarkana, Ark., July 1, 1921.
20. Report of Joint Committee on Railway Sanitation. *Circular No. D-1-105*, Joint Comm. on Ry. Sanitation, Assoc. of Amer. RRs., New York, N. Y., Nov. 24, 1931.
21. Suggestions of Joint Committee on Railway Sanitation as to (A) Sanitary Handling of Water and Ice on or Around Railroad Cars, and (B) Sanitation in Connection with Car Toilets; Lavatories, Coach-yards, etc. *Circular M. & S. No. 194*, Joint Comm. on Ry. Sanitation, Assoc. of Amer. RRs., New York, N. Y., Aug. 2, 1937.
22. Unpublished correspondence with Dr. Robert M. Graham, Director of Sanitation and Surgery, The Pullman Company, April 19, 1946.
23. The Investigation of Existing Patents for the Disposal of Excreta on Railroad Cars. *Tech. Rep. No. 1* (unpublished), Joint Comm. on Ry. Sanitation, Assoc. of Amer. RRs., New York, N. Y., Oct. 25, 1946.

24. An Investigation into the Use of Railway Passenger Car Toilets and the Nature and Quantity of the Toilet Wastes. *Tech. Rep. No. 3*, Joint Comm. on Ry. Sanitation, Assoc. of Amer. RRs., New York, N. Y., Mar. 1, 1947.

25. Keefer, C. E. *Sewage Treatment Works*. New York: McGraw-Hill, 1940.

26. Statistics of Railways of Class I, United States, Calendar Years 1929 and 1936 to 1945. *Statistical Summary Number 30*, Bur. of Ry. Economics, Assoc. of Amer. RRs., Washington, D. C., Oct., 1946.

27. *Railway Passenger Service*. Bur. of Ry. Economics, Assoc. of Amer. RRs., Washington, D. C., June, 1945.

Health Education Workshop

Notice of the following health education workshops has come to the *Journal*:

Western Reserve University, June 21-July 31, limited to 50 men and women from the educational field (teachers and nurses). Course will grow out of the problems presented by the individuals at the first session on June 21. Director, Charles F. Good, M.D., Director of Cleveland's School Health Service and pediatrician in Western Reserve Medical School and University Hospitals. Tuition, \$84. Credit, 6 semester hours. Apply for admission 1 month before registration to Graduate School, Western Reserve University, Cleveland, Ohio.

Yale University, Graduate School, Department of Education. June 26-August 6, plus 2 weeks for preparation of term papers. Seminar in secondary school education designed particularly for teachers responsible for teaching or organizing high school health education programs, using workshop techniques. Director, Charles C. Wilson, M.D., Professor

of Education and Public Health, Yale University. Tuition \$120. Scholarships available. Credit, one-fourth of a year's work or 8 points. Apply Clyde M. Hill, Chairman, Department of Education, Yale University, New Haven, Conn.

George Williams College, Lake Geneva Campus. College Camp, Wis. July 6-31. Is a workshop in education for health and fitness designed for teachers, community workers, nurses, and others interested in health? Tuition and living expenses \$165 and up. Scholarships available. Credit, six quarter hours. Apply Arthur H. Steinhaus, Director of the Workshop, George Williams College, Chicago 15.

University of Cincinnati, June 21-26. Faculty includes Dr. Helen L. Poops, Health Coördinator. One hour of credit as an auditor with an additional hour upon successful completion of assigned field work. Apply Dr. Spencer Shank, Dean, Summer School, University of Cincinnati, Cincinnati 21, Ohio.

Essentials for the Control of Ragweed*

ISRAEL WEINSTEIN, M.D., F.A.P.H.A., AND
ALFRED H. FLETCHER, F.A.P.H.A.

Commissioner of Health†; and Director, Bureau of Sanitary Engineering, City Health Department, New York, N. Y.

IT has been estimated that there are over 3,000,000 persons in the United States who suffer from hay fever caused by ragweed. The U. S. Public Health Service, in a leaflet on hay fever, states that ragweed grows in sufficient quantity in much of the territory east of the Rocky Mountains to produce symptoms of ragweed hay fever in an estimated 2 to 3 per cent of the inhabitants of the area. It is generally recognized by allergists that its prevalence has been steadily increasing from year to year. In a report on chronic diseases taken from the data collected in the National Health Survey conducted by the U. S. Public Health Service during 1935 and 1936, "hay fever and asthma" stood fourth in prevalence in a list of chronic diseases and was exceeded only by rheumatism, heart disease, and arteriosclerosis and high blood pressure. In this list, hay fever and asthma exceeded such chronic diseases as hernia, chronic bronchitis, cancer and other tumors, tuberculosis, diabetes mellitus, and others.

Thommen¹ estimates that pollen asthma occurs in about 35 per cent of all hay fever subjects in the New York area, and Huber¹ reports that pollen asthma occurs in about 54 per cent of the Chicago hay fever sufferers.

The discovery of the herbicide, 2, 4-dichlorophenoxyacetic acid opened a new field in public health by making it possible to eliminate ragweed from vast areas at a reasonable cost, only a fraction of that required for mosquito control.

Ragweed hay fever, then, can be said to be a fairly common disease and the weapon to control it is now available. It should, therefore, receive the attention of governmental authorities as a public health problem. R. P. Wodehouse, who is probably the best informed botanist on the subject of ragweed and its control, expresses his feelings on the subject in a letter written in 1939 to one of the authors as follows: "Hay fever can be cured by treating the environment instead of the patient. In fact it is the only way that it ever will be cured."

Before outlining the New York City ragweed control program, some of the essential knowledge necessary to bring about control of ragweed will be discussed.

For the past 25 years a considerable amount of information has been accumulated on the concentration of ragweed pollen in the air. One of the outstanding contributors is O. C. Durham² of Chicago. Much of this work has been done in response to the demand for information on the part of allergists and hay fever sufferers. The United States has been fairly well covered in a general

* Presented before a Joint Session of the Engineering and Industrial Hygiene Sections of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 7, 1947.

† Now Director, Bureau of Health Education.

way by data collected from a number of stations, made possible by the coöperation of the U. S. Weather Bureau. Maps are available which divide the United States into regions in accordance with the variations in the amount of ragweed pollen in the air, as shown by these spot checks.

In order to use the pollen content of the air as a device for evaluating ragweed control programs, it is necessary to plan the location and number of pollen sampling stations so that an adequate picture of the variation in pollen content throughout the areas can be obtained and accurate related meteorological and ecological data accumulated. It is possible that in the early stages of the development of ragweed control programs, the weather may have a greater influence on the pollen content in an area than the elimination of some of the ragweed plants. As ragweed control programs become effective over large areas, there will be a need for sufficient data to explain the presence of, or the year-after-year reduction in the ragweed pollen content in areas where the ragweed plants have been reduced in number or eliminated. It will not be sufficient to have the results of one or two stations used as an index of the completeness of a ragweed elimination program over an extensive area any more than one or two adult mosquito traps will serve as an index of the effectiveness of a mosquito campaign. It is recognized that there is a considerable difference between the distribution of adult mosquitoes from a source of breeding and the distribution of pollen from an area of ragweed plants. An air pollution survey in 1936 conducted by the New York City Health Department indicated a considerable variation in the pollen content of the air in the 5 boroughs of the city and this variation was related to the amount of vacant area in those boroughs.

In response to a demand for stand-

ardization of procedures in pollen collecting and counting, the American Academy of Allergy³ several years ago appointed a National Pollen Survey Committee to study and recommend standards for pollen collecting and counting. A preliminary report of the work of this committee has already been published which includes the recommended standards.

A group of allergists⁴ in the Division of Allergy of the Jewish Hospital of Brooklyn, in collaboration with the Pollen Survey Committee of the American Academy of Allergy, conducted studies during 1946 and 1947 in an attempt to shed some light on the influence of ragweed control programs on the pollen content of the air. They outline the reasons for their studies as:

1. To determine the relative ragweed pollen concentrations in various boroughs
2. To determine whether the pollen counts of Brooklyn and Manhattan, the only boroughs studied in the past, have been representative of the entire city
3. To determine to what extent ragweed pollination in surrounding communities influences New York's pollen problem
4. To collect data which might help to determine the effectiveness of the ragweed extermination campaign which is being carried on by the Department of Health in this city
5. To obtain further data on the relationship of meteorologic conditions to pollen counts

The plants, *Ambrosia artemisiifolia* and *Ambrosia trifida* (short and giant ragweed) are the principal cause of autumn hay fever. Ragweed pollen is buoyant, abundant, and has high allergenic toxicity. The seeds, which are dropped close to the plant are disseminated by water, animals, and man. They are heavy and do not ordinarily move far from the plants which produced them. Ecologists classify plants into 3 general categories: pioneer, intermediates, and climax vegetation. This natural phenomenon is known as plant succession. Pioneer plants⁵ are able to grow on barren soil serving as nature's

rescue squad to prevent the total waste of top soil. The most important pioneer plant is the ragweed. Where these pioneer plants are able to establish themselves they flourish over a period of years until they are able to restore the soil so that it will support an intermediate group of plants such as the late weed and grass plants. This process may take 10 or more years. As the intermediate plants establish themselves, the pioneer plants are forced out by competition. The ragweed plant is not only a pioneer; it is also a non-competitive plant. If left alone, this intermediate stage would then give way to climax vegetation. Only selected areas are ever allowed to return to climax vegetation. According to Wodehouse, the Indians had no hay fever because they lived in the primeval forest or on the native prairies. In those early days the land was clothed with climax vegetation. As the white man built cities and towns cutting down the forests and developing farms and highways, climax vegetation was removed and much of the soil was left bare. Hay fever is nature's reply to man's wasteful exploitation of natural resources.

Little is known of the ecology of the ragweed plants. A number of problems are already arising in connection with developing the most effective program of control. A study of the reaction of plants to the use of 2, 4-D on such a wide scale as practised in New York City during the past 2 years promises to develop some of the unknown facts.⁶ Ragweed plant ecology is as important to the future ragweed control programs as entomology has been to programs to all the insects.

area, I am puzzled as to the asthmatic reaction from a letter received in the Chicago public health official indicating how easy it is to make mistakes in a question about which lit-

found in New York City and I am certain that within a radius of at least 10 miles of Fifth Avenue and 42nd Street there is no ragweed. The question therefore arises whether the pollen which is transmitted by wind from rural areas might not be more important in causing hay fever than that which grows within the bounds of a city."

Actually there were approximately 500 acres of ragweed growing in Manhattan. Within a radius of 10 miles there was probably as heavy a growth of ragweed as could be found in any similar 10 mile radius in this section of the country. In many sections of the country, as in this area, ragweed is an urban problem even more than a rural problem. Many of the projects built by man which remove plant cover from an area take place in cities, where farms are being abandoned and subdivided for development, where streets are being built without finishing the curbs and sidewalks, where rain run-off is being concentrated more rapidly in natural drainage ditches. Rural areas in general are more stable except perhaps along the highways. They may not be the main problem as visualized by health workers who have not tackled the problem of control in earnest.

Several years ago the selective herbicidal properties of the potent plant-growth-regulating substance 2, 4-dichlorophenoxyacetic acid (2, 4-D) and its derivatives were discovered. In 1945 sufficient quantities of this chemical became available.⁷ Thirty to 40 different manufacturers offered 2,4-D in the form of salts, esters, and related derivatives which, in a concentration of 0.1 per cent by weight, would kill broad leaf plants but not grasses and other resistant plants. The herbicide is absorbed by the plant, transferred to the lower stem and roots, causing the plant to starve. The first symptoms are bending and twisting of stems and leaves followed usually by swelling, cracking, and split-

* Presented before the American Association of Public Health Officials, Meeting in Atlantic City, 1947.
† Now Director, Bureau of Plant Industry, U.S. Department of Agriculture.

ting of the stems, yellowing, browning, and drying up. The roots become spongy, enlarged, and water soaked.

The New York City Department of Health⁶ studied the possibility and practicability of using this herbicide to control ragweed on a city-wide basis. Two demonstrations showed that when it was applied as a 0.1 per cent solution, wetting about 90 per cent of the plant foliage, it would kill the weeds without injuring the grasses. Approximately 200 gallons were found to be necessary for one acre of ragweed and 1 crew, consisting of a spraying unit and 3 men, could spray approximately $2\frac{1}{2}$ acres a day. Approximately one pound of 2, 4-D powder makes 100 gallons of the 0.1 per cent herbicide solution, bringing the cost of chemical to about \$2 an acre; 2, 4-D has certain advantages over chemicals that have been used in the past. It is non-corrosive, non-inflammable and will not explode. In addition, it is not poisonous to human beings.

Ragweed plants shed their pollen early in August and produce seeds a short time later. In order to obtain maximum benefits, the plant should be destroyed by the early part of August so as to prevent the shedding of pollen or the dropping of seeds. Ragweed is an annual plant, therefore, if all the plants were destroyed in any one year, there would be no ragweed seeds dropped to produce plants in future years. It is possible to destroy all of the ragweed seeds produced in an area that is properly sprayed in any one year. However, it is impossible to destroy all the ragweed seeds in existence as a small proportion of each year's crop of seeds remains viable in the soil and a few of these will grow when the soil is disturbed, exposing the seed. The number of plants growing from old seeds is small compared to the total annual crop of seeds once the ragweed plant has become generally established in an area.

The number of plants coming from the old seeds depends on the amount of soil which is disturbed by the abandoning of farm land and the barren soil left along the sides of new roads and areas where the cover crop is laid waste and the surface remains bare.

Experience indicates that the selective action of the herbicide hastens plant succession by killing the ragweed plant. It seems to encourage the growth of the intermediate plants, namely, late weeds and grasses. Indications are that the spraying of the ragweed plant aids in building soil. Extensive areas where both ragweed and other plants were growing, which were sprayed in the 1946 campaign, produced a solid growth of grasses and other plants during the season of 1947. The spraying not only killed the ragweed plants of that season, but hastened the phenomenon of plant succession, establishing the intermediate stage of plants which not only controls erosion but discourages the growth of the ragweed, a non-competitive plant.

Attempts to enforce city laws requiring property owners to destroy ragweed on their property have been not only costly in time consumed but also ineffective. Many property owners could not be located and others could not be induced to eliminate the weeds in time to prevent the spilling of pollen and the production of seeds. Centrally directed campaigns to eliminate seeds by cutting and grubbing on a city-wide basis, although more successful, have generally failed because of the cost and the fact that much of the work accomplished did not always prevent pollination. Plants grew back and pollinated and produced seeds in a few weeks' time. Wherever the soil was disturbed, dormant seeds were given an opportunity to germinate.

Much can be done to support a city-wide spraying program by securing the coöperation of property owners in eliminating ragweed from their property, particularly when they are living on it or

This was an all-day conference and was attended by over 200 people including professional botanists, municipal and other official representatives of garden clubs. The Commissioner of Health of New York City called meetings of health officers and municipal officials from the metropolitan area to discuss the use of 2, 4-D for the control of ragweed. The Department of Health believes that within the next few years it will be possible to eliminate practically all the ragweed plants within the city limits, and every effort will be made to

extend the ragweed control program throughout the metropolitan area.

REFERENCES

1. Hansel, *Allergy of the Nose and Paranasal Sinuses*. St. Louis: Mosby.
2. Durham, O. D. *Your Hay Fever*, Indianapolis: Bobbs-Merrill, 1936.
3. Durham, O. D., Black, J. H., Glaser, J., and Walzer, M. Preliminary Report of the National Pollen Survey Committee of the American Academy of Allergy on Proposed Standardization of Pollen Counting Techniques. *J. Allergy*, 17, 3:178 (May), 1946.
4. Walzer, Eugene H., et al. *New York State J. Med.*, 47, 18:1979-1986 (Sept. 15), 1947.
5. Wodehouse, R. P. Weeds, Waste and Hayfever, *Natural History* 43, 3:150 (Mar.), 1939.
6. New York City, Department of Health. *Ragweed Control Program* Nov., 1946.
7. New York City Department of Health, *Ragweed, Hayfever & 2, 4-D*, July, 1946.

Maternal and Child Health Training Program

The Johns Hopkins University School of Hygiene and Public Health has established a specialized program in Maternal and Child Health. Its "purpose is to provide advanced training for a limited number of special students in the broad field of Maternal and Child Health with emphasis on the integration of administrative, clinical, and preventive skills and with attention to current developments and trends in medical care. It is particularly adapted to the needs of administrators of Maternal and Child Health and crippled children's programs and of qualified individuals who wish to make a combined career as full-time consultant and administrator in the obstetric or pediatric

services of health departments or other agencies."

Students taking this work are expected to spend 11 months in residence, an 8 month academic year including the required courses for the Master of Public Health degree, and a summer period devoted to field and clinical work. Clinical facilities are provided through arrangements with the pediatric and obstetric services of The Johns Hopkins Hospital and the Maryland State and Baltimore City Health Departments.

The first small group of students is now in training. Further information can be secured from Paul Harper, M.D., Maternal and Child Health Division, 615 N. Wolfe Street, Baltimore 5, Md.

Comparative Efficiency of Rectal Swabs and Fecal Specimens in Detecting Typhoid and Salmonella Cases and Carriers*

HOWARD J. SHAUGHNESSY, PH.D., F.A.P.H.A., FRANCES FRIEWER AND ADELE SNYDER

Division of Laboratories, Illinois Department of Public Health, Chicago, Ill.

IN bacillary dysentery the causative organisms are known to be confined chiefly to the lumen and especially to the superficial ulcerations of the large intestine. The ideal method, therefore, for collecting material from cases or carriers of bacillary dysentery for bacteriologic examination would seem to be the application of a swab to the ulcers or inflamed intestinal mucosa while they are being visualized through the sigmoidoscope. This procedure is time consuming and requires the services of a specially trained physician. The development of the "blind" rectal swab technique in which a swab is passed into the rectum either directly¹ or through a lubricated rubber tube² has made it possible to collect large numbers of specimens rapidly and to permit the inoculation of culture media without any delay. The superiority of the rectal swab specimen over the passed specimen in the laboratory diagnosis of bacillary dysentery has been demonstrated or indicated by several groups of investigators.³⁻⁸ In this laboratory the use of the rectal swab has become routine in the investigation of dysentery outbreaks.

Because of the rapidity and simplicity with which the rectal swab procedure can be employed, it would be desirable if it could be adapted to surveys made for the purpose of finding cases or carriers of typhoid or *Salmonella* infections. However, it is well known that the excretion of these organisms is from the small intestine and adnexa and not from the lower bowel. There are usually no ulcerations or other lesions of the lower bowel in which the bacilli are harbored and from which they can be cultured. The investigation reported here was, therefore, undertaken to compare the efficiency of the usual type of passed fecal specimen with the rectal swab in the laboratory diagnosis of typhoid and *Salmonella* infections.

The large group of typhoid carriers confined in special wards at the Manteno State Hospital, Manteno, Illinois, provided excellent material for the study. Through the coöperation of the hospital authorities 43 patients, with histories of a typhoid or *Salmonella* carrier state, were made available for the study. The patients were selected, on the basis of previous information, so that persistent intermittent and infrequent shedders were all represented in the group studied. Pre-cathartic rectal swabs and

* Presented before the Laboratory Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 7, 1947.

TABLE 1

Sequence of Laboratory Findings by Patient

Patient	Pre-Cathartic			Post-Cathartic		
	Passed			Passed		
	* Manteno	* Chicago	R. Swab	* Manteno	* Chicago	R. Swab
1	TTTT-T	TTT --	---TT-	TTT-TT	TTTTTT	---T-
2	---	---	---	---	T---	---
3	---	---	---	---	-T---	---
4	T TTTT	T T TT	TTTTTT	TTTTTT	TT ^S TTTT	TTTTTT
5	---	---	---	---	-T---	---
6	TTTTT-	TTT T	T--TT-	TTTTTT	TTTTTT	TTTTTT
7	---	---	---T-	---	---	---
8	TTT-T	TT -T	TTTTT	T-TTTT	TTTT-T	T-TTTT
9	- --	TT TT	---	-TT---	---	---T-
10	T T	T	-T-TT	TTTTT	TTTTT	TTTTTT
11	TTTTT	TT TT	T-TTT	TTTTTT	TTTTTT	TTTTTT
12	---T	---	---	---	---	---
13	---	---	TT--TT	TTTT T	TTTT -	TTT-T-
14	---	---	---	---	---	---
15	---	---	---	---	---T-	---
16	T TTT	- TT	-T-TTT	TTTTTT	TTTTTT	TTTTTT
17	---	---	---	---	---	---
18	---	---	---	---T-	---T-	---
19	---	---	---	---	---	---
20	---	---	---	---	---	---
21	---	---	---	---	---	---
22	---	---	---	---	---	---
23	---	---	---	---T-	---T-	---
24	-	---	---	---T	---T-	---
25	-	-	---	-T -T	-T -	-T-T-
26	---	-T -	---	- T-	- T-	-T-T-
27	T-----	---	---T-	S-----	---	---T
28	---	---	---	---	---	---T-
29	- --	- -	---	---	---	---
30	---	---	---	S S --	S S --	---
31	T --	S SS	-	SS SS	SS SS	SS ^T TS
32	TTTT	T TT	TTTT	TTTTTT	TTTTTT	TTTTTT
33	TTTTTT	TTT TT	TTTTTT	TTTTTT	TTTTTT	TT ^S TTTT
34	T-----	---	---	---	---	---
35	---	---	---	---	---	---
36	---	-T-	---	---S---	---	---
37	---SS-	S-S SS	S-SSSS	SS-SSS	SS SSS	SSSSS-
38	---	---	---	---	---	---
39	---	---	-T---	---	-T---	---
40	T TT	- TT	-TTTTT	TT TT	TT TT	-TTTTT
41	T TT	T -T	TTT	TTTT	TTTT	TTTT
42	TTT	TT	-TTTT	TTTTT	TTTTT	TTTTT
43	T	---	TT	T	T	-T

T = specimen yielded *E. typhosa*S = specimen yielded *Salmonella*

-- = negative findings

* indicates whether examined in Manteno or Chicago laboratories

passed specimens were collected from each patient on the same day. In the evening of the same day the patients were given bile salts and on the following day a saline cathartic was administered. Two rectal swabs and a passed specimen were collected from each patient after the first bowel movement had occurred. An attempt was made to collect six series of pre-cathartic and post-cathartic specimens from each patient. This was not always possible. It was especially difficult to obtain the desired number of pre-cathartic passed specimens from this group of psychotic patients.

Preliminary studies had shown that the best results could be obtained by culturing the rectal swabs in accordance with the following technique: As soon as the swabs were collected, one swab from each patient was plated on Hajna-Perry agar and the other inoculated into a tube containing 2-3 ml. selenite enrichment medium. On the following morning the growth from the latter was streaked on to S. S. medium. In one series the first swab collected was plated directly and the second placed in enrichment medium. This procedure was reversed in alternate series.

The passed fecal specimens were handled according to the following technique: The specimens were collected in paper containers; as soon as specimens were delivered to the laboratory (all were received and plated within 2 hours after collection except a series delivered to our Chicago laboratory for comparative purposes), they were streaked on Hajna-Perry agar and a heavy seeding made into a 12-15 ml. tube of selenite enrichment. On the following morning material from the enrichment media was streaked on to S. S. medium.

Any plate showing suspicious colonies was set aside for further examination. When suspicious colonies were seen on a plate, two or three were picked for further study. Isolated cultures were

subjected to extensive biochemical tests and were tested against high titer specific agglutinating sera. All salmonellas isolated were typed.

It should be emphasized that the work was handled in a volume and under the conditions that would be encountered in a survey done in connection with an actual outbreak. Plates were picked without knowledge of the patient's name or what the parallel series of plates revealed. All plates were compared after the picking was completed.

The complete findings are shown in Table 1. From a mere inspection in this table it is apparent that none of the methods is markedly superior when specimens from heavy shedders are examined. However, when the specimens apparently contained few organisms as in those from patients 2, 3, 5, 15, 18, 23, 24, 25, 26, 27, 28 and 39, the efficiency of the passed specimen appears to be greater than the rectal swab. In these instances, also, it appears that the post-cathartic passed specimen yields a higher

TABLE 2

*Media Summary — Pre-Cathartic Rectal
(234 Specimens)*

		Selenite F-SS Only	Selenite F-SS and Hajna- Perry Agar	Hajna- Perry Only
Positive Typhoid	No. 55	12	33	10
Positive Salmonella	5	3	2	..
Positive Typh-Salm	1	..	..	..

TABLE 3

*Media Summary—Post-Cathartic Rectal
(248 Specimens)*

		Selenite F-SS Only	Selenite F-SS and Hajna- Perry Agar	Hajna- Perry Only
Positive Typhoid	No. 70	32	33	5
Positive Salmonella	7	2	5	..
Positive Typh-Salm	2	..	..	..

TABLE 4

*Media Summary—Pre-Cathartic Specimens
(Passed), Chicago
(147 Specimens)*

	No.	Selenite F-SS Only	Selenite F-SS and Hajna- Perry Agar	Hajna- Perry Only
Positive Typhoid	38	12	17	9
Positive Salmonella	6	2	3	1

TABLE 5

*Media Summary—Post-Cathartic Specimens
(Passed), Chicago
(222 Specimens)*

	No.	Selenite F-SS Only	Selenite F-SS and Hajna- Perry Agar	Hajna- Perry Only
Positive Typhoid	78	17	47	14
Positive Salmonella	12	5	7	0

TABLE 6

Type Specimen	Pos.	Neg.	Total
Pre-Cath. Passed	50	99	149
Post-Cath. Passed	53	96	149

$P = 0.88$

TABLE 7

Type Specimen	Pos.	Neg.	Total
Pre-Cath. Rectal	58	162	220
Post-Cath. Rectal	68	152	220

$P = 0.23$

TABLE 8

Type Specimen	Pos.	Neg.	Total
Pre-Cath. Rectal	40	103	143
Pre-Cath. Passed	46	97	143

$P = 0.47$

TABLE 9

Type Specimen	Pos.	Neg.	Total
Post-Cath. Rectal	68	138	206
Post-Cath. Passed	79	127	206

$P = 0.23$

TABLE 10

Type Specimen	Pos.	Neg.	Total
Pre-Cath. Rectal	52	119	171
Post-Cath. Passed	72	99	171

$P = 0.01$

percentage of positives than its pre-cathartic counterpart.

The media analyses presented in Tables 2, 3, 4, and 5 are based on the rectal swab results from the laboratory set up at Manteno and the passed specimen findings from our Chicago laboratory. The Chicago laboratory results were used in the latter series because they more nearly approximate the conditions under which specimens are usually received in a public health laboratory. These findings demonstrate again that no single medium is able to pick up all enteric pathogens. They also demonstrate the value of an enrichment medium such as Selenite F.

Because it was impossible to obtain all of the specimens planned, the crude data shown in Table 1 do not present the best comparison of our findings. In Tables 6 to 10 comparison is made of only those specimens which could be definitely paired. In these tables the results from the tetrathionate enrichment series are omitted. Chi-squares have been calculated on all pairs and p-values are shown under each table. All of the differences point in the same direction, i.e., in favor of the passed specimen and those taken post-cathartic, but only one difference is statistically significant, that between the pre-cathartic rectal swab and the post-cathartic passed specimen. The latter comparison is the one of greatest interest to us because the rectal swab is commonly used on patients who have not been given a cathartic while post-cathartic passed specimens are recommended in this type of survey. The marked superiority of the post-cathartic specimen over the pre-cathartic rectal swab under these conditions is striking.

It may be argued that these results may not be conclusive since they were obtained on known carriers. Several months after this part of the study was completed an opportunity presented itself to make another study under field conditions. A case of typhoid occurred

in an institution for mental diseases at K. and the patient was transferred to the institution hospital. The 189 patients on the ward from which this patient was removed were divided into two approximately equal groups. On August 9, 1946, the patients in group one were examined by the rectal swab technique while post-cathartic passed specimens were collected from those in group two. Three days later rectal swabs were collected from the latter group and post-cathartic passed specimens from those in group one. *Eberthella typhosa* was isolated from 7 individuals. From all patients with negative findings two more post-cathartic specimens were collected, all of which gave negative findings.

Analysis of the findings showed that only 3 of the 7 cases or carriers found in this survey yielded positive rectal swab specimens. One of these positives was obtained on a post-cathartic rectal swab, taken through error. All of the original group of post-cathartic specimens on these 7 patients were positive.

Subsequently, beginning about 12 days after the original specimens were collected, two sets of pre- and post-cathartic passed specimens were collected from each of the 7 typhoid cases or carriers found in the original survey. All of the post-cathartic specimens except 1 were found to be positive while 4 of the pre-cathartic specimens were negative. It was noted that the findings were usually positive on all three media combinations employed (S. S., Selinite-S. S. and Hajna-Perry) when post-cathartic specimens were examined, whereas with pre-cathartic specimens positive results were more often obtained, if at all, on a single medium.

DISCUSSION

It is apparent from the results shown above that the post-cathartic passed specimen of feces is a much more satisfactory source of material for bacterio-

logic examination for typhoid bacilli and salmonellas than the rectal swab although the latter is apparently better as a source of shigellas. This difference might have been predicted from the fact that shigellas are believed to flourish on and in the upper layers of the mucosa of the lower bowel where they can be easily collected by the rectal swab while, on the other hand, *E. typhosa* and the salmonellas are thought to be excreted largely from the small intestine and gall bladder.

By the time typhoid bacilli or salmonellas reach the area which can be reached by the rectal swab they are probably well distributed in the fecal mass. Thus, the rectal swab picks up only a few of these pathogens unless the case or carrier is a very heavy shedder. Enrichment does not aid greatly because the amount of fecal material on the swab is not large in comparison with the amounts of the passed fecal specimen usually employed in seeding the enrichment media.

The effectiveness of both rectal swab and passed specimen was increased in this series if the patient had had a cholegogue and saline cathartic before they were collected. However, in the Manteno study the number of carriers found in the pre- and post-cathartic rectal swab series was identical because carriers found in the pre-cathartic series with the rectal swab technique were missed in the post-cathartic rectal swab series and *vice versa*. However, 11 more carriers were found in the Manteno post-cathartic passed specimen series than in the pre-cathartic group collected by the same technique. On the other hand, 3 of the pre-cathartic passed specimens yielded positives not found in the post-cathartic passed specimen series, so there was a net balance of 8 carriers in favor of the post-cathartic passed specimen series over the similarly collected pre-cathartic series. This was due in large part to the greater number of post-

cathartic specimens that were obtained.

The advantage of the post-cathartic passed specimen over its pre-cathartic counterpart was not significant when paired specimens were studied. In the examination of paired specimens collected during the K. outbreak studied by us, there was again found to be a slight balance in favor of the post-cathartic over the pre-cathartic passed specimen in the ratio of 13 to 10. The difference is again greater than suggested by the figures because inspection of the data shows that the positive findings in the pre-cathartic series were usually found on fewer media combinations, often only one, than in the post-cathartic series.

While the post-cathartic rectal swab yielded much better results than the swab employed without prior administration of a cathartic, we do not believe from our experience that the post-cathartic rectal swab is practicable for general use, especially in psychotic patients. The employment of this procedure in persons who have had a cathartic is disagreeable and, in our opinion, dangerous to the collector of the swab.

The post-cathartic passed specimen has one further advantage over the rectal swab in the laboratory diagnosis of typhoid and salmonellosis. The rectal swab must be cultured immediately after collection in order to prevent drying and, therefore, cannot be used to transport specimens to a distant laboratory by the usual modes of transportation. The post-cathartic passed specimen can, however, be cultured after a considerable delay without loss of efficiency. For example, 205 paired specimens of this type were examined at Manteno State Hospital by one of us (F. F.), and at our Chicago laboratory by another (A. S.) after shipment by Railway Express. The fresh specimens yielded 78 positives while the shipped specimens gave 80 positives. This difference is, of course, ascribable to chance since it

would not be expected that the delay would improve the specimens.

The rectal swab can, we believe, be used successfully for one purpose in typhoid and salmonella laboratory work. As indicated above, it was about as effective as the passed specimen in finding heavy shedders of these pathogens. It appears to us that, because of the simplicity and rapidity of the rectal swab procedure, it might well be used as a preliminary to other methods in any large-scale surveys designed to find carriers of enteric pathogens. Used in this way the rectal swab may make it possible to find quickly and easily almost all of the heavy shedders of *E. typhosa* or *Salmonella*. Additional post-cathartic passed specimens can be used to detect the infrequent or light shedder of these organisms. This plan has been adopted by the Illinois Department of Public Health for routine and emergency surveys of institutionalized populations.

SUMMARY AND CONCLUSIONS

Post-cathartic passed specimens are more efficient than rectal swabs as a source of material for the laboratory diagnosis of typhoid and salmonellosis or of the carrier state in these diseases.

The rectal swab is, however, effective in the detection of heavy fecal shedders of *E. typhosa* and *Salmonella* and may be of great value in rapid screening of large population groups if combined with subsequent examinations of post-cathartic passed specimens.

REFERENCES

1. Cruickshank, R., and Swyer, R. *Lancet*, 2:803, 1940.
2. Hardy, A. V., Watt, J., and De Capito, T. *Pub. Health Rep.*, 57:521, 1942.
3. Humphreys, R. M. *Lancet*, 247:548, 1944.
4. Ferris, A. A., and Fortune, C. *M. J. Australia*, 2:430, 1944.
5. Fortune, C., and Ferris, A. A. *Ibid.*, 1:337, 1945.
6. Roberts, T. L., and Daniels, W. B. *J.A.M.A.*, 122:651, 1943.
7. Yannet, H., Deutsch, J. V., and Lieberman, R. *Yale J. Biol. & Med.*, 16:443, 1944.
8. Shaughnessy, H. J., Olsson, R., Bass, K., Friewer, F., and Levinson, S. O. *J.A.M.A.*, 132:362, 1946.

Susceptibility to Typhus of Rats on Deficient Diets*

FLORENCE K. FITZPATRICK

Medical Research Division, Sharp and Dohme, Inc., Glenolden, Pa.

THE observation that there is increased mortality in epidemic typhus when this disease manifests itself in malnourished populations is almost as old as the history of typhus. Despite the antiquity of this observation, almost no experimental work correlating diet and susceptibility to typhus has been done. Some years ago Zinsser and coworkers¹ showed that rats and guinea pigs deprived of all vitamins evinced a greatly increased susceptibility; and Pinkerton and Bessey² reported that riboflavin deficiency similarly lowered the resistance of the rat to typhus. More recently, Macchiavello³ has shown that vitamin C deficiency in the guinea pig also increases susceptibility. In the first two reports the number of animals used was very small and the composition of the diets uncertain in the light of our present knowledge of animal diets.

Various possibilities present themselves as explanations for the observed effect of malnutrition on resistance to typhus in human populations: Resistance might be affected by such factors as the inadequate intake of one specific food factor—protein or a vitamin—or by a low total calorie consumption, or by a diet in which there is a multiple deficiency involving several vitamins.

The work here reported represents

part of a study of the effect of various diets on susceptibility to typhus in the rat in which we have attempted not to produce extreme deficiencies, but rather to mimic dietary conditions as they exist or might exist in human populations in various parts of the world.

METHODS AND MATERIALS

Weanling male rats of the Wistar strain were used. Their weights at the start varied between 35 and 60 gm., and they were selected so that the average weights of groups on various diets in the same experiment were the same. Twelve or more rats were placed on each diet. They were housed in individual cages with screened bottoms in an air conditioned room at a temperature of 70 to 74° F. The basic diet was composed of vitamin test casein, sucrose, "Crisco" or "Primex," corn oil, "Cellu" flour, Jones' salt mixture No. 12, choline chloride, vitamin K, and "Oleum percomorphum." The vitamins of the B group were at times included in the ration and at others administered separately as a solution, depending upon the nature of the experiment. In the latter case, they were prepared so that 1 ml. of solution contained the total daily requirement. When rats on a natural diet were used in an experiment, they were fed a mixed ration of oats, Rockland diet, and fresh vegetables.

With a few exceptions, an arbitrary period of 6 weeks on the various diets

* Presented before a Joint Session of the Food and Nutrition and Laboratory Sections of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 6, 1947.

was selected. At the end of this time, in most instances, two-thirds of each group of rats were infected with 1 ml. of murine typhus yolk sac suspension by the intraperitoneal route, while the rest were kept as diet controls. The infectious material was preserved frozen in 1 ml. samples at a temperature of minus 40 to minus 70° C. Its titer was checked by infecting a few control rats on the natural diet or on the complete synthetic diet about a week before the deficient rats were to be infected. For some experiments an infectious dose which killed none of the controls on the preliminary test was selected in order to show up any increased susceptibility in deficient rats. In other experiments, an infectious dose which was lethal to 50 per cent or less of the animals tested was employed. When death occurred in deficient rats, smears of peritoneal exudate, stained by the Macchiavello method, were examined to obtain confirmation that deaths were due to typhus. These usually showed numerous rickettsiae. (It has been reported in the literature that endemic typhus is never a fatal disease in normal rats. This observation was made before the development of methods for the cultivation of rickettsiae in large numbers, and is no longer correct. We have found, using infected yolk sac suspensions, that it is possible, depending upon the dilutions used, to kill rats or to produce an

infection from which they recover. Susceptibility decreases with age. When an infection is severe, even when it does not end fatally, rats exhibit a listlessness, anorexia, and marked loss of weight. There may also be "spectacle eyes" and porphyrin whiskers giving the appearance of vitamin deficiency. These symptoms can be observed even in well nourished animals. It is perhaps possible that the rapid multiplication of rickettsiae takes place at the expense of a vitamin, or vitamins, in the host.)

RESULTS

1. *Low Protein and Low Vitamin Diets*—It seemed advisable at the start to determine whether a diet low in protein but otherwise complete, or a diet low in vitamins of the B group but adequate in other respects was more important in reducing resistance to typhus. Four groups of rats were, therefore, fed the following diets *ad lib.*: (1) low protein, adequate vitamins of B group; (2) low protein, low vitamins; (3) adequate protein and vitamins; (4) adequate protein, low vitamins. Choline and vitamins other than those of the B group were fed in adequate amounts to all rats. The compositions of these diets are shown in Table 1. As was to be expected, rats receiving the 5 per cent protein ration did not do well. They either gained very little or fell below their initial weight by the end of the 6 weeks

TABLE 1

Composition of Rat Diets Varying in Protein and B Vitamins

	No. 1	No. 2	No. 3	No. 4
	(5%) 100 gm.	(5%) 100 gm.	(18%) 360 gm.	(18%) 360 gm.
Casein	100 gm.	100 gm.	360 gm.	360 gm.
Sucrose	1,496 gm.	1,496 gm.	1,236 gm.	1,236 gm.
Jones Salt Mixt. No. 12 *	80 gm.	80 gm.	80 gm.	80 gm.
"Cellu" Flour	80 gm.	80 gm.	80 gm.	80 gm.
Vitamin Mixt.†	74.4 mg.	74.4 mg.	74.4 mg.	74.4 mg.
Choline Chloride	4 gm.	4 gm.	4 gm.	4 gm.
"Primex"	200 gm.	200 gm.	200 gm.	200 gm.
Corn Oil	40 gm.	40 gm.	40 gm.	40 gm.
ADE Concentrate	2 ml.	2 ml.	2 ml.	2 ml.
Vitamin K	20 mg.	20 mg.	20 mg.	20 mg.

* Jones and Foster, *J. Nutrition*, 24:245 (Sept.), 1942

† Skeggs and Wright, *J. Nutrition*, 32:375 (Oct.), 1946

period. This occurred whether adequate vitamins were present or not. The gain of rats on the complete diet (diet 3 in Table 1) was between 70 and 120 gm., while rats receiving adequate protein and low vitamins (diet 4) gained between 25 and 40 gm. This experiment was performed four times. As will be seen from the two experiments shown in Tables 2 and 3, deaths commenced to occur on the third or fourth day after intraperitoneal injection with murine typhus. The difference in susceptibility of the rats on diets 1, 2, and 4 was not striking, whereas the rats on the complete diet (diet 3) showed a much higher resistance. This was found to be partial or complete depending upon the strength of the inoculum.

TABLE 2

Exp. No. 3. Effect of Low Protein and Low Vitamin Diets on Susceptibility of Rats to Murine Typhus--Results of Infection

Diet No.	No. of Rats Infected	Day of Death After Infection *	No. of Rats Dead
1	8	5 5 5 6 6 6 6 7	8/8
2	8	3 3 3 3 3 4 4 6	8/8
3	8	-----	0/8
4	8	4 5 5 5 5 6 6 6	8/8

* Infecting dose less than 1 m.l.d.

Under the conditions of the experiments just described, no conclusion could be drawn as to the *relative* importance of protein and the B group of vitamins in the resistance of the deficient rats to typhus, even though their diets resembled those that might be consumed by human populations. De-

TABLE 3

Exp. No. 4. Effect of Low Protein and Low Vitamin Diets on Susceptibility of Rats to Murine Typhus--Results of Infection

Diet No.	No. of Rats Infected	Day of Death After Infection *	No. of Rats Dead
1	17	44444444455555666	17/17
2	14	44444444444555	14/14
3	23	5666679999	10/23
4	20	4444455555555566667	20/20

* Infecting dose slightly less than 1 l.d.₅₀

ficiency of protein or of B vitamins each appeared to increase susceptibility. It was realized that the rats receiving the deficient diets ate less than those supplied with a high intake of protein and vitamins, and that paired feeding experiments would be necessary to rule out the effect of inadequate food intake.

To this end, 2 groups of 12 rats each were placed on diets 3, and 4, as in the experiments just discussed, but with two changes: First, the rats receiving diet 3, the complete diet, were given *double* the quantity of vitamins of the B group (exclusive of choline) in their diet; and second, they were pair-fed with rats fed diet 4; so that in this experiment there were 2 groups of rats consuming the same total amount of food daily (about 7 gm.) but one received twice the amount, and the other one-tenth the quantity, of B vitamins considered optimal. The mortality in these two groups following infection with typhus is shown in Table 4. As can be seen, 9 of the 11 rats on the diet containing one-tenth the quantity of B vitamins succumbed on

TABLE 4

Results Following Infection in Rats Subjected to Diets Differing in Quantity of Vitamins of B Group

Diet No.	Quantity of B Vitamins	No. of Rats Infected *	Day of Death	No. of Rats Dead
3	double adequate	11 †	-----8 8 9	3/11
4	1/10 adequate	11	5 5 5 5 5 6 6 7 7	9/11

* Infecting dose less than 1 l.d.₅₀.

† One rat dead of intercurrent infection before inoculation.

the 5th, 6th, and 7th days. Three of those on a double portion of vitamins died, but death was delayed. This experiment would lead one to conclude that curtailment of the B group of vitamins renders rats much more susceptible to infection with typhus. As a check, we are carrying out feeding experiments in which adequate vitamins are given separately while the quantity of protein is varied.

2. *Individual Vitamins of B Group*—Our next object was to determine which of the vitamins in the B-complex was important to resistance. In these experiments all rats were fed the complete diet *ad lib.* exclusive of the B group of vitamins. The latter were fed separately each day in castor cups to insure their consumption. Table 5 shows the quan-

toms. It was found that no increased susceptibility resulted when choline, nicotinic acid, pyridoxine, or para aminobenzoic acid were reduced to one-twentieth optimal levels, but that reducing pantothenic acid, riboflavin, or thiamin to this level resulted in mortality which was greater than that of controls. It was surprising to find that 3 vitamins could have this effect. In order to bring out the relative importance of these 3 vitamins and to make the results clear cut, they were reduced to one-fortieth the optimal level and tested simultaneously. The results of such an experiment are shown in Table 6. Deaths occurred first among pantothenic acid and thiamin deficient rats and were delayed in the riboflavin deficient group. It remains to be shown whether a deficiency of all 3 of these vitamins in the same group of rats results in greater susceptibility than the single deficiencies. Pyridoxine, choline, or nicotinic acid reduced to one-fortieth the optimal level were without effect. The result of inositol deficiency is still to be investigated, though since it is not essential for the rat, susceptibility probably will not be increased. Obviously, the therapeutic effectiveness of pantothenic acid, riboflavin, and thiamin must be tested in infected rats.

It was noted that the response to infection of rats on the deficient diets frequently was not typical. As was observed by Zinsser and coworkers,¹ the deficient animals usually had no rise in

TABLE 5

Quantities of Vitamins of B Group Given Daily to Rats on Normal Diet

Vitamin	Gamma/Day
Thiamin	80
Pantothenic Acid	440
Pyridoxine	80
Para aminobenzoic acid	400
Niacin	400
Riboflavin	160
Inositol	2,160

tities of vitamins fed to control rats. To determine the effect of deficiencies of vitamins of this group, one member at a time was reduced to one-twentieth the optimal level. This was a purely arbitrary restriction which resulted in an impaired gain in weight in some experiments without producing, in most instances, any striking deficiency symp-

TABLE 6

Results Following Infection in Rats Subjected to Diets Low in Individual Vitamins of B Group

Level of Vitamin in Diet	Gamma	Day	Day of Death After Infection *	No. of Rats Dead
1/40 optimal pantothenic acid	11		4 6 6 9	4/8
1/40 optimal pyridoxine	2		-----	0/8
1/40 optimal riboflavin	4		8 8 9 9 9	5/8
1/40 optimal thiamin	2		5 5 5 6 6 6 8	7/8
All B vitamins optimal	..		-----	0/8

* Infecting dose less than 1 m.l.d.

temperature. We found, in addition, that there was seldom any enlargement of the spleen or scrotal swelling.

Other experiments involving less specific factors have also been done, such as the addition of liver to the complete synthetic diet, and the comparison of the natural with the synthetic diet. The inclusion of 1 per cent liver powder in the complete synthetic diet did not increase the resistance of the animals to typhus.

3. Natural and Synthetic Diets—In preliminary tests of infectious yolk sac material, it was observed that when rats on a natural diet were used they sometimes withstood doses that proved fatal to animals on the complete synthetic diet. This was surprising in view of the fact that the latter diet contained all known factors in optimal quantities. To test the validity of this observation, 26 weanling rats were placed on the natural diet for a period of 2 weeks, at the end of which time 12 of the 26 were put on the complete synthetic ration, the rest being kept on the natural diet. After a further period of 4 weeks both groups were infected. The rats on the synthetic diet weighed on the average 14 gm. more than those on the natural diet. About 3 days following infection, the animals on the synthetic diet exhibited the listlessness, irritability, anorexia, and loss of weight typical of a severe typhus infection in the rat, and 2 of the 12 died. The appearance of the animals on the natural diet was in striking contrast. They were alert; they ate well; and there were no deaths. One can perhaps postulate that there is an unrecognized food factor supplied by the natural diet, or that the cruder diet promotes the synthesis of some unknown factor by the bacterial flora of the intestine which increases resistance.

DISCUSSION

Some explanation for the observed connection between typhus and famine

has been arrived at in the foregoing experiments, if the results obtained with rats can be applied to man. At the start of the work it appeared that a diet low in protein and a diet low in vitamins of the B group each increased susceptibility. By means of paired feeding experiments it was shown that the vitamins were the important factor. The increased susceptibility of rats on a low protein diet can be explained by the fact that they ate very little and, therefore, did not get their daily vitamin requirement. This condition without doubt has its parallel in devastated countries where populations subsist on monotonous and inadequate diets which act as deterrents to appetite. Of the 3 vitamins which specifically increase the susceptibility of the rat to typhus, thiamin is known to be a great stimulant to appetite. If it should be lacking in the human diet, inadequate consumption of riboflavin and pantothenic acid might follow. It is interesting to note that the same foods are often the best sources of these 3 vitamins, and they are foods which are seldom available to the victims of war and poverty.

SUMMARY

1. The susceptibility of rats to typhus was increased by the following types of deficient diet: (1) low protein, whether containing adequate amounts of vitamins of the B group or not; (2) a diet normal in protein, containing one-tenth the quantity of vitamins of the B group considered optimal; (3) a diet complete except for reduced pantothenic acid; (4) a diet complete except for reduced riboflavin; (5) a diet complete except for reduced thiamin.

2. Rats on a natural laboratory diet were less susceptible than those fed a complete synthetic diet.

3. No increased susceptibility was observed when pyridoxine, nicotinic acid, choline, or para aminobenzoic acid were reduced in otherwise complete diets.

4. The addition of 1 per cent liver powder to the complete synthetic diet did not increase the resistance of the rats to typhus.

NOTE: The suggestions of Dr. J. H. Jones relating to the composition of the basic rat diet are gratefully acknowledged.

REFERENCES

1. Zinsser, H., Castañeda, M. R., and Seastone, C. V. Studies on Typhus Fever. VI Reduction of Resistance by Diet Deficiency. *J. Exper. Med.* 53:333 (Mar.), 1931.
2. Pinkerton, H., and Bessey, O. A. The Loss of Resistance to Murine Typhus Infection Resulting from Riboflavin Deficiency in Rats. *Science*. 89:368 (Apr. 21), 1939.
3. Macchiavello, A., Cifuentes, O., y Ovalle, H. Influence of Avitaminosis C on Experimental Epidemic Typhus in Guinea Pigs. *Rev Chilena de Hig. y Med. Prev* 3 111 (Sept.), 1940.

Specialty Board in Preventive Medicine

On February 3, a forward step toward professional recognition of preventive medicine as a distinct medical specialty was made by the formation of an "Interim Board" of Preventive Medicine in the Army, Navy, and Public Health Service, according to an announcement made jointly by the Surgeons General of the three Services.

Six civilian authorities and one representative each of the three services were designated to form the Interim Board. The six civilian representatives are: Dr. Gaylord W. Anderson, Director, University of Minnesota School of Public Health; Dr. Thomas Francis, Jr., Professor of Epidemiology, University of Michigan School of Public Health; Dr. Wilton L. Halverson, California State Director of Public Health; Dr. Harry S. Mustard, New York City Health Commissioner; Dr. Hugo Muench, Assistant Dean, Harvard School of Public Health; Dr. Ernest L. Stebbins, Director, Johns Hopkins University School of Hygiene and Public Health. Chiefs of the Preventive Medicine Divisions of the Army and Navy, and an officer selected by the Surgeon General of the Public Health Service, complete the roster. These are: Captain Otto L. Burton, U. S. Navy; Dr. James Crabtree, U. S. Public Health Service; and Colonel Tom F. Wayne, U. S. Army. Dr. Ernest L. Stebbins was elected Chairman of the Board which began drafting a preliminary

bill of requirements for certification.

The Interim Board was formed chiefly for the purpose of setting up certification requirements for medical officers in the three services seeking to qualify as specialists in preventive medicine. This coöperative effort of the services will, however, also give considerable impetus to a demand for creation of an American Board of Preventive Medicine and Public Health, to take its place along with the 16 medical specialty boards already in existence. The three Services have expressed their intent to discontinue the Interim Specialty Board as soon as a civilian specialty board is established.

The Committee on Professional Education of the American Public Health Association and the Section on Preventive and Industrial Medicine and Public Health of the American Medical Association have recommended that an Organizing Committee for an American Board of Physicians in Preventive Medicine and Public Health be established, consisting of members representing the American Medical Association, the American Public Health Association, the Canadian Public Health Association, the Association of Schools of Public Health, and the Southern Medical Association. Representatives from these organizations have recently been appointed. Further progress will be reported to our *Journal* readers as new developments take place.

The Epidemiology of Rheumatic Fever; Its Public Health Aspects*

GEORGE C. GRIFFITH, M.D., F.A.C.P.

*Clinical Professor of Medicine, Director, Graduate Division, School of Medicine,
University of Southern California, Los Angeles, Calif.*

NEXT to tuberculosis and syphilis, rheumatic fever, a post-streptococcal syndrome, is our third most common infectious disease. Little has been done in the promotion of public health measures to control this disease, for several obvious reasons. These are three in number; first, the etiology of rheumatic fever has not been clearly understood, in spite of the fairly well known fact that rheumatic fever and the hemolytic streptococcus infections are related; second, there is no specific diagnostic test for rheumatic fever comparable to the tuberculin test for tuberculosis or the Wassermann test for syphilis; and, third, there has been no general acceptance of any standard program of preventive measures.

The understanding of the epidemiology of rheumatic fever is important because it is the foremost cause of death in individuals under the age of 20 years. Infantile paralysis, while more dramatic in its onset and far more widely publicized, causes less than one-tenth as many deaths annually. The subject of the epidemiology of rheumatic fever has been well covered by Paul's monograph published in 1943, and more recent statistical studies have confirmed his findings, with additional emphasis on the wide distribution of the disease. Studies made upon young men who were rejected for military service because of

cardiac disease during 1942 and 1943 revealed rheumatic valvular heart disease as comprising 51 per cent of the total number in Boston, 70.3 per cent in Chicago, 64.4 per cent in New York, 65.9 per cent in Philadelphia, and 39.6 per cent in San Francisco. Armstrong and Wheatley¹ offered evidence of "hereditary" susceptibility to rheumatic fever which is said to indicate a Mendelian recessive character. It is not clear how much susceptibility may be due to the state of nutrition and environment shared by family groups rather than to heredity.

The close relationship between hemolytic streptococcus infection and the rheumatic state has been demonstrated by a number of observations. These have been carefully evaluated by Rautz and his associates.⁷ Rheumatic fever follows known hemolytic streptococcus infection, especially when involving the upper respiratory tract. Epidemics of rheumatic fever have often succeeded outbreaks of scarlet fever and other forms of streptococcal sore throat. Reactivation of the rheumatic state frequently develops when a new infection by the hemolytic streptococcus occurs in individuals who have had rheumatic fever previously. High titers of various anti-streptococcal antibodies and cutaneous hypersensitivity to products of hemolytic streptococci are usually demonstrable by immunological means in those suffering from active rheumatic fever. In the rheumatic fever studies among military personnel, it was noted that the most

* * Read before the Public Health Section, California State Medical Association, Los Angeles, Calif., May 2, 1947.

constant epidemiological finding was exposure to hemolytic streptococci.

In the past it has been accepted that rheumatic fever is a disease of the temperate zone. Investigations in more tropical regions have thrown doubt on this conclusion. Suarez reported that rheumatic heart disease in Puerto Rico amounted to 20 per cent of all cardiovascular disorders. Sampson, *et al.*⁹ found rheumatic fever in the warm, dry sections of California in a degree comparable to cities with temperate climates, such as Cincinnati and San Francisco. Medical officers report the frequency of active rheumatic fever in the New Hebrides and in the Samoan Islands. Climate does not appear to be a large factor in the epidemiology of rheumatic fever. In military installations it was apparent that two circumstances were prominent in the rapid spread of hemolytic streptococcal disease; one, the concentration of large numbers of people within relatively small areas; the other, the constant introduction of new members to the group. Since military installations, especially training stations, are necessarily subjected to these two circumstances, they become ideal soil for epidemics. Clinical observers have found that they are able to predict with fair accuracy the number of cases of rheumatic fever which can be expected to develop after an outbreak of scarlet fever or of tonsillitis in a training camp. Five to 10 per cent of these patients developed recognizable rheumatic fever in such camps.

Factors commonly held responsible for their part in the epidemiology of rheumatic fever, such as climate, precipitation, marked variations in temperature, and familial susceptibility, may be significant only because under these conditions there is likely to be crowding in a limited space, lack of sunlight, and limitation of diet which may create the soil for epidemic streptococcal throat infections.

Undoubtedly a great many cases of streptococcal throat infections are overlooked. A mild streptococcic pharyngitis may be dismissed lightly after a few days, even if it has come to the attention of a physician. This is particularly true in the milder climates where more severe manifestations of the streptococcic throat infections and even those of rheumatic fever may be minimal or absent. An active rheumatic state is frequently found without any joint manifestations. This is common in the warmer climates, but may occur anywhere; and the lack of characteristic arthropathy allows much severe cardiac damage to develop unnoticed. More important than this, rheumatic fever is not classed as a reportable disease in many states. This tends to keep the medical profession in ignorance of its existence in such areas.

Wheatley¹ calls attention to the seasonal incidence which has always been noted as a striking characteristic of rheumatic fever. April is the high month, with September and October the low months. This may be regarded as another aspect of a disease whose cause is dependent upon respiratory infections, and which follows the peak of the streptococcal curve by several weeks. This pattern has been altered where military installations provide the crowding and high turnover which give rise to outbreaks of streptococcal infections regardless of seasons. Therefore, it may be stated that where conditions are conducive to hemolytic streptococcal epidemics, rheumatic fever in epidemic form will follow. The epidemiology of rheumatic fever is essentially the same as that of hemolytic streptococcal throat infections.

In a review of the histories of 1,046 rheumatic fever cases which developed during military service, several facts became clear. First, the state from which the youth came was of less importance than the incidence of respiratory infections in the training camp to which he

was sent; second, youths from the urban districts were slightly more prone to develop rheumatic fever than were trainees from the rural sections; third, tonsillectomy performed prior to military service did not materially protect the individual from developing the disease. These facts tend to reinforce Paul's belief that rheumatic fever is a "crowd disease." Paul pointed out that rheumatic fever is more prevalent in urban than it is in rural children, more frequent in river-side damp and wet homes, and occurs oftener in dwellings where crowding, poor ventilation, uncleanness, and poor nutrition are found.

Much has been written about the type of individual who develops rheumatic fever. The observers of over 10,000 rheumatic fever patients in one Naval installation were unable to find any one type which predominated. The dark complexioned, swarthy individual developed the disease as frequently as did the often described red or auburn-haired, freckle-faced, thin individual. No particular stock was found to be more susceptible. The Negro race, however, differs in that there is an increased vulnerability to the ravages of rheumatic fever after it has been acquired, rather than a greater tendency to develop the disease.

A hereditary susceptibility to rheumatic fever has been believed to determine the incidence of rheumatic fever. This view, beginning with Cheadle³ 46 years ago and supported by considerable new work by Wilson and Schweitzer,¹⁰⁻¹¹ has been attributed to a single autosomal recessive gene which, when distributed among the population, has made the bearer susceptible to the disease. It is true, as shown by many workers—most recently by Gould and Read—that children of rheumatic parents have higher attack rates than do the children of non-rheumatic parents. The problem of hereditary susceptibility finally comes down to an analysis of

family incidence. In a very carefully controlled study, the writer¹² and his associates interviewed 3,594 rheumatic fever patients and 1,397 non-rheumatic patients in an attempt to answer this question. An opportunity presented itself to study this large number of patients from the standpoint of the familial relationship in those individuals who developed rheumatic fever before separation from the family and in those who developed the disease after separation from the family unit. The total number of individuals studied was 4,991. Table 1 shows the number of individuals in each of the following groups.

TABLE 1

Number of Patients Studied in the Various Groups

Group	Number
Developed rheumatic fever after leaving home	3,611
Did not develop rheumatic fever after leaving home	
Tuberculous cases at Corona Naval Hospital	519
Medical and surgical patients at Birmingham General Hospital	607
Intern and resident physicians at a civilian hospital	254

The question arose as to whether these individuals were likely to have been equally well informed concerning the occurrence of rheumatic fever in members of their families. It was suspected that individuals who had not had the disease at any time might be relatively uninformed in this respect by comparison with those who had developed the disease, unless the individual was himself a physician. On review of the data this was found to be the case; among those who had not themselves had the disease, non-medical individuals reported a significantly lower familial incidence than did physicians. It was, therefore, necessary to exclude from this analysis of the effects of familial rheumatic fever all of those individuals who had not had the disease themselves and were not themselves physicians, the number of cases so excluded on the basis of inadequate information being 1,082.

With respect to the influence of one attack of the disease upon the development of later attacks after leaving home, however, there was no reason to suppose the knowledge of an earlier attack to have been inadequate in those failing to develop a later attack or particularly sufficient in those who did; all 4,991 cases were therefore used in this analysis.

In the "informed groups," as defined above, a study was made of the relationship between a positive family history of rheumatic fever and personal development of the disease while still in contact with the family. The results, in the form of a contingency table, are shown in Table 2.

TABLE 2

Relationship between Family History and Personal Attack before Leaving Family

Family history	Personal History Before Separation from Family	
	Positive	Negative
Positive	369	258
Negative	551	2731

It is seen that these results could not possibly have been due solely to chance, and that there is a definite tendency for the individual with a positive family history to have the disease while still in contact with his family.

A study was next made of the relationship between a positive family history and the personal development of the disease in the individual after separation from his family. The results, in the form of a contingency table, are shown in Table 3.

TABLE 3

Relationship between Family History and Personal Attack after Leaving Family

Family history	Personal History After Separation from Family	
	Positive	Negative
Positive	582	45
Negative	3,029	253

It is noted that these results could easily have been due solely to chance, and that there is, therefore, no relationship between family history and the

personal development of the disease after separation from the family. This same conclusion is reached when the cases are separately studied according to their own past personal histories.

From Tables 2 and 3 it is concluded that a positive family history is important only so long as the individual remains in contact with the family, and that the positive family history has no influence upon the subsequent development of the disease. It is, therefore, possible to study the role of a past personal history upon the risk of developing rheumatic fever without regard to family history. The reason for excluding the relatively "uninformed group" from such a study is now no longer present, since they are presumed to be uninformed only in respect to the family history.

Table 4, therefore, shows for all individuals the relationship between personal past history of rheumatic fever and the later development of the disease.

TABLE 4

Relationship between Personal Past History of Rheumatic Fever and the Later Development of the Disease

Past History of Rheumatic Fever	Later Development of Rheumatic Fever	
	Yes	No
Positive	861	59
Negative	2,750	1,321

This result could not have been due solely to chance, and it is, therefore, clear that a positive personal history does tend to influence the patient to the later development of the disease. It is obvious, therefore, first, that an attack of rheumatic fever earlier in life tends to facilitate a later attack, but that this difference is not great; and, second, that the occurrence of rheumatic fever in the family increases the risk of the individual developing the disease while still in contact with the family, but not after he is separated from the family. There does not, therefore, appear to be a strong and inherited susceptibility. The oc-

currence of multiple family cases could be explained either on the basis of common environment or contagion.

Therefore, it would seem fair to conclude that the high prevalence of rheumatic fever is not hereditary, but domiciliary. Environmental factors in the home play a large part in timing the onset of rheumatic fever after family epidemics of streptococcal infections such as scarlet fever. From the standpoint of epidemiology, rheumatic fever is a crowd disease following closely upon *Streptococcus hemolyticus* infection. The higher incidence in the poorer homes, in cities and in cold, damp climates is due to contact with the hemolytic streptococcus. The epidemiology of rheumatic fever thus becomes analogous to the epidemiology of tuberculosis.

It is clear that to eliminate rheumatic fever and related disorders associated with the post-streptococcal state, a complete suppression of infection in human beings by the hemolytic streptococcus is necessary. Rautz⁷ stressed this point in a paper read before this Section 2 years ago. The overwhelming magnitude of the problem needs to be emphasized to create sufficient interest in professional and lay groups. When it is realized that rheumatic fever and valvular heart disease are the most frequent cause of death between the ages of 5 and 24 years, then an approach to this problem will be made comparable to the successful control of tuberculosis.

The first public health measure to be taken is education. Physicians and associated professional personnel must be informed of the fact that every patient with a hemolytic streptococcal throat infection is a potential rheumatic fever subject. Perhaps it would be wise not to use the term rheumatic fever and to talk about the post-streptococcal state. Physicians, nurses, teachers, and parents should know this fact and be alert to find the child who is pale, nervous, and easily fatigued; and in the presence of

these symptoms to suspect the rheumatic state.

The second public health measure is that of case finding. California is the 46th state in the number of cases of rheumatic fever reported; yet it is the 18th in the number of rheumatic fever and rheumatic heart disease deaths. The frequency of the rheumatic state is comparable in this climate to that of other cities, such as Cincinnati, as shown by the studies of Sampson and his associates,⁹ as well as by studies now in progress by the author. Again it must be emphasized that case finding will depend largely upon the education of physicians, nurses, and teachers, as well as parents. Local facilities for the specialized study of suspected cases should be set up. In Pasadena, Calif., alert pediatricians, a wide awake school physician and an intelligent heart committee of the Tuberculosis and Health Association have joined in a program of case finding, and a diagnostic clinic with follow-up care.

The third and probably the most difficult public health measure is the control of streptococcus epidemics. Isolation of all cases with positive streptococcal throat cultures has been effective in limiting epidemics in military installations. Most public health departments require the isolation of the scarlet fever patient, yet do not isolate patients who do not develop a rash. Also, since it is known that virulent hemolytic streptococci exist in the nasopharynx for many weeks after the acute manifestations are past, and that many healthy carriers harbor the same virulent streptococci, the desirability of isolating all patients with suspected streptococcal infections in the hope of preventing the spread of the disease can be realized.

The control of healthy streptococcus carriers becomes most difficult, since at varying seasons of the year from 5 to 50 per cent of the population may harbor these organisms in the nasopharynx. So

like histologic lesions by sensitization with sulfonilamide. Especially is this true, considered in the light of the Army Air Force experience, where frequent reactions to the sulfonilamides were caused by repeated administration of the drug when given in prophylactic dosage to the Army Air Force personnel. Toxic reactions are few if the drug is withdrawn when the early symptoms of hypersensitivity appear. Severe reactions occur if the drug is administered repeatedly to sensitized individuals. Therefore, in every epidemic the streptococcus should be tested *in vitro* to find out if the epidemic strain is definitely inhibited by low concentrations of the drug. It is of more importance that the drug should be withheld from all persons who are sensitive to sulfonilamide, and that all persons receiving the drug be readily available for frequent examinations by the physician.

Biologic prophylaxis with the use of sera and vaccines has so far proved unsatisfactory. Immunity is type-specific, and polyvalent vaccines are required. The real danger in inoculation of human beings by these organisms is the production of streptococcal tissue hypersensitivity, which may increase the possibility of causing post-streptococcal complications such as rheumatic fever, if and when suppurative streptococcal invasion of the throat occurs.

Antibiotic prophylaxis is expensive and, as yet, impractical. Penicillin therapy at the time of the invasion of the tissues of the throat shortens the illness and has proved to be the best preventive of the post-streptococcal complications and of the reactivation of quiescent rheumatic fever.

If a substance which acts like the salicylates, in a very effective way, can be found, then the sensitizing reaction will be blocked. The hope of investi-

gators working at the present time, is to find a substance which will prevent the antigen of the streptococcus from sensitizing the host, and thus block or prevent the post-streptococcal state.

SUMMARY

1. The epidemiology of rheumatic fever is the epidemiology of the Group A hemolytic streptococcus.
2. Respiratory disease caused by the hemolytic streptococcus predisposes to the post-streptococcal non-suppurative complications.
3. Rheumatic fever is a contact disease, and not primarily due to an inherited susceptibility to the disease.
4. The public health measures for the control of rheumatic fever are similar to those instituted so successfully in the control of tuberculosis.
5. Isolation, control of carriers, air sterilization, and possibly chemoprophylaxis are measures necessary for the prevention of epidemics.
6. The chief problem is the protection against, or the elimination of, infection by streptococci from the whole population.
7. A blocking agent, to prevent the development of the post-streptococcal syndrome, i.e., rheumatic fever, is a logical attack upon the problem.
8. The solution of these problems is the first step in the prevention of rheumatic heart disease, and perhaps in the prevention of the wide-spread vascular diseases, as well.

REFERENCES

1. Armstrong, D. B., and Wheatley, George M., Metropolitan Life Insurance Co.
2. Bureau of Medicine and Surgery, Navy Department, 1944.
3. Cheadle, W. B. Smith, Elder & Co., London, 1900.
4. Holbrook, W. P. *J.A.M.A.*, CXXVI:88, 1944.
5. Levy, R. L., Stroud, W. D., and White, P. D. *J.A.M.A.*, CXXIII:937 (Dec. 11), 1943, and *J.A.M.A.*, CXXIII:1029 (Dec. 18), 1943.
6. Paul, J. R. et al. Metropolitan Life Insurance Co. for American Heart Association, 1943.
7. Rautz, Lowell A. *California & West. Med.*, LXIII, 211 (Nov.), 1945.
8. Rich, A. R. *Bull. Johns Hopkins Hosp.*, LXXI: 123 and 395, 1942.
9. Sampson, John L., et al., *Am. Heart J.*, XXIX, 178 (Feb.), 1945.
10. Wilson, May G. *J.A.M.A.*, CXXIV:1188 (Apr. 22), 1944.
11. Wilson, May G., and Schweitzer, M. D. *J. Pediat.*, April, 1943, p. 468.
- Wilson, May G., and Schweitzer, M. D. *J. Pediat.*, May, 1943, p. 581.

General Reactions of Mothers and Nurses to Rooming-in

Observations Based on Experience in a Four Bed Rooming-in Unit in the Grace-New Haven Community Hospital (University Service) *

EDITH B. JACKSON, M.D.

Associate Clinical Professor of Pediatrics (Psychiatry) Yale University School of Medicine; Attending Pediatrician, University Service of Grace-New Haven Community Hospital, New Haven, Conn.

ROOMING-IN is the term used for the hospital arrangement whereby a mother may have her baby in a crib beside her bed. This paper summarizes the general reactions of mothers and nurses to rooming-in as carried on during the past 11 months on the maternity ward of the Grace-New Haven Hospital in the so-called Rooming-in Unit. The Unit is housed in the maternity ward solarium which has been partitioned off into a four bed, semi-private ward with attached four cubicle nursery and doctors' and nurses' office. The baby's crib is usually by the mother's bedside but may be moved to the nursery at the end of the room as occasion arises. The upper part of each partition is glass with draw curtains, so that there may be visibility or seclusion as desired. The partitions stop three feet short of the ceiling for ventilation purposes. The ceiling and side walls of the nursery are treated with acoustic-celotex to reduce the intensity of sounds and noises. The room is cheery and attractive. The Rooming-in Unit is thus a comfortable division of hospital space wherein four mothers and their new-born babies may be cared for together under unified nursing and medical supervision, and where

each mother may observe her baby to her heart's content and learn to take care of him before she leaves the hospital.

As hospitalization for maternity cases has increased during the last 25 years, many mothers have felt the lack of opportunity to get acquainted with their babies during the lying-in period. They have subsequently admitted feeling panicky and helpless in dealing with the baby immediately after coming home from the hospital. During this same period, some physicians who have had the opportunity to study feeding problems and other behavior disturbances of infants and young children, together with the neuro-psychiatric disturbances of adults, have expressed the opinion that the separate care of maternity and new-born patients in the hospital and the extension of the hospital's rigid schedule into the home has offered a favorable medium for the growth of unnecessary conflict between mother and child. Furthermore, mothers from all sections of the country who have wanted to nurse their babies as a natural maternal process have felt thwarted by the disinterested attitude of the hospital medical and nursing staffs in supporting their wish to nurse. They have felt both puzzled and hurt by their failure to provide what they had reason to ex-

* Presented before the Maternal and Child Health Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 6, 1947.

sider was the best food for their infants. Some physicians (pediatricians, psychiatrists, and obstetricians) listening to such comments and complaints from intelligent parents, have gained a conviction that the hospital's institutional need for regularity and regime has blocked a recognition of the mutual needs of mothers and new-born babies within the hospital.

Since the major part of the education of physicians and nurses is in hospitals, and since approximately 80 per cent of the babies born throughout the United States and 90 per cent of the city born babies are at present delivered in hospitals,¹ hospital practices have very far-reaching effects, and also very profound effects, for they bear the stamp of the acme of medical authority. Physicians, nurses, and parents educated in the hospital to a firm belief, both in the nursery segregation of new-born infants and in strict routine and regularity as a correct procedure for infant care, have had little reason to question either until practical experience or further education or both has taught and convinced them otherwise. There are now throughout the country parents, physicians, and nurses who singly or in groups are expressing other convictions.²⁻⁷ Good hospitals, they are saying, have certain advantages over homes for safety in maternal and new-born care; good homes have certain advantages over hospitals in naturalness and comfort. Protection from infection and protection from discomfort may be equally essential for the baby's happy, healthy development and for the mother's ability to give adequate care to her child. Cannot the advantages of safety and home-like comfort be combined in the hospital for the welfare of normal healthy mothers and infants, and for the more realistic education of parents, physicians, and nurses in the interrelationship of maternal and infant needs?

The Rooming-in Unit on the Univer-

sity Service of the Grace-New Haven Community Hospital is the joint cooperative attempt of the Department of Pediatrics and the Department of Obstetrics and Gynecology of the Yale University School of Medicine, of the Yale School of Nursing, and of the Hospital Administration to answer that question.

REACTIONS OF MOTHERS

In discussing the reactions of mothers we will consider first the reactions of prospective mothers to the idea of rooming-in. During the first 3 months of our work the existence of the Unit was not generally known. We could, therefore, question the expectant mothers in Prenatal Clinic with reasonable assurance of a spontaneous response from them, unbiased by previous hearsay or consideration. Our initial phrasing of the question was as follows:

In our experience we have found that some women think that they might prefer to have the baby in the room with them in the hospital. Other women would rather have their babies in the nursery and brought to them at regular feeding hours. Which would you prefer?

This question was asked only of the mothers who in a preliminary or screening interview had signified their wish to breast feed, since we were studying rooming-in with special reference to the type of woman who wanted help and encouragement from the hospital in undertaking to breast feed her baby. There were many immediate smiling responses to the suggested idea of having the baby close to the mother's bed; there were some incredulous, hesitant, dubious responses, and a few immediate negative responses. Table 1 figures from the first 8 months indicate, however, that of the mothers who looked forward to nursing the baby, more favored the idea of rooming-in than disapproved of it.

As a further check on the reaction of expectant mothers to the idea of room-

TABLE 1

Expectant mothers offered the possibility of rooming-in arrangement.....	235
Wanting rooming-in.....	175
Did not want rooming-in.....	60

ing-in during the last 3 months (from July 1 to September 30, 1947) every mother interviewed in the Prenatal Clinic by a member of the Rooming-in staff has been asked whether she would like to have her baby beside her bed if it were possible. Table 2 figures indicate that more than half of the expectant mothers (whether they wanted to breast feed or bottle feed their babies) are positively in favor of the idea, that a quarter of the mothers are definitely opposed, and the remaining one-fifth of the total group are indifferent.

TABLE 2

<i>Attitude of Expectant Mother</i>	<i>Number</i>	<i>Per cent</i>
Favorable	184	55.0
Unfavorable	88	26.5
Indifferent	59	18.5
	331	100.0

This test of attitude toward rooming-in of all expectant mothers in the Prenatal Clinic was undertaken merely as a poll of opinion because of the increase in the number of spontaneous requests for rooming-in both from clinic and private patients. However, mothers continue to be selected on the original basis of (1) wanting to nurse; (2) wanting rooming-in; and (3) relative normality. Parity, age, race, economic or social status have not, *per se*, been determinants in selection; in these respects selection has been representative. The weighting of the selection in terms of the expectant mother's wish to nurse her baby has probably brought to rooming-in a relatively high proportion of well educated parents. In this connection it is a noteworthy fact that married nurses and wives of graduate students, of medical students, and of medical staff, have

been eager applicants for rooming-in and enthusiastic participants.

The first indications of satisfaction on the part of both mothers and nurses to rooming-in experience appeared promptly. The first group of student nurses assigned to the Rooming-in Unit made a special point of expressing their viewpoint in the following way at the end of their two week assignment:

"We know the mothers like rooming-in. We thought you would like to know the nurses like it, too, and when we have babies this is the way we would like to have them." The spokesman of this group married a few weeks later. She documented the sincerity of her response by applying for rooming-in shortly after she knew she was pregnant.

Some might comment that the first mothers to be cared for in the Rooming-in Unit would of course be pleased and satisfied; they wanted to come, in the first place, and the care and the attention would be particularly attentive under the stimulus of the newness of the venture. However, the enthusiastic response of the mothers has continued month after month. After all, for each successive group of mothers and each successive group of student nurses in the Unit there is the same stimulus of a new and vital experience. During the first 3 months most of the mothers wrote comments in notebooks that were provided for the record of their care of the baby. These comments were all on the appreciative side. We had every reason to believe in their sincerity, since very often practical suggestions were added. For instance, one of the first primiparous mothers called our attention to the fact that it might be better to assume that the baby should spend the first couple of nights in the little nursery at the end of the Unit, and not put the burden of decision on the mother. No mother, she said, would want anybody to think she did not want her baby, even though at the moment she wanted undisturbed

quiet most of all. Other mothers made other suggestions. It was evident that they enjoyed participation in an undertaking that was trying to make the mutual adjustment of mother and new-born a happy experience, for themselves and for their successors.

The same reasons for liking rooming-in appeared over and over again in the comments from different mothers, whether primipara or multipara. They liked to watch the baby, his facial expression, his smiles, his movements. They liked to hear his baby sounds. They did not worry what was happening to him as all multiparous mothers said they did when their former babies were in the ward nursery. They felt secure in having the same nurse take care of the baby who was taking care of them. They liked being able to ask either nurse or doctor questions as soon as questions arose. They learned much in the care of the baby by watching the nurse during the first few days, and gained assurance in taking care of the baby themselves under supervision during the last few days of the hospital period. For the most part, they liked the *ad lib* schedule, because they could observe the easy contentment of the baby. They greatly enjoyed the father's visits, and his participation in holding and learning to care for the baby.

The following appreciative comment on rooming-in, recently received from a mother with her first baby, is typical.

What do I think of Rooming-in? I think it is wonderful. There are a great many observations I could make—all of them complimentary. However, in that case this would become a thesis rather than merely a "list of comments," so I shall simply mention the two most important factors in my impression of this experiment.

My baby girl, Diane Margaret, and I will be going home tomorrow, and I know that if I had not been given the privilege of being in Rooming-in, I would be a nervous wreck tonight. I have often heard the adage that a new mother invariably cries the night before she goes home from the hospital. Well, I can

easily see why. Even though she has read literature on baby care and perhaps attended Mothers' Classes, still she has had no experience in caring for a real live baby. Here in Rooming-in, we new mothers learn first by watching the nurses care for our babies, and then we augment that knowledge with actual experience. Also, we are given answers to all the many important and perhaps some trivial questions that come into our minds as we watch that wonderful little son or daughter.

Our course in Mothers' Classes gave us a great many helpful hints on breast feeding, but in Rooming-in, through the untiring efforts of the nurses and doctors in charge, a mother's desire to nurse her baby finds fulfillment. This is the most important reason why I hope there will be many Rooming-in Units in the new hospital. There are many girls today who sincerely want to breast feed their babies, but they are never given the right start in the hospital, and they find themselves going home with a bottle-fed baby. This situation is a disgrace.

Another great advantage of Rooming-in is that the previously neglected father, who could only see his baby through a glass window, now is given his rightful privilege. He now can watch his baby, hold her, learn to care for her. Consequently, when mother and baby come home, he does not feel afraid or self-conscious, and can be a real help and comfort.

The multiparous mothers, without exception, expressed preference for the rooming-in experience over their previous hospital experience, and stated that they got as much if not more rest in rooming-in as they had had previously; in any event, they said, they felt stronger and more rested at the end of their hospital stay and much more ready to undertake the care of the baby at home. Furthermore, they expressed appreciation for the companionship with other mothers which the Unit afforded. They learned much by observing the other mothers with their babies and exchanging experiences. They became used to the idea that each baby was quite different from every other baby, and that each baby differed in reactions from day to day. They felt they were going home with a baby they really knew, and not with a perfect stranger. Many commented after they had gone

each nurse is able to take care of several mothers and babies throughout the lying-in period and conversely that the mothers have the same set of nurses caring for them throughout their hospital stay. This has been a satisfactory and instructive arrangement for both mothers and nurses. In the first 10 months of operation of the Unit there have been approximately 60 student nurses who have had this experience. Each student has written an evaluation of her obstetrical experience contrasting the experience in the Rooming-in Unit with that on the usual obstetrical ward and nursery service. The obstetrical supervisor⁸ has stated:

Without exception every single student who has been assigned to the Rooming-in Unit has been most enthusiastic about her experience there. Their comments were all in favor of the arrangement. The students say over and over again that this is the first time in their nursing education experience that they have been able to give what they consider ideal care to a patient. I am convinced that this bit of experience, although at the present only 2 weeks in length, is of unexcelled value to the student. She is able to observe every single thing that happens to the mother and the baby and the mother and baby together. She has an opportunity to teach the parents about their new baby. She has an opportunity to explain to them or to answer for them many of the questions that come up in this new relationship. . . . I believe that the nurse giving this care will herself be better prepared both as nurse and as potential mother.

One student writes in contrasting her maternity ward and new-born nursery experience with her rooming-in experience: "It was a sort of race with time that left no individuality for anyone. There wasn't time to wait and see if the baby had taken the breast nor was there time to stop and encourage the mother with the poor nurser, but rather some impatience with the mother who wanted to finish combing her hair or fixing her face at 6:00 a.m. rather than taking the baby. Rooming-in was a great change from the aforementioned. Although we were kept busy, we were not rushed, and there was plenty to do. Having the mother with the baby seemed to make the mother more considerate of the nurse's time. She didn't ask for things to be

done when she could see that the nurse was busy with another mother and baby."

Another writes: "There is a relaxed, peaceful attitude about the Unit which runs without the everlasting clock-control that is found in larger units and especially in the nursery. I did not like working in the nursery or on the ward. In the nursery I felt as though I were running a machine which had to produce freshly diapered babies with a heated formula every 4 hours, and I did not like it on the ward because I felt intensely rushed with beds, baths, meals, and routine postpartum care."

The Visiting Nurse Association of New Haven is represented on the Rooming-in Committee. A cordial working relationship is maintained between the Rooming-in staff pediatricians and the visiting nurses who visit in the homes of rooming-in families through exchange of telephonic reports. As previously indicated, some of the visiting nurses have reported finding rooming-in mothers more independent than other mothers just home from the hospital and more quick to dispense with their practical help. Some of the visiting nurses have found, on the other hand, more time being claimed by rooming-in mothers who want to talk out with the nurse a somewhat complicated family or economic problem in relation to the baby's welfare. Reports on the babies have been generally favorable.

CONCLUSIONS

Procedures in the Rooming-in Unit have met with generally favorable response from both mothers and nurses (and also from staff physicians, fathers, and infants). It has proved to be a helpful educational experience for everyone involved. Multiparous mothers prefer it to the usual hospital procedure because of the help it offers them in getting a good start with the baby, and they therefore recommend it for mothers of first babies. It is too early to evaluate any long range effects. Rooming-in is not applicable to all mothers, and

new methods, new techniques and new standards. Personnel of this type can be obtained only by making special training available to qualified candidates, by financing postgraduate study in public health and by offering scholarships to promising students who are eager to make public health work a career.

The need for capable physicians and nurses, for sanitary engineers, bacteriologists, epidemiologists, statisticians, public health educators, and technicians is a need which has seriously limited the operation of official agencies. Through a series of direct grants to the U. S. Public Health Service and professional organizations, the National Foundation is financing the development of personnel to fill these essential positions. Fully realizing that the conquest of poliomyelitis hinges upon the intensity of the fight against all diseases, we are today strengthening the position of officially constituted organizations by contributing thousands of dollars to the training of public health workers. Let me tell you some of the things that are being done in this respect.

Early in 1946 there existed 1,200 vacancies for physicians and engineers in state and local health departments throughout the country. In a move to encourage widespread interest in public health on the part of physicians and engineers returning from military service, the U. S. Public Health Service applied to the National Foundation for funds to be used in the public health training of personnel recruited to fill these positions. The application was approved in July of last year and a grant of \$228,400 made to provide fellowships for qualified candidates. Up to September 30 of this year 35 awards have been made to sanitary engineers and 18 to public health physicians. Additional applications are under consideration. We feel that the presence in health departments of well trained health officers

and sanitary engineers assures us of maximum efficiency in our efforts to control poliomyelitis. And our support of official agencies does not stop here.

Health education through the facilities of the U. S. Public Health Service has long been hindered by the lack of trained personnel. The well trained health educator, working as a permanent member on the staff of the local health unit, has proved to be of invaluable aid in establishing an overall health program by coördinating the resources of both official and public health agencies within the community. The importance of the rôle played by the health educator has been increasingly recognized by local health officers, many of whom have budgeted funds for the employment of such personnel. But again we face the handicap of an acute shortage of qualified individuals who have a knowledge of both public health and education. To alleviate this situation The National Foundation for Infantile Paralysis has made, since 1944, direct grants to the U. S. Public Health Service totalling \$160,000 to be used for fellowships in public health education. With this support, a total of 58 awards have been made, and many more are needed to meet requirements of expanding health education activities.

The personnel shortage has also been felt severely in public health agencies with regard to orthopedic programs. Supervisory nurses with qualifications in both physical therapy and public health nursing have been most difficult to obtain. The preparation of individuals to fill supervisory posts entails great expense for the agency and for the nurse. In addition, the paucity of teachers of orthopedic nursing has severely limited the development of workers in this field. Only by offering real encouragement to nurses to qualify as directors and instructors of orthopedic nursing courses can we meet the demands of the future.

The National Foundation for Infan-

tile Paralysis is particularly interested in this phase of public health work, for it relies heavily upon the skill of experienced orthopedic nurses to minimize the crippling aftereffects of poliomyelitis and to prevent deformities in its victims. Therefore, since 1940 we have approved a series of grants to the National Organization for Public Health Nursing totalling \$125,950 to train and instruct capable supervisors and directors in orthopedic public health nursing. Up to the present time, 48 scholarships have been awarded, and the National Foundation will continue to support and finance this project which is contributing substantially to the general effectiveness of official health agencies.

Unfortunately, the personnel problem cannot possibly be handled by public health organizations within the limitations of their budgets. The recruiting of qualified individuals is not accomplished in haphazard fashion. For the past 2 years we have underwritten to the extent of \$25,350 the American Public Health Association's field consultation service to state and local health departments in connection with recruitment and selection of personnel and the maintenance of sound personnel procedures.

The same organization was further aided by a 2 year grant of \$10,000 to acquaint city, county, and state health authorities with the importance of the sanitary engineer in maintaining a healthy environment.

It becomes quite evident then that, rather than working in opposition to public health agencies, the National Foundation has maintained a policy of direct assistance in the building of sound, vigorous official organizations, capable of leading the fight against disease within their communities. But it still rests heavily upon voluntary agencies—specialists in their field—to carry on the bulk of the work in combating a specific disease. Every advance that the National Foundation makes against poliomyelitis is an accomplishment in control of all diseases. Every research project carried on with the financial support of the National Foundation is a major effort in the quest for national health. Whether we represent voluntary, private or official health agencies, our goal is the same.

By working hand in hand, by co-operating willingly and energetically, we may look forward to new accomplishments in the service of the American people—and of all humanity.

Coördination of Hospitals and Health Departments

Joint Statement of Recommendations by the American Hospital Association and the American Public Health Association *

THE American Hospital Association and the American Public Health Association have prepared this statement to define the areas in which fuller co-operation and integration of hospitals and health departments may be achieved. The statement is confined to an exploration of these areas and does not concern itself with other aspects of either hospital management or community health organization. It is hoped that hospitals and health departments will find it a useful guide to their attainment of closer working relations in the interests of greater efficiency and improved health service.

Among the foremost institutions which today serve the health of the community is the general hospital. Not only has the hospital developed during the past few decades into the basic institution providing the technical facilities for adequate health appraisal and modern diagnosis and treatment of disease, but it has also become an indispensable workshop for the practising physician. Through its ability to make essential technical procedures available to physicians and other personnel the hospital exercises a strong and direct influence on the quantity and quality of medical and health services.

Because of its important position the general hospital's responsibilities in the

total community health picture have been constantly expanding. In addition to the provision of facilities for medical care of high quality, its functions now include training of medical and allied personnel, medical research, and participation in local public health activities.

Profound changes and advances in the activities of health departments have paralleled this expansion in hospital functions. The achievement and maintenance of ever higher levels of community sanitation is making it possible for health departments to turn increased attention to developing programs to improve individual health through immunization, education, and health supervision; at the same time they have found it essential to provide therapeutic services if communicable diseases such as tuberculosis and syphilis are to be effectively prevented. Health departments have begun to recognize the important public health implications of such major health problems as cancer, heart disease, and other long-term illnesses and to combat them by providing certain facilities to aid in early diagnosis and treatment. In order to secure maximum effectiveness for these campaigns they have begun to develop increasingly closer relationships with hospitals and practising physicians.

Preventive and curative medicine have reached the stage where they are no longer separable, and it is necessary at the present time to bring them together physically and functionally. The close physical and organizational association of health departments and hospitals will

* This report has been approved by the Executive Board of the American Public Health Association on the recommendation of the Committee on Administrative Practice and the Subcommittee on Medical Care. It has been adopted as an official statement of the two associations.

provide a valuable step toward this essential goal.

Hospitals and health departments have a common interest in providing the best possible technical facilities and administrative tools for the further development of both the preventive and therapeutic aspects of medical practice. The expression of this relationship in terms of greater coördination of the activities of hospitals and health departments has already occurred in some communities, but a great deal still remains to be accomplished in this direction.

HOUSING OF HOSPITALS AND HEALTH DEPARTMENTS

Since a considerable increase in the construction of hospitals and public health facilities may be expected in the next few years, it is appropriate that certain advantages of joint housing be pointed out at this time. It is strongly recommended that, wherever circumstances justify and permit, there should be joint housing of hospitals and health departments, and, if possible, the offices of physicians and dentists.

Although coördination of the activities of hospitals and health departments can be accomplished even if they are not closely integrated physically, it is most feasible when there is joint housing of the hospital and health department. The common use of laboratory and clinic facilities, which is difficult to achieve when the two institutions are physically separated, occurs readily when they are housed together. The planning of integrated programs is facilitated by joint housing and their administration is made smoother and more efficient.

Outpost rural areas

The health needs of rural areas which are isolated, thinly settled, and unable to support a general hospital may be met by the construction of outpost health facilities. These facilities would

house the offices of physicians and dentists, diagnostic facilities, the office of the local public health nurse, public health clinics, and in some areas a nursing unit for maternity care and minor illnesses.

The physicians whose offices are located in the outpost facility should be members of the medical staff of the nearest general hospital. Arrangements should be made for transportation of patients from the outpost area to the hospital and for consultation visits by the hospital staff to the outpost facility. Otherwise the outpost personnel may deteriorate professionally owing to their medical isolation or the outpost facility may attempt to undertake functions belonging properly in the general hospital.

Populous rural areas

The establishment of hospitals and public health facilities in many rural areas will require entirely new construction. It is recommended that in these areas hospital and health department facilities be constructed as an integral whole. It is particularly recommended that physicians' offices be included in the new structures so that the time and effort usually expended by private practitioners in shuttling back and forth between office and hospital would be minimized. This arrangement would facilitate laboratory and x-ray examinations of the physicians' patients, prevent unnecessary duplication of expensive technical equipment and make it easier for physicians to consult with their colleagues.*

Many advantages to the public, the health department, and the hospital

* The joint housing of hospitals and health departments has already been effected in a number of areas such as Sonoma, Monterey, and Kern Counties, California, and Washington, Charles, and Wicomico Counties, Maryland. In addition, plans to build combined hospital and public health facilities are under consideration in several counties in California; six districts in Manitoba, Canada; Etowah County, Alabama; Winston-Salem, North Carolina; Schoharie County, New York; El Dorado City, Kansas; and Eaton, Barry, Ionia, Allegany, and Van Buren counties, Michigan.

may be derived from joint housing of hospitals and health departments. A single health and medical center means greater convenience and continuity of service for the public. The pooling of resources resulting from joint housing enables the community to obtain more adequate facilities and better trained personnel than it could otherwise afford.

Through joint housing the hospital achieves greater prestige as the community center for all health and medical activities; it is able to hire a more competent staff by virtue of its increased financial strength and can therefore offer more comprehensive and effective service. Joint housing facilitates follow-up by public health nurses of patients after they leave the hospital, while the medical staff benefits from closer association with public health programs. Furthermore it may stimulate increased public interest in the hospital since more people will visit the institution for health promotion and preventive services rather than as a last resort.

The health officer likewise benefits professionally from more intimate association with physicians engaged in clinical medicine. His health programs receive added impetus from the increased knowledge and interest in public health gained by practising physicians, interns, and nurses. Case finding for public health programs in the hospital wards and outpatient department is facilitated. The health department attains new stature, dignity, and public understanding.

Where the general hospital already exists and health department facilities are needed, it is recommended that the latter be constructed as an addition to the hospital or adjacent to it, and that an understanding be reached between the two agencies concerning joint use of certain facilities in order to avoid unnecessary duplication. This plan, however, may not be practicable in some instances because of the isolated location of the hospital.

While it is administratively easier to combine the rural hospital with health department facilities when both are public institutions, there is little reason why joint housing of voluntary hospitals and public health facilities cannot be achieved.*

Urban Areas

In small cities with one existing general hospital it is recommended that health department facilities be constructed as part of or adjacent to the hospital wherever feasible. It may be more difficult to arrange for joint housing in cities with more than one hospital. Nevertheless, the difficulties are not insurmountable.†

In larger cities public health facilities should, in so far as it is logical and possible, be built as part of or adjacent to general hospitals. Of course this will not be feasible in neighborhoods which do not have hospitals. Where joint housing can be achieved it will have an important effect in improving the coordination and effectiveness of hospital and health department activities.

The cities in which medical schools are located present a special situation. In such cases the principal public health facility should be built on the grounds of the teaching hospital.‡

* In several counties of Maryland, for example, the health department pays rent for that portion of the hospital which it occupies, and the arrangement has proved highly satisfactory.

† In the city of Niagara Falls, New York, which has two voluntary general hospitals, plans are now being considered to construct the principal public health facility adjacent to one of the hospitals and to locate smaller centers at strategic places throughout the city. These plans were formulated with the help of the local medical society and both voluntary hospitals, and received their full approval.

‡ This is the plan followed in Louisville, Ky., where the medical school, teaching hospital, and public health department form a single, integrated medical center. In New York City, five of the municipal public health centers are adjacent to medical schools. The health officers hold faculty positions in the medical schools, and medical students serve clinical clerkships in the public health centers. There is no doubt that considerable advantages accrue to both parties from this arrangement.

PERSONNEL AND ADMINISTRATION

There are many ways in which health department and hospital personnel can work together effectively. In urban areas, for example, coöperative arrangements between hospital social workers and public health nurses can prevent duplication of services and increase efficiency. In rural hospitals and health departments, although medical social workers are not generally employed by the separate institutions, it should be possible to employ a medical social worker to serve both agencies where there is combined housing of the health department and hospital.

In urban as well as rural areas the public health nurse can provide continuity of care for discharged hospital patients by carrying out the treatments recommended by the physician and giving home nursing care and supervision. This is true not only for patients with communicable diseases but for all hospital patients, whether ambulatory or not, who require further home supervision or care. Physicians, hospitals, and health departments should together agree on and carry out simple and effective referral systems.

In many areas the shortage of public health nurses limits the possibilities of this type of service. Nevertheless in some rural communities the public health nurse is able to perform a substantial amount of bedside nursing care. In the cities there has been a significant trend toward the amalgamation of voluntary visiting nurse services with those furnished under the health department program, thereby improving service and increasing the potentialities of physician-hospital-health department coöperation in this field.

There are several ways in which the medical staff of the hospital can contribute to the activities of the health department. Arrangements may be made for members of the visiting staff to conduct specific health department clinics

on a part-time salary basis. Members of the visiting and resident staffs can instruct public health nurses in current medical advances and assist in the health department's educational program by lecturing to community groups. Such service by physicians contributes to the building of a close partnership of physician, hospital, and health department to meet the overall health needs of the locality.

Consideration should be given to broadening the concept of intern or resident training to include a definite period of time spent in a public health department approved for this purpose. This would improve the physician's understanding of the preventive approach to medicine and acquaint him with services available to the public through the health department and other community agencies.

The achievement of closer administrative relationships between hospitals and health departments does not come about automatically but requires careful and continued planning as well as administrative finesse. Where the health department and the hospital are jointly housed but under separate administration, joint conferences should be instituted and definite fields of administrative coöperation outlined to further closer and more harmonious relationships.

In those areas which have a small community hospital and health department the appointment of a single administrator for both organizations may be considered.* There is need for further experimentation in this field.

Closer coördination of the training of health officers and hospital administrators is needed to familiarize health offi-

* In Branch County, Michigan, for example, the health officer is also director of the voluntary general hospital. This arrangement has made it possible to offer sufficient compensation to attract a competent physician. It has also proved highly advantageous in achieving greater coördination of hospital and health department activities and a better quality of administration.

cers with hospital problems in view of their increasing responsibilities for hospital planning, construction, inspection, and licensure, and to develop hospital administrators and health officers who have sufficient understanding of each other's activities to coördinate them effectively. This would also make available personnel competent to direct combined hospital-health department units. Several schools of public health have already recognized the importance of such coördination by requiring one basic course of training for both groups and permitting specialization subsequently in either public health or hospital administration.

PREVENTION OF COMMUNICABLE DISEASE

The control of tuberculosis, venereal disease and other communicable diseases affords numerous opportunities for joint action by hospitals and health departments. Tuberculosis and venereal disease clinics belong properly at the general hospital, not at the city hall or some other non-medical institution. Likewise rapid treatment centers for syphilis should, in so far as possible, be housed in general hospitals rather than organized separately.

With present knowledge of the control of cross-infection there is very little reason for establishing special hospitals for the care of acute communicable disease. With the possible exception of large urban centers such special hospitals are economically wasteful and seldom provide services which meet the total medical needs of the patient. A more rational approach is to use general hospital beds for the care of patients with communicable disease and to obtain the assistance of the health department in developing effective isolation techniques. Such coöperative action will be facilitated if the hospital appoints the health officer to its medical staff as consultant in communicable diseases.

Routine chest x-rays as well as sero-

logical tests for syphilis ought to be undertaken by all hospitals. The interest of the health department in these health protection activities should take the form of substantial financial and technical aid. With such assistance every hospital can become a strategic center in the community attack on tuberculosis and venereal disease.

Close working relationships between general hospitals and tuberculosis sanatoria are necessary to afford sanatoria patients the advantages of modern surgical therapy as well as consultation services. For similar reasons a portion of the newly established hospital beds for tuberculosis should be located in or closely connected with general hospitals.

Laboratory service is essential to communicable disease control as well as to the proper functioning of hospitals. Health departments and hospitals have a vital interest therefore in the planning and development of adequate laboratory service.*

In some states hospital as well as health department laboratories are approved by the state department of health which, in addition, holds an annual educational meeting of laboratory directors and supplies them with current bibliographies on technical subjects. Marked improvement in laboratory standards has resulted from such procedures and they have been well received by hospital laboratory personnel.

PROGRAMS FOR NON-COMMUNICABLE DISEASE

With the progressive conquest of many communicable diseases attention has shifted to other major causes of

* In some of the rural counties of Maryland, the use of a joint laboratory has been found to be advantageous, since the additional financial resources allow the utilization of better trained personnel. In small cities with more than one hospital as, for example, Jamestown, N. Y., it has been found effective to have a single director administer the health department laboratory as well as the several hospital laboratories. This arrangement provides a well integrated laboratory service and enables the community to obtain a director of high caliber.

disability and death. Heart disease, cancer, and mental illness are rapidly becoming recognized as having significant public health implications. The epidemiological study of such diseases—their prevalence and relation to socioeconomic, environmental, and constitutional factors—can shed much light upon their origin, prevention, mitigation, and treatment. The social effects of non-communicable diseases, their chronic nature in many instances, their increasing importance as the population ages and the huge expense involved in their care put them beyond the scope of the individual physician or hospital alone and mark them clearly as among the most important public health problems of the day. Accordingly, there have been renewed attempts to construct adequate systems of morbidity reporting and greater emphasis has been placed on health education as a preventive device in the management of non-communicable disease.

Hospitals provide an effective environment in which to educate the public in health matters.* In addition hospitals are repositories of much valuable information on the incidence of disease which should be studied and utilized in the development of control programs. They occupy an important position in relation to plans for controlling heart disease and cancer and are natural locations for cardiac and tumor diagnostic clinics. The recent development of cancer detection clinics, in which apparently well persons receive thorough diagnostic examinations, promises to encourage greater concentration on this type of preventive activity by the staffs of general hospitals.

It has long been recognized that psychiatry suffers through its isolation from general medicine. Similarly the aver-

age physician, having received little or no training in psychiatry, is handicapped in his ability to recognize, treat or prevent mental disease. The importance of mental illness is indicated by a recent estimate that approximately 1 patient out of every 28 new admissions to general hospitals, and 1 out of every 16 new admissions to outpatient departments presents problems requiring the services of the psychiatrist.

Owing to the passage of the National Mental Health Act a large-scale development of research facilities and clinics for mental hygiene may be expected. In many areas the local and state health departments will be responsible for administering the mental health program and integrating it with other health activities. It will be to the best interests of psychiatry and medicine in general if hospitals welcome the establishment of mental hygiene clinics and incorporate their functions as part of a general hospital service. Large general hospitals should establish psychiatric services for observation and treatment of mentally ill patients and, wherever feasible, the medical staffs of general and mental hospitals should develop liaison in order to provide consultation services to patients of mental institutions and to furnish the patients of general hospitals with skilled psychiatric assistance. In this way a more fully generalized and comprehensive service to the community would be achieved.

MATERNAL AND CHILD HEALTH

Maternal and child health clinics should be easily accessible to the persons served and many must be conducted in communities or neighborhoods which do not have hospitals. Nevertheless, there are numerous instances where the general hospital is easily accessible but is not utilized for such services. This situation, which has arisen from the separate development of hospital and health department facilities, prevents both hos-

* This has been demonstrated by the excellent programs of The Johns Hopkins Hospital in Baltimore and the Shoemaker Clinic in Cincinnati.

pital and health department from operating at their maximum effectiveness in the protection of maternal and child health. Health department prenatal clinics for the adjacent neighborhood should be conducted in the general hospital in order to insure continuity of care, easy transfer of records, and adequate postpartum follow-up. Similar considerations apply to well child and pediatric diagnostic and treatment clinics. The maternal and child health clinics conducted by health departments in areas not easily accessible to hospitals should be affiliated with the central hospital clinics for referral of complicated cases.

Still other opportunities exist for closer relationships between hospitals and health departments. The latter can supply educational literature to hospitals for distribution by physicians to their maternity patients. The state department of health in particular can furnish consultation services by medical, nursing, nutrition, and other staff members. Hospitals can enlist the aid of the health department to prevent outbreaks of infant diarrhea and to develop comprehensive programs and facilities for the specialized care of premature infants, and should cooperate with the health department and practising physicians in their review of maternal and infant deaths. The health department can assist hospital laboratories to make determinations of the Rh factor by furnishing consultation services, providing typing sera, or actually performing the tests.

All too often the public health nurse receives notice of the birth of a child several weeks after its occurrence and the mother is thereby deprived of her advice and assistance during the period when they are most important. This problem has been solved in some areas through cooperative arrangements by which the health department is informed of the birth before the mother and child leave the hospital. In many communities arrangements have been made with

physicians and hospitals for the public health nurse to see the mother while she is still in the hospital as well as make a preparatory visit to the home, thereby establishing the best possible conditions for adequate home follow-up.

The proportion of home deliveries is still too high in many areas. Hospitals should give serious attention to the provision of sufficient maternity beds to meet the needs of the entire community, particularly for the care of complicated cases.

MEDICAL CARE AND HOSPITAL SERVICES

A number of specialized medical care programs, including those for communicable disease, tuberculosis, venereal disease, and crippled children, are recognized responsibilities of health departments, and it is desirable that they be entrusted with new programs of community medical care which may be assumed by various levels of government. It would seem wise therefore for hospital and health authorities to undertake intensive research on several mutual problems. One of these, for example, is the creation of a satisfactory cost accounting system which will be equitable to both the hospital and the health department.

The experience of the last few years, particularly with the Emergency Maternity and Infant Care program, has established the important principle that the hospital receive full cost for the care of patients for which government assumes full responsibility. This precedent should be followed in all public medical care programs provided that an agreed standard of care is established and there is proper cost accounting.

In approximately three-quarters of the states the state health departments have been given the responsibility for hospital surveys and planning incident to the Federal Hospital Survey and Construction Act of 1946, and it is expected that they will be given similar

administrative responsibilities with respect to the construction phase of the program. This will inevitably encourage much closer relationships between hospitals and health departments than have ever existed in the past.

Hospital licensure laws have already been enacted in most states and with few exceptions the state department of health has been designated as the responsible agency. Much of the activity of the agencies administering such laws is of an educational character, designed to assist hospitals in improving standards of service to the public.

A significant expansion in the number of full-time local health departments as well as in the scope of their activities may be expected in the next few years. Similarly the nation's hospital system will be extended to many areas which now lack adequate facilities and greater emphasis will be placed on the community responsibilities of the general hospital. It is important at this time that hospital and health department administrators plan to achieve maximum co-

ordination through joint housing, coöperative use of personnel, and the development of active programs to safeguard and promote the health of their communities.

Members of the Committee

American Hospital Association

E. D. BARNETT, M.D.
ROBIN C. BUERKI, M.D.
GEORGE BUGBEE *
GRAHAM DAVIS
H. V. HULLERMAN, M.D. *
A. P. MERRILL, M.D.
CHARLES WILINSKY, M.D.

American Public Health Association

JOSEPH W. MOUNTIN, M.D.
V. L. ELLICOTT, M.D.
FRED W. JACKSON, M.D.
BASIL C. MACLEAN, M.D.
NATHAN SINAI, DR. P.H.
V. M. HOGE, M.D., *Consultant*
MILTON TERRIS, M.D.*

* Staff members.

SELECTED BIBLIOGRAPHY

General Relationships

1. Relations Between Health Departments and Hospitals *A.J.P.H.*, 18:290 (Mar.), 1928.

Report of a joint committee of the American Hospital Association and American Public Health Association with results of a study of coöperative relationships in regard to clinics, laboratories and hospitalization of communicable disease.

2. Report of the Committee on Public Health Relations, American Hospital Association. *Tr. Am. Hosp. A.*, 38:104, 1936.

Excellent recommendations for coördinated activities in hospitalization of communicable disease, laboratory service, medical social service, clinics and outpatient departments, maternal and infant care, venereal diseases, cancer, diabetes, tuberculosis, cardiac diseases, mental hygiene, etc.

3. Hospitals and Health Departments. Commission on Hospital Care. *Hospital Survey News Letter*, Aug., 1946.

A brief and concise analysis of the need for closer coördination, with concrete suggestions in regard to personnel, facilities, administrative relationships, and specific integrated programs.

Housing

4. Hospital Survey and Construction Act of 1946.

Text of Public Law 725, 79th Congress and text of regulations issued by the U. S. Public Health Service.

5. The Public Health Center and the Community Hospital. V. M. Hoge. *Mod. Hosp.*, 63: 56 (Aug.), 1944.

Describes the advantages of building combined hospitals and public health centers in rural areas. Includes plans of a 50 bed rural hospital and health center.

6. Hermann M. Biggs' Contribution to the Modern Concept of the Health Center.

M. Terris, *Bull. Inst. Hist. Med.*, 20:387 (Oct.), 1946.

Description of Hermann M. Biggs' health center proposals of 1920, which included hospital and health department facilities in a single center.

7. The Health Center—Adaptation of Physical Plants to Service Concepts. J. W. Mountin, and August Hoenack. *Pub. Health Rep.*, 61:1369 (Sept. 20), 1946.

Discussion of four types of health center plans:

1. Those designed for public health agencies alone
2. Those that combine the hospital and public health agencies
3. Those that provide accommodations for the health department and practising physicians

4. Those that combine the health department, the hospital, and offices for practising physicians

8. Hospitals. U. S. Public Health Service. Reprinted from *Architectural Record*, Aug., 1945.

Blueprint of a coordinated hospital service plan, including plan suggestions for a 50 bed rural hospital and public health center and an outpost rural health center with 10 bed nursing unit.

9. Better Hospital Care for the Ambulant Patient. Hospital Association of Pennsylvania, Harrisburg, Pa., 1946.

Study of clinic services in Pennsylvania, with comprehensive discussion of the role of hospitals in relation to group clinics, health centers, and civilian rehabilitation.

10. Schoharie County Health Service. New York State Department of Health and the Joint Hospital Board, Sept., 1946.

Detailed report to a county board of supervisors on a combined hospital-health department unit.

Specific Programs

11. The Care of Acute Communicable Diseases in General Hospitals. Commission on Hospital Care, *Hospital Survey News Letter*, Jan., 1946.

A good analysis of the reasons why patients with acute communicable disease should be cared for in general hospitals.

12. Tuberculosis Control. *Hospitals*, Aug., 1946.

A portfolio of information on tuberculosis control prepared in collaboration with the U. S. Public Health Service, with special emphasis on the role of general hospitals and the routine use of admission chest x-rays. Articles on methods, finances, records, etc.

13. Health Education in Hospitals and Out-Patient Departments. Henriette Strauss. *A.J.P.H.*, 35:1175 (Nov.), 1945.

The experience of the Department of Preventive Medicine at The Johns Hopkins School of Medicine in organizing a health education program in the hospital.

14. Education While They Wait. Elisabeth M. Ferber. *Mod. Hosp.*, 66:63 (Apr.), 1946.

The use of motion pictures as a health education medium in the Shoemaker Clinic in Cincinnati.

15. Hospital Licensing Act. Council of State Governments, Chicago, Jan. 1, 1947.

A model hospital licensing act prepared by the Council of State Governments in cooperation with hospital, public health, and medical organizations.

American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

May, 1948

Number 5

Editorial Board

REGINALD M. ATWATER, M.D.
Chairman, and Managing Editor

LEONARD GREENBURG, M.D.
PROFESSOR JOHN M. HENDERSON
RALPH S. MUCKENFUSS, M.D.

STUART MUDD, M.D.
RAYMOND S. PATTERSON, PH.D.
GEORGE ROSEN, M.D.

C.-E. A. WINSLOW, Dr.P.H., *Editor*

AUGUSTA JAY, *Editorial Associate*

PROGRESS IN THE STUDY OF ORGANIC INSECTICIDES

TWO years ago, Dr. F. C. Bishopp¹ reviewed for us the status of DDT as a public health insecticide; and progress in this field has been so rapid that we have asked Dr. J. M. Andrews of the U. S. Public Health Service Center at Atlanta to bring the subject up-to-date, in the Special Review Article of this issue of the *Journal*. The importance of such a review is indicated by the fact that Dr. Andrews cites 134 articles bearing on the subject, most of them appearing within the past two years.

The use of DDT has been brilliantly justified by recent experience, particularly in dealing with malaria, with murine typhus, and with various diseases carried by sandflies. It has been useful in the control of the house-fly, but with certain distinct limitations, which the sanitarian should bear in mind. DDT is not effective against the larvae of house-flies and blow-flies, and certain strains of house-flies appear to develop special resistance against this insecticide in the adult state, a phenomenon analagous to the evolution of drug-resistant strains of various pathogenic microbes. It is clear that fundamental sanitary measures for the control of fly breeding cannot be neglected.

Dr. Andrews reviews suggestive studies of various solvents used with DDT and of new alternative insecticides such as Chlordane and DDD. He notes the importance of guarding against toxic effects, although "DDT when used as an insecticide, with reasonable intelligence and the precautions normal to the use of modern insecticides, is harmless to man and animals." He emphasizes the need for regulating dosage, when insecticides are applied on a large scale over wide unoccupied areas to destroy insects harmful to health, forest trees, or agricultural crops, so as to avoid upsetting the general balance of wild life.

All in all, we believe that this review will be of unusual value to our readers. The use of the new insecticides marks one of the major advances in the history of public health; and it inaugurates a far-reaching change in sanitary practice through the replacement of rule-of-thumb (or rule-of-nose?) nuisance control by scientific sanitation.

REFERENCE

1. Bishopp, F. C. *A.J.P.H.*, 36:593, 1946.

THOMAS PARRAN

THE United States Public Health Service has a history of a century and a half behind it (although for the first part of that period it was called the Marine Hospital Service and performed only the function of providing medical and hospital care for sailors of the Merchant Marine). Hugh S. Cumming, Surgeon General from 1920 to 1936, transformed the organization from a sound but somewhat pedestrian service to a vital and progressive one; and many of the outstanding leaders of the U. S. Public Health Service were brought forward to positions of influence under his regime. "Tom Parran," who succeeded him has presided with wise vision and courageous initiative over the most distinguished era in the history of the Service.

The following brief chronological list of the major new ventures undertaken during the twelve years of General Parran's service (which ended this spring), is an impressive record:

1937. Initiation of a National Research Program on the cause and cure of cancer.

1938. Initiation of a National Program for the control of venereal diseases (in which Dr. Parran's personal leadership was particularly influential in breaking down old prejudices and which has made most fundamental contributions to the administrative application of modern rapid-treatment methods).

1943. Organization of the United States Cadet Nurse Corps, which was of great value in meeting war needs.

1943. Radical reorganization of the structure of the Service, to secure greater efficiency in operation.

1944. Initiation of a National Tuberculosis Control program.

1946. Initiation of a National Mental Health Program, probably the most effective step ever taken in this or any other country; to translate talk into action in this most important and most neglected field of public health.

1947. Actual initiation of a nation-wide survey and construction program to develop essential hospital and health services for neglected areas.

Meanwhile, the outstanding program of research, at the National Institute of Health, has been continued and expanded, so that this Institute represents the most fruitful research agency in the field of public health anywhere in the world. Grants-in-aid to states, local health services, and institutions for expansion of public health work and research have averaged 13 million dollars a year in recent years, while for the same period expenditures by states have increased from 16 to 52 million dollars a year.

Dr. Parran had been released from 1930 to 1936 to serve as Commissioner of Health of the State of New York, where he built up—on the foundation laid by Hermann M. Biggs—one of the most outstanding state health departments in the country. In recent years he has made notable contributions in the field of international health, and presided at the New York conference where the Constitution of the World Health Organization was drafted in 1946. It is as the "S.G." however, that he is most widely known to us. It was primarily for his leadership of the U. S. Public Health Service that he received 16 honorary degrees, and the Sedgwick Medal and the Lasker Award from our Association. With no prejudice to his predecessors who served in less health-minded years, Thomas Parran stands today as the most outstanding Surgeon General of the world's most outstanding national health service. He is a young man of whom we shall hear more in the future.

THE BATTLE OF BRITAIN

THE new British National Health Insurance Act will come into force on July 5, replacing the present National Health Insurance program which on that date goes out of existence. At the present writing, the British Medical Association plans to refuse participation, supported by a two million dollar Fighting Fund (described by the lay press as a "Strike Fund"). Feeling on both sides is bitter. The *British Medical Journal* raises the cry of governmental dictatorship, and frankly appeals to "emotion as the driving force behind reason and action." The *New Statesman* says that the British Medical Association is "seeking to debase" the generous motives which animate the healing art "by arousing emotions which, when they are sincere, are mistaken, and, when they are less than sincere, are a betrayal of the doctor's calling and of the loyalty and affection of his patients."

The conflict is a tragic one; and it is important for us, in the United States, to understand what the shooting is about. Many Americans have been led to believe that it concerns the basic principles of compulsory health insurance; but this is not the case. England has had compulsory health insurance for more than thirty-five years. "All concerned, doctors as well as public, recognize the need for a National Health Service; all accept broadly the structure of the Act in regard to the whole hospital system; all realize that there must be a public medical service based wholly or mainly on capitation fees. This is as it should be; fundamentally this is a good Act; its provisions are better than most previous proposals and it gives to doctors themselves a far larger representation than they did have—on Executive Councils, Appeal Tribunals, Medical Practices Committees, and the rest—in the administration of the Act."¹ The negotiating committee of the medical profession itself pointed out that "such differences as have arisen between the government and the main body of the profession relate not to the objective itself (the establishment of a comprehensive medical service), but to the means proposed to achieve the objective."

The issues which divide the medical profession from the government are four in number:

The first of these, and the one which perhaps bulks largest in discussion, is the provision of the Act which establishes a basic salary of 300 pounds for every physician, to which will be added capitation fees based on the number of families served. It is estimated that a moderate practice should yield a total income of 2,000 pounds. The basic salary is included in the Act to make sure that the young physician just starting in practice shall have at least a minimum income while he is building up his panel practice. The British Medical Association resents this as an "entering wedge" for the principle of salaried service and proposes a higher capitation scale as an alternative.

A second bone of contention is the provision in the Act that practices built up on a panel basis in the future cannot be sold by a retiring physician to a potential successor. (The government has arranged to recompense all physicians for the cash value of practices existing prior to July.)

A third point of conflict is the provision in the Act that if a physician wishes to move to a new area, he cannot take a panel practice in that area without the permission of the committee representing the panel doctors in that area. Private practice for the well-to-do, as well as consulting service by specialists, will be, of

course, entirely free; and the decision whether local panel practice is sufficient to warrant an additional panel practitioner is made, not by any government official, but by the local panel practitioners themselves. A fund of 400,000 pounds is provided for inducements to physicians to serve in "under-doctored" areas.

Fourth, the British Medical Association objects to the fact that the decision of a local executive committee (50 per cent medical) to remove a physician's name from the panel list can be appealed only to a special tribunal composed of a lawyer appointed by the Lord Chancellor, a medical practitioner appointed after consultation with the medical organizations and a third, with experience in local executive committees. A decision of this tribunal unfavorable to the physician concerned may be vetoed by the Minister of Health, but not a decision favorable to him. The British Medical Association demands further appeal to the lay courts.

There have been certain minor points at issue; but these are the four major factors which threaten to produce a "Doctor's Strike" in Britain next July.

No one in this country can fully evaluate the issues involved; but such journals as the *London Spectator* give us a picture of the trend of public opinion in quarters sympathetic with the medical profession. Such opinion is reasonably unanimous in supporting the Minister of Health on points 3 and 4 above (avoidance of excessive competition for panel patients in an "over-doctored" area and prohibition of the sale of public panel practices). The opposition of the British Medical Association to these two provisions seems to have little public support. On the fourth point, right of appeal from the Minister of Health to the Courts on the part of the practitioner removed from a panel, public opinion seems generally to back the new Act; it would seem, however, that a concession on this point to the British Medical Association would not do anyone serious harm.

The first issue listed above, the basic 300 pound salary, would also appear to be properly open for conference and possible reconsideration. The purpose of this provision is an excellent one. Such a salary was included in the report of the Medical Planning Commission, representing the British Medical Association and other medical bodies, in 1942. Yet the present opposition to this basic salary is so strong that its elimination or modification might well be considered.

The *London Spectator* said—before the result of the doctors' plebiscite was known—"It is of cardinal importance that the Act shall come into force on the appointed date, now less than five months distant, and that it shall be worked not by men driven into a corner against their will, but by a body of practitioners determined under conditions which satisfy them to do their best for the health of the nation, as every doctor is doing today. Difficult as the situation is, there is no reason why this should not happen, for sharp though certain outstanding differences may be, none of them is incapable of adjustment. There can be no ultimatum to the doctors; nor can there be one by the doctors. When the result of the plebiscite is known some kind of contact between the Minister and British Medical Association must be reestablished. And the public, for whom this Act was devised and who need it urgently—particularly that large middle class, uncovered by National Health Insurance, on which a long illness or a serious operation falls with such crushing financial weight—must insist that outstanding questions be thrashed out between reasonable men in a spirit of common sense."

REFERENCE

1. *The Spectator* (London), Feb. 13, 1948, p. 184.

THE JOURNAL INDEX

THE last issue of this *Journal* was devoted to books; but to the scientist in any field periodical literature is equally important, and often more difficult to find when you want it. How often have you wondered where you saw that typhoid epidemic described or where that excellent article on health education appeared?

You will find the answers, so far as our *Journal* is concerned in a complete Index of its first 35 volumes (1911-1945). The preparation of this Index by Louise Pickens Tanner and Fred Wilbur Tanner has been a labor of love for which the Association owes these authors a deep debt of gratitude. It covers original communications, editorials, committee reports, and Association news, cross-indexed by subject and author; and occupies 335 pages of text. Here, you can find reference to what Biggs said about tuberculosis in France in 1918, to what Chapin wrote about air and contact infection in 1912, and to Sedgwick's Presidential address in 1913. This volume will be invaluable for our members and for students of public health in every country.¹

REFERENCE

1. The volume may be obtained from The Garrard Press, 119 West Park Avenue, Champaign, Ill., at a price of \$7.00.

Clearing House on Public Health Salary Information

Salaries in State Health Departments

IN February the State and Territorial Health Officers Association released the study of salaries of state public health workers prepared at its request by the U. S. Public Health Service.

The study represents actual salaries paid* state health officers, 9 selected program directors, and 6 occupational groups of public health workers in the employ of state health departments in November, 1947 — medical, nursing, sanitary engineering, sanitation, nutrition, and professional laboratory personnel. The study does not represent a detailed job analysis of positions. It is therefore based on comparable titles which do not always represent comparable levels of responsibility. In spite of its lack of statistical refinements, this study serves a useful purpose in focusing attention on salaries.

Nor does the study indicate desirable salary levels. For practically all titles studied the salaries range widely among the 48 states. The highest salaries paid by a few states may not be within reach of all states, but it is certain that in most instances median salaries or less will not produce substantial responses from applicants.

The data of the study are shown entirely in the form of charts. These are of three kinds: bar charts showing in descending order the amount paid state health officers and bureau directors in 9 categories; bar charts showing salary ranges for 8 groups of workers in rela-

tion to number of persons in each salary class; and tables showing number of workers in the eight groupings in various salary classifications in each state, the states grouped in the U. S. Public Health Service Districts.

State health officer annual salaries range from \$5,000 to \$15,000, but in only 7 states were they as high as \$10,000. These states are in New England, the Middle Atlantic, South Eastern, and Pacific Coast regions. The median was \$7,500 which is also the mode and was paid by 10 states. In 17 states the health officer's salary was less than \$7,000, and in 6 states less than \$6,000. For directors of local health services salaries ranged from \$4,500 to \$9,600.

Of the directors of medical specialties, the director of tuberculosis control activities appears to be slightly in the lead. The range of salaries and the number in certain salary groupings are shown in Table 1 for three groups of medical specialties.

No medical personnel other than state health officers received more than \$9,000 except in one state. One such worker in each of 3 states in 3 different regions was paid less than \$3,600. A total of 133 workers, one-sixth of the number in this category, received less than \$5,000. These salaries were scattered among all regions except the Pacific Coast states.

State directors of sanitary engineering, of whom 47 were reported, were paid salaries ranging from \$4,250 to \$11,000. The median, paid in 3 states, was \$6,000. Nine state sanitary engineers

* Except in some instances in which position was vacant and minimum rate shown in the State Compensation Plan was used.

TABLE 1

	<i>Maternal and Child Health Service</i>	<i>Venereal Disease Control</i>	<i>Tuberculosis Control</i>
Number of States Reporting	47	39	38
Highest Salary	\$7,750	\$9,200	\$11,700
Lowest Salary	4,200	4,200	4,500
Median Salary	6,250	6,000	6,300
Number Receiving			
\$7,500 and over	2	3	6
Less than \$6,000	18	15	11
Less than \$5,000	7	6	4

received \$7,000 or more; 12 received less than \$5,000.

The median salary of the 446 sanitary engineers below the rank of directors was between \$4,000 and \$4,200; 44 per cent of the entire number received less than \$4,000 and one-seventh received \$5,000 or over. Seven persons in this category received \$7,000 or over. Nearly half of the salaries ranged between \$3,600 and \$4,400.

For this group of workers the median was the same in all areas except the Pacific Coast states where it was \$4,200-\$4,400 and the Mountain states with \$4,000. These two areas are less significant because of the small numbers involved.

Sanitation personnel is treated as a separate category throughout the study. In the effort to get a reasonably homogeneous group, veterinarians, entomologists, rodent, bedding, and drug and narcotic inspectors were omitted. Even this group of 1,388 workers represents a wide range of salaries and presumably also of qualifications.

Salaries of this group range from \$1,440 to \$9,200 with both the median and the mode between \$2,400 and \$2,600. Fewer than 1 per cent received more than \$5,000; and one-fourth less than \$2,400. Median salaries for this group vary rather widely for the different regions of the country. Only in the Eastern and Southern states, which employed two-thirds of the reported workers in this category, is the median as low as the national median.

In the Mountain, West North Central, and South West states the median is \$2,600-\$2,800; in the East North Central, \$3,000-\$3,200; and in the Pacific Coast states \$3,200-\$3,400.

This material also shows an interesting relationship between sanitarians and sanitary engineers. For all of the states a ratio of one engineer to three sanitarians is indicated by the figures. The range however is from practically an equal number of engineers and sanitarians in the East North Central states to more than six sanitarians per engineer in the 12 Southern states.

The ratios are shown in Table 2 by the U. S. Public Health Service districts:

TABLE 2

<i>U. S. Public Health Service District</i>	<i>Engineers</i>	<i>Sanitarians</i>	<i>Ratio of Sanitarians To Engineers</i>
Total	446	1,388	3
1	124	278	2+
2, 4	102	649	6+
3	92	117	1+
5	20	56	3-
7, 9	100	245	2+
8	8	43	5+

Laboratory personnel is divided into directors and one other group limited to professional workers. Forty-five states reported directors of laboratory services with salaries ranging from \$3,600 to \$10,000. The median was \$6,000. Twelve states paid less than \$5,000, and only 6, \$7,000 or more.

Nearly one thousand of the workers other than directors were reported with salaries ranging from less than \$1,400 to more than \$7,400. The median was between \$2,800 and \$3,000 and the

Credit Lines

FURTHER LIGHT ON THE PECKHAM HEALTH CENTER

The Pioneer Health Center in London (otherwise known as the Peckham Health Center) has been discussed in connection with the centennial meetings of the Community Service Society of New York which brought Dr. Innes H. Pearse and Dr. G. Scott Williamson to New York in March. The following notes supplement the information that is available in the volume *The Peckham Experiment—A Study in the Living Structure of Society*, by Innes H. Pearse, M.D., and Lucy H. Crocker, B.Sc., published by Yale University Press, 1945, 333 pp., price, \$3.50. (See *A.J.P.H.*, 34, 10:1103 (Oct.), 1944.

A conversation between the executives of national health agencies and Dr. Pearse brought out the following interesting factors:

Throughout the development of this plan the interest has been focused on insusceptibility rather than on susceptibility to disease. The center of interest is health rather than disease. The family is the unit, for all the thinking and planning and experience has shown that the earlier recognition of various derangements, both physical and psychological, gives a great advantage in prompt action and correction.

Dr. Pearse believes that the causation of disease lies as much in the environment as in the individual.

Being reluctant to invade the homes for case work, the group set up a recreational club to bring the people out on their own volition and to provide a center where the medical services could be carried out. Two thousand families have been included in this service, made up of about 8,000 individuals. A so-called "overhaul" examination was carried on 5 days a week from 2 to 10

p.m. Throughout this examination that which was right in the individual's health was sought rather than that which was wrong. In about 10 per cent of the persons nothing wrong appeared but this 10 per cent that was physically and mentally normal was not necessarily made up entirely of mature and well adjusted individuals.

Of the entire group, about 20 per cent came in with some disease or complaint and experience showed that at least half of these conditions were unknown to the medical profession. In this particular group money was not the primary reason for keeping people away from medical care.

One of the most prominent developments was the improvement shown by women in the capacity to carry on during pregnancy so far as family responsibilities were concerned.

The service made a point, since the family was a unit, not to forget the father of the family, who is usually away at work during the ordinary clinic hours.

A very clever means of admitting only those who were members and whose dues were paid was devised in individual keys for the door which automatically registered the attendance of the individual and would admit him only if his dues were paid. This method was also used in the study inside the center in studies of what is called the "Action Pattern."

A motion picture describing the Pioneer Health Center under the title of "The Center" is available in the United States from the Offices of the British Information Service, 30 Rockefeller Plaza, New York City.

ETCETERA

If you do not see the *Statistical*

Bulletin of the Metropolitan Life Insurance Company regularly, you should. Just as an example, the November, 1947, issue discussed "The Tuberculosis Problem—Retrospect and Prospect," the theme of which is "The time is ripe for an all out war to stamp out tuberculosis in our country," and significantly, "Side by side with these specific measures is the general effort to provide better housing and better living and working conditions generally for the people of our country."

Other articles in this issue are "The Chances of Being Born Alive," which we are told are determined by a variety of factors, among them "order of birth"; another estimates that the cost of the common cold is over a billion dollars a year and thus "must be rated high in the list of enemies of the public health."

The same issue reports a sharp increase in motorcycle accident fatalities, and on the other hand a decline in mortality from toxic goiter.

SOUTHWESTERN MINNESOTA HEALTH DAY

"Health Day" may come to be a technique for organizing communities to meet their health problems. At any rate, a group of six counties comprising the Southwestern corner of Minnesota along with the Southwestern Minnesota Medical Society and its Women's Auxiliary and the Minnesota Department of Health State District Health Unit in that area tried this technique late in February. Representatives of the Minnesota School of Public Health, farm and labor groups, public schools, nursing and welfare agencies, and representatives of the state health department all met in Worthington to discuss "Our Community Health Problems," "Farm and Home Safety," and "Mental Health in Child Development." The six counties participating in this "Health Day" have a total population of about

100,000 and make up one of the State District Health Units. This experiment in coöperation might be a first step in setting up a local district health unit. Further information can be secured from The Division of Public Health Education, Minnesota Department of Health, Minneapolis 14.

DOCTORS CONSIDER THEIR SOCIAL RESPONSIBILITY

"The Plight of the Negro Physician in American Medicine" was the subject of a recent public discussion held at the New York Academy of Medicine under the sponsorship of the Physicians Forum. Speakers were:

Montague Cobb, M.D., Professor of Anatomy at Howard University
Alfred E. Cohn, M.D., Rockefeller Institute for Medical Research
Curtis Flory, M.D., Chairman, New York County Chapter of the Physicians Forum's Committee on Civil Rights in Medicine

It is heartening to see physicians take some responsibility for understanding—and perhaps doing something about—the disadvantaged members of their profession.

"THE ANNUAL," WESTERN BRANCH A.P.H.A.

There has recently come from the press, under the auspices of the Western Branch American Public Health Association, a first issue of *The Annual*, representing a résumé of papers presented at the first post-war meeting of the Western Branch held in San Francisco in May, 1947. This excellent publication was made possible through the contributions of several pharmaceutical houses to the Western Branch.

The five chapters include papers on Preparation for Public Health, on Mental Health and Geriatrics in a Public Health Program, on Public Health Administration, on Housing and Community Planning, and on Communicable Diseases. Included are the

Presidential Address of Karl F. Meyer, M.D., and the address of Thomas Parran, M.D., Surgeon General, U. S. Public Health Service, on Expanding Responsibilities and Opportunities in Public Health. Other contributors are Drs. Charles E. Smith, Harold D. Chope, Edward S. Rogers, Robert H. Felix, Kent A. Zimmerman, Lester Breslow, Alfred M. Popma, Howard West, Florence R. Sabin, Malcolm Merrill, Arthur Ringle, L. J. Lull, J. S. Cull, Raymond V. Stone, Richard K. C. Lee, James H. Steele, W. R. Giedt, G. L. Dunnahoo, and William McD. Hammon. The field of health education was covered by Dorothy B. Nyswander, Ph.D., that of graduate training in the West for nurses by Miss Mary J. Dunn, that of engineering training by Professor Harold B. Gotaas, and housing by Charles L. Senn and Allan A. Twichell.

The officers of the Western Branch are to be congratulated on having produced so commendable a volume in spite of the difficulties. The Publication Committee was under the Chairmanship of Richard A. Koch, M.D., San Francisco.

"CRADLE TO THE GRAVE" SOCIAL SERVICES OUTLINED

If, as has been said, a country may be judged by the way it cares for its children and its aged folk, there is plenty of evidence now available for judgment to be passed on modern Britain.

The evidence has just been summarized in a pamphlet *Social Services in Britain*, produced by the British Information Services, 30 Rockefeller Plaza, New York 20. This summary not only includes welfare schemes for the very young and the very old in Britain, but also the new security measures covering the sick, the unemployed, expectant and nursing mothers, widows, parentless children, the industrial injured, and even the decent disposal of the dead.

In other words it demonstrates Britain's claim to care for its citizens "from the cradle to the grave."

PREVENTIVE MENTAL HYGIENE IN WELL BABY CLINICS

Beginning in October, 1947, the Baltimore City Health Department in its Eastern Health District began a program designed to make preventive mental health a part of the general public health services offered in the well baby and maternity clinics. Before the program was started seminars were held for physicians and nurses to outline preventive mental hygiene possibilities in their maternal and child health work.

This program, together with an "Outline of Mental Hygiene in Maternal and Preschool Child Health for Public Health Nurses" is described in *Baltimore Health News* (25:1-2 (Jan.-Feb.), 1948), which is available from the Baltimore City Health Department, Municipal Building, Baltimore.

DISINFECTING WATER MAINS

"A Procedure for Disinfecting Water Mains," appearing in the February issue of the *Journal of the American Water Works Association*, is a report approved by the A.W.W.A. Board of Directors on September 30, 1947. It suggests both preventive and treatment procedures to minimize the possibility of contamination of a water system. The laying of new systems and repairing of existing ones are also covered.

ENGLISHMAN SUGGESTS A HYGIENIC FORK

The author of *A Hygienic Fork*, I. Gordon, M.D., Edin., Deputy Medical Officer of Health, Ilford, Essex, England, calls attention to the fact that very little change has been made in the design of tableware as a means toward better eating utensil sanitation. He suggests a three pronged dinner fork having tines half the length of those in the con-

ventional fork, with the edges and bases of the prongs bevelled for greater ease in cleaning. This article appears in the August 9, 1947, issue of *The Lancet*, a weekly British medical journal.

BERNARD BARUCH ON MEDICAL CARE

The Committee for the Nation's Health has made available reprints of Bernard M. Baruch's address on *Medical Care for the People of America*. This was recently delivered at a dinner sponsored jointly by the Medical Society of the State of New York, The Coordinating Council of the Five County Medical Societies of Greater New York, and the Greater New York Hospital Association. In this he says "I would not be frank—nor friendly—if I did not add what you know. Voluntary health insurance is not enough." Available from Committee for the Nation's Health, 1790 Broadway, New York 19.

A SURVEY OF OPERATING DATA FOR WATER WORKS IN 1945

The February, 1948, issue of the *Journal of the American Water Works Association* reports on a survey of basic financial statistics of water works systems in the United States. This survey is based on a report of a committee authorized by the Board of Directors of the A.W.W.A. These data were compiled from questionnaires sent to the executives of properties in the United States serving communities of 10,000 or more. Of these, 462 were returned, representing approximately 50 per cent returns. Data for each community on population served, source of water supply, controlling agency, volume of water provided, expenses, and income are included.

PUBLIC HEALTH IN BRAZIL

Several articles on tropical medicine and sanitation in Brazil are contained in the July, 1947, volume of the *Journal of the Servico Especial de Saude Publica*.

Included are data on the incidence and mass treatment of intestinal parasitism in the valleys of the Amazon and Rio Doce Rivers, experiences with DDT and pyrethrum in the control of *Anopheles darlingi*, and a report on the construction of municipal water supplies in the area of the Rio Doce. Also included are a number of keys to the identification of Brazilian anophelines.

The Servico Especial de Saude Publica was created by an agreement between Brazil and the United States, represented respectively by the Ministry of Education and Health and the Institute of Inter-American Affairs. Operations have been continuous since 1942 with particular emphasis on public health practices in the more remote regions of Brazil.

100 YEARS OF PIONEERING

The Community Service Society of New York completes its first century in 1948. By way of celebration it is holding a series of symposia on "The Family in Tomorrow's World." Symposium II on March 17 and 18 concerned itself with "Health and Family Life." Among the speakers were Martha M. Eliot, M.D., President of the American Public Health Association, Professor C.-E. A. Winslow, Editor of the *Journal*, Hugh Leavell, M.D., of the Harvard School of Public Health, W. R. Aykroyd, M.D., of the United Nations Food and Agriculture Organization, and Bailey B. Burritt, Executive Director of the National Health Council, who for 30 years was General Director of the Community Service Society.

The memorial volume published in connection with the centenary celebration is a handsome book entitled *Frontiers in Human Welfare*. It is a thrilling story of the movements this agency, one of the oldest in New York City, pioneered. They are large in number and varied in interest—tenement house reform, milk inspection, visiting nurse

service, social service education, case work standards, nutrition service, old age care, fresh air camps, and a multitude of others.

For information about the published proceedings of the symposia and about *Frontiers* write Community Service Society, 105 E. 22nd St., New York.

WILL DALLAS LEAD THE WAY?

The following editorial appeared in the *Dallas Morning News* for February 23. Is this a harbinger of local government organization in which consolidated health units will lead the way? Whether a flash in the pan or the beginning of a trend, it deserves the consideration of every public official—health and otherwise.

One-fourth of the nation's population is without adequate health service, Dr. Haven Emerson, member of the American Public Health Association, says. He blames lack of funds. There aren't enough funds for all the departments, but the big trouble is too many departments.

The forty-eight states have some 18,000 local health units. That figures out an average of about six departments per county. Dr. Emerson, recognizing the inefficiency in this multiplicity, says 1,200 departments can do the job, or an average of about one health department for every three counties.

Drop Dr. Emerson's criticism right in the middle of Dallas County, and it is apt. We have twice as many health departments as we need. To go further, we have twice as many tax offices and policing agencies as we need. To go further, Texas has twice as many counties as it needs.

Until there is a sensible merger of these services, they are never going to be what they ought to be. As long as we have a county tax office that is king bee in its own sphere and a city tax office in its sphere, the tax payer is going to suffer in his sphere.

Unified control, uniform regulations and enforcement, permanence of policy, and tenure for employees would give Dallas County a public health service that would be the envy of the state.

The day will come, of course, when not only city and county services are consolidated, but the consolidation of services of several contiguous counties will be effectuated. A

boundary will be meaningless when urban centers run into other urban centers. In the meantime, merging Dallas's two health departments is a sensible step toward the efficiency the tax payer deserves.

PIERRE THE PELICAN SERIES

The Louisiana Society for Mental Health, Hibernia Building, New Orleans 12, has produced a series of pamphlets which is being distributed to the mothers of new-born babies, one pamphlet a month for twelve months. These pamphlets are designed especially for the parents of first-born children and are unique because of the simplicity and highly focused interest.

According to Lloyd W. Rowland, Ph.D., the Director of the Society, the reading level is the sixth grade and several unique educational devices have been included. The series has been prepared for "a highly motivated group" and the conversations have been put into a little character invented for the purpose—Pierre the Pelican. He carries the discussion through and gives continuity to the pamphlets and succeeds rather well in keeping the discussion from becoming long-haired. Quiz forms have been cleverly used at the end of each pamphlet.

The series is already being used in West Virginia and certainly the idea will have appeal elsewhere. Among those who have been consulted with reference to the series are Dr. C. Anderson Aldrich, Professor of Pediatrics of the Mayo Foundation; Dr. Milton J. E. Senn, Associate Professor of Pediatrics in Psychiatry at Cornell University Medical College, and Dr. Robert L. Sutherland, Director of the Hogg Foundation for Mental Hygiene at the University of Texas. Specialists from Ohio State University have been used to adjust the language to the proper level. It is gratifying to see an unusual piece of work so well done. It is worth the attention of other state departments of health and of mental hygiene.

FOOD HANDLERS' SCHOOLS

Food Handlers' Schools in Hawaii describes the preparation and actual presentation of a course of instruction for food handlers. Suggestions are given on such subjects as selecting the time of day for classes, location of the school, size of class, extent of records, and literature to be distributed. Discussed also are publicity, program content and methods of presentation, illustrations of charts used, and photographs of laboratory preparations demonstrated as part of the course. This report, prepared by B. J. McMorro and F. A. Schramm, appears as *Supplement No. 199* to Public Health Reports of the U. S. Public Health Service.

PTA FOLLOWS THROUGH

The April *National Congress Bulletin* of the National Congress of Parents and Teachers, in an open letter to its local presidents from its national president, Mrs. L. W. Hughes, brings its members up to date on the Local Health Services Bill (S. 2189, H.R. 5644, H.R. 5678) sponsored by PTA. Mrs. Hughes summarizes the action of her agency's February Health Conference and suggests how each local chapter may stimulate community health planning. The same issue carries a digest of the Local Health Services bill by PTA's legislative chairman, Mrs. Stanley G. Cook.

ANNUAL REPORTS

Twenty-five Years of Public Health in New Mexico, the report of the first quarter century of the New Mexico's State Health Department, has just been published for the period 1919-1944.

It will be remembered that New Mexico is the only state with a mandatory health district law grouping the state's 31 counties into 10 health districts whose health departments are operated by local boards of health with the coöperation and assistance of the State Health Department. The events

that led up to this mandatory law passed in 1935 can be traced in this 25 year report. In 1921, for example, 5 counties had full-time county health officers, in 1922 three more were added, in 1924 two more. But in 1926 two fell by the wayside and in 1927 another. The doldrums of the early 30's gave rise in 1932 to the first recommendation to restrict the state for health purposes.

In the meantime recurring frequently in the various biennium reports are such comments as "Our record in respect to diphtheria is not one of which we are proud" (1921-1922); "this biennium also witnessed typhoid outbreaks" (1923-1924); "occasional cases of malaria have appeared in two new areas of the state" (1925-1926); "the infant mortality rate is the highest in the United States" (1931-1932); "New Mexico has the highest infant death rate in the United States" (1937-1938).

A final chapter on the present health status of New Mexico points out that the infant death rate is still the highest among the 48 states; that the tuberculosis death rate is among the highest; the death rate from infectious and contagious diseases is three times that of the country as a whole. More than two-thirds of its dwellings have unsatisfactory sewer connections compared to 35 per cent in the entire country. This document should be the bible of things done and still to be done for citizen groups who want to start a movement for better health protective services.

Our hats off to the State Health Officer, James R. Scott, M.D., and his staff for telling the bad news as well as the good. Only in this way can come to pass the hope expressed "that the report on fifty years of public health may delineate the progress toward a more satisfactory status in the field of public health."

"Balance Sheet 1947" is the sub-title of the December, 1947. *Oakland's*

Health. This is the annual summary of the Oakland, Calif., City Department of Public Health. It has a Credit and a Debit section as well as A Job for the New Year—an interesting idea for a brief annual report.

The *1947 Annual Report of the National Social Welfare Assembly* is a brief summary of the activities and developments of the second year of this organization.

The *1947 Annual Report of the Social Security Administration* is the first report since its establishment in July, 1946, under the federal executive reorganization. It includes the report of the Bureau of Old Age and Survivor's Insurance, of Employment Security, and of the Children's Bureau. Along with

the annual report of its companion agencies, the U. S. Public Health Service and the Office of Education, it is an analysis of the social welfare services of the federal government.

Has the Tide Turned? is the 34th annual report (for the year 1947) of the American Social Hygiene Association. It is a good brief and graphic description of the Association's current activities. The title suggests that in 1947 some of the ground lost during the post-war years 1945 and 1946, when the country experienced a spectacular rise in reported cases of syphilis and gonorrhea, was regained. The last year also saw the development of the extensive worldwide service in stimulating social hygiene activities.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted. All books reviewed in these columns may be purchased through the Book Service.

Recent Advances in Public Health
—By J. L. Burn, M.D., D.Hy., D.P.H.
London: J. & A. Churchill Ltd., 1947.
409 pp. Price, \$5.00.

This book is a condensation of the enormous social advances of modern Britain in public health. It does not attempt to present a complete picture of public health progress. While including a broad coverage, even Municipal Foot Health Service and Welfare of the Aged, greatest emphasis is on maternal and child problems. There are detailed accounts of mental health services, the care of unmarried mothers, the handicapped child, including blind, color blind, squint, deaf, speech defects, tonsils, and asthmatic, the diabetic, the rheumatic, and the child with cerebral palsy. The author assumes a broad fundamental background and the book is for the professional public health worker. There are detailed accounts of diphtheria immunization procedures and of tuberculosis mass x-rays. The "social" permeation is seen even in venereal disease control, which emphasizes contact investigation and followup rather than penicillin treatment of syphilis. Reliance on health education, of persuasion rather than compulsion, will make every American health worker appreciate the similarity of our democratic processes.

The presentation includes many classic discoveries and thumb-nail descriptions, such as the famous M'Gonigle report on housing and health, showing that the higher rents of rehousing may deplete nutrition and increase death rates, the superb contributions of Pickles to rural epidemiology, and the unique

Pioneer Health Center at Peckham. One tours the famous Papworth Village Settlement where the tuberculous work in a fashion which would make most American phthisiologists shudder and where, without benefit of BCG, the children of the tuberculous enjoy a remarkable healthy life without being removed from the tuberculous family. There is a summary of the remarkable experience at North and South Shields on the caries-detering effect of optimal fluorine in the water.

The index is very poor, but this is a book to be read in its entirety. This is very easy, for illustrations are profuse and smart, and the phraseology and expressions are just enough different to be very lively. For instance in the section on "Defective Colour Vision," the author remarks on resultant social difficulties, such as "the man who wore a red tie by mistake at his mother-in-law's funeral." In the description of the Recuperation Centres for the care of exhausted mothers we read: "As one mother put it: 'I should never have had the pluck to have all my teeth out at home.'" Even the one gross error in fact arouses only an indulgent smile. In relating the American experience in smoke control, he discusses the experience of St. Louis, Minnesota—"St. Louis was the dirtiest city in Minnesota." Although most references are to British experiences, the "U. S. A." comes in for many, as do Canada, the Continent, Scandinavia, and the U.S.S.R. Each chapter begins with a pungent text and closes with excellent selected references and valuable further reading suggestions.

This is a book which every public health worker in the United States and Canada can read with real profit and genuine pleasure. Burn will personally guide you on a trip through Britain and will frequently surprise you with penetrating observations on your own practices. CHARLES EDWARD SMITH

Atlas of Bacteriology—By R. Cranston Low, M.D., and T. C. Dodds. Baltimore: Williams & Wilkins, 1947. 168 pp. 168 illus. Price, \$8.50.

The purpose of this atlas is to afford students accurate pictures to refer to in illustration of lectures, practical classes, and textbooks.

The pictures are made from color photographs for the most part, giving the source of the material, how it is stained, what it shows, and the magnification. The characters of the microorganisms are not given.

The pictures substantiate the great trouble the authors have taken to insure accuracy and the coöperation and trouble taken by the original publishers (E & S Livingstone, Edinburgh) in meeting the exacting conditions required. This is undoubtedly the best atlas this reviewer has seen, and the selection of material is very good. It will be valuable to anyone who requires an atlas.

The value of the book would have been enhanced by the inclusion of references to the technique of the staining methods used. Minor criticism may be made of three items: the method illustrated on page 63 is Dorner's method and not Fleming's; the gonococcus colony on page 38 is misleading as it must be an old colony rather than a young one; the color of the pigment of "*B. pyocyaneus*" on page 21 is much too blue. E. G. D. MURRAY

The Cerebral Palsied Child and His Care in the Home—By Viola E. Cardwell, R.N. New York: Association

for the Aid of Crippled Children, 1947. 196 pp. Price, \$1.00.

This book is a welcome addition to the literature on cerebral palsy as there is still a paucity of written material on this subject. It is a carefully compiled book, written for the Association for the Aid of Crippled Children.

Although it was primarily intended to be used in staff education for nurses engaged in orthopedic public health nursing, it contains valuable information for physicians, technicians, and others who are beginning to become interested in this highly specialized field. In fact, the layman who has had to cope with the problem in his home will be able to comprehend most of the material and find helpful suggestions in the text.

The book is a practical one as the author has drawn from recognized authorities and workers in the field. Discussed in the first few chapters are the etiologic factors, pathology, prognosis for rehabilitation, and the various clinical forms of cerebral palsy which have been recognized to date. The remaining chapters deal with such important topics as mental hygiene, education, types of treatment, and the place of each in the overall program for the cerebral palsied child. The text also takes up the necessity of recreation and vocational guidance for those not too severely handicapped.

The author also pays tribute to the various societies founded by laymen, particularly those in and around New York City, which have demonstrated to physicians, educators, and technicians the need for programs of specialized care in dealing with this highly technical problem. These few interested parents have aroused long delayed interest in the cerebral palsied child and his many problems.

Replete with pictures and drawings of special equipment needed in the care of this type of handicapped child, it is

which publishes it is made up of 46 learned societies, including the American Public Health Association.

In the 1947 edition of more than 1,100 pages, 146 authors discuss 27 subjects under 7 main headings. The volume is "an elbow companion for everyone interested in contemporary events." It is source material for an appraisal of the age in which we live and an instrument for keeping informed on America, which is the fundamental duty of citizenship.

The article on Public Health, one of seven included under the Medical Sciences under the larger title of "Science: Application and Principles," is written by William R. Willard, M.D., of the Yale University School of Medicine.

A valuable feature of the *Year Book* is a list of periodicals and of cognate societies and research institutions in each of the seven main subjects of the volume.

MARTHA LUGINBUHL

Planning for the Care of the Chronically Ill in New York State—Legislative Document (1946) No. 66A. P.P. 131—By New York State Health Preparedness Commission. Albany: Williams Press, 1946. 85 pp.

This Legislative Commission with many years of study of health and welfare problems behind it has prepared a document which, while directed primarily to conditions in New York State, should serve as a useful guide to procedure and planning in other states.

The Commission was buttressed by strong advisory committees on Planning, Medical Education and Research and Nursing Care. The Commissioners of the State Departments of Health and of Social Welfare were ex-officio members of the Commission.

The report is well organized and readable. It is replete with charts, graphs, and tables. The summary of licensure of nursing homes in 20 states, together

with detailed reporting on planning for the care of the chronically ill in other states (Connecticut, Illinois, Indiana, Massachusetts, and New Jersey) provide useful information.

Under the following headings the findings and conclusions are stated: Convalescent Care, Medical Domiciliary Care, Nursing Homes, Voluntary Homes for the aged.

This report will be helpful to all those who are now facing the problem of providing for the care of the chronically ill in their own homes, hospitals, nursing homes, and elsewhere.

ELLEN C. POTTER

Advances in Internal Medicine. Volume II—Edited by William Dock and I. Snapper. New York: Interscience, 1947. 642 pp. Price \$9.50.

Those who expect this volume to be a year book of internal medicine will be disappointed. The volume consists of thirteen articles, of the review type, dealing with subjects in which advances are being made. The topics include electrocardiography, circulation of blood, penicillin treatment, the Rh antigen, megaloblastic anemias, and nutrition, as well as fields of interest to the internist. The latter include angiography, surgery for hypertension, and lung disease, insect control, and problems related to aviation and deep sea diving.

Well selected, the articles are comprehensive; they are thoroughly done by experts. The volume will be of interest to internists, those who wish to become internists, and those who want to know how and where internal medicine is advancing.

W. A. DAVIS

Food, Nutrition, and Health—By E. V. McCollum, Ph.D., Sc.D., and J. Ernestine Becker, M.A. (6th ed.) Baltimore: Johns Hopkins University, 1947. 146 pp. Price, \$2.00.

This is the sixth edition of a little book that has been well received in the

past and which serves a useful rôle in informing health personnel and interested laymen in modern nutrition. The current edition has been mostly rewritten and includes an account of many recent findings in nutrition. It is by no means a textbook or reference book in nutrition, but it is not intended as such. There are no references and practically no discussion. It is well written and in non-technical language.

In addition to the usual sections on various nutrients there are chapters on certain foodstuffs, diet in relation to anemia, pregnancy, and lactation, weight control, preventive dentistry, etc., and suggestions on conserving nutrients in foods and menu planning. Many of these sections are very brief, amounting to only one or two pages. The reviewer questions the advisability of including in a book of this type any reference to such vague entities as vitamins B₃, B₁, B₅, B₇, etc.

On pages 42 and 43 is a table entitled "Summary of the Vitamins of Known Significance to Humans," which includes vitamin E, pyridoxine, biotin, and vitamin P which, so far as the reviewer knows, have no established rôle in human nutrition. A paragraph on fat and water appears to have been mislaid in the chapter on mineral elements.

There is a need for a book such as this one and it is well written. Public health would be improved if more public health personnel knew what was between the covers of this little book.

FREDRICK J. STARE

American Foundations and Their Fields—Part I—*Edited by William B. Cherin. New York: Raymond Rich and William Cherin Associates, 1947. 58 pp. Price, \$6.00 (4 parts).*

Public health workers will have reason to be grateful to the authors for an up-to-date review of American Foundations and their programs. This represents a sequence of publications

originally presented by the Twentieth Century Fund and more recently by Raymond Rich Associates.

The survey has been broken down into four parts. This volume includes the Foundations' fiscal years ending February 28 to July 1, 1947. Each Foundation has been asked to provide information relating to the date of its establishment, the source of its funds, its purposes, the methods of operation, the direct activities, the financial data, the availability of reports, and the list of officers. It is notable that a considerable number of these agencies which enjoy tax exemption publish no reports and some refuse all information. It would appear to the reviewer that such information as is here presented should be mandatory for all foundations as a condition of the benefits which they enjoy.

REGINALD M. ATWATER

Food Regulation and Compliance. Volume II—*By Arthur D. Herrick. New York: Revere Publishing Co. 655 pp. Price, \$10.00.*

In volume I of this work the author, after briefly recounting the early history of legislation for food control, presented a comprehensive discussion of regulation through labeling requirements. In the first volume as in this second book, the discussion is chiefly limited to the Federal Food, Drug and Cosmetic Act. Some few other topics are given mention, such as the Federal Meat Inspection law and the problem of second-hand and used containers.

This second volume deals primarily with the problems of adulteration and contamination of foods, of control of permitted colors and the methods of enforcement and prosecution, all from the standpoint of the Federal Food, Drug and Cosmetic Act. There is a well written chapter on Insanitary Premises and Processing which will be of special interest to the public health official concerned with food control. In

this part of the book the author shows how the former limited federal control over food products solely by means of chemical and bacteriological tests was weak and ineffective, and now through the new sections of the law giving the Food and Drug Administration authority to inspect plants and provide sanitary standards for production and distribution the federal control has been greatly expanded and enhanced. However, these sections of the federal law become operative (giving authority for plant inspections and setting of sanitary standards) only after it has been established "that proper sanitation is so lacking that the food (a) may become contaminated with filth, or (b) may have been rendered injurious to health."

The book deals fully with the administrative practices and enforcement methods of the U. S. Food and Drug Administration. It is a volume that will be especially valuable to health officials who come in contact with the federal food control activities. The book contains the organization of the U. S. Food and Drug Administration and, in an appendix, provisions of the Federal Food, Drug and Cosmetic Act relating to foods.

SOL PINCUS

Fundamentals of Immunology—
By William C. Boyd, Ph.D. (2nd ed.)
New York: Interscience Publishers,
1947. 503 pp. Price, \$6.00.

The author addresses himself "mainly to students and research workers." At the end of each of the eleven chapters the pertinent material is presented in condensed form as a summary. These brief accounts when read consecutively without reference to the text constitute an excellent picture of the current views of the principles of immunology.

In the full text the author has taken care to introduce each new concept with sufficient elementary explanation to permit the student new to the subject to grasp the ideas. However, the elemen-

tary material is usually brief enough to avoid interference with the use of the text by research workers who wish to find more advanced material.

The eleven chapters include discussions of "cell antigens," "blood groups," "anaphylaxis and allergy," allergy and immunity as regards bacteria, viruses, and parasites, and "laboratory and clinical technic." The subject of skin tests for susceptibility and immunity is treated rather briefly in an appendix to one of the chapters. The bibliographies at the end of the chapters are extensive.

This book is well written. It should accomplish the author's objective of presenting the fundamentals of immunology to students and research workers.

J. C. SNYDER

Medicine for Moderns—*By Frank G. Slaughter, M.D. New York: Julian Messner, 1947. 246 pp. Price, \$3.50.*

Medicine for Moderns is a frank, easily read discussion of the concepts, mechanisms, therapeutic approaches, and hopes of psychosomatic medicine. Written in popular style for educated laymen, it succeeds in avoiding both the extreme sensationalism so common in books of this nature, and the insult of "talking down." Dr. Slaughter's intense enthusiasm, as a convert trained primarily in surgery, leads him into some wishful thinking in relation to the curative and preventive values of personality psychometric testing. The essentiality of individualization warrants somewhat greater emphasis. However, the material is sound and well presented.

Following a brief description of the anatomy and physiology of the autonomic nervous system, the author takes up the more obvious of the psychogenic illnesses: peptic ulcer, spastic colitis, hypertensive disease, asthma, and the like. There is an obvious appeal for popularity in the emphasis placed upon the psychogenic factors responsible for

impotence and frigidity. One misses accentuation of the important fact that all these disorders are characteristically derived from varied and multiple etiologic factors, and that continued anxiety is but one of several influences.

The book can be recommended as background reading for the laity, and may also be of value to those medical professionals who are asymmetrically organicists, insisting that that which cannot be seen does not exist.

EDWARD J. STIEGLITZ

Sports for the Handicapped—*By George T. Stafford. (2nd ed.) New York: Prentice-Hall, 1947. 334 pp. Price, \$5.00.*

There are few more satisfying fields of endeavor within physical and health education than working with handicapped students or with disabled patients. Stafford, in this exceedingly helpful second edition has pointed the way to a continuous betterment of programs which deal with the atypical. His book will be useful wherever people are concerned about the organic, psychological, and social rehabilitation and compensations of those who must seek to live most with what they have.

Stafford has long believed, and demonstrated, that sports can be adapted to the disabled. Prior to the war physical education departments in colleges and in some high schools were moving in this direction, but not as rapidly as the need demanded. The human wreckage produced by the war gave impetus to experimentation and, through the efforts of people like Stafford, Daniels, Esslinger, Kelly, Elkins and others, a full measure of good was done the disabled by ingeniously adapting sports or creating new ones for these very special purposes.

This second edition presents excellent material for use with the personality or psychologically handicapped, the amputee, the deaf, the paralyzed, those with

faulty body mechanics, malnutrition, circulatory misbalances, and spinal deviations. There are useful suggestions throughout for physicians and physical educationists. It should be read, and used widely. DELBERT OBERTEUFFER

Artificial Pneumothorax in Pulmonary Tuberculosis—*By T. G. Heaton, M.B. (2nd ed.) New York: Macmillan, 1947. 292 pp. Price, \$4.50.*

The revised edition (1947) of this book presents a concise and selective report of an important part of a system of collapse therapy in phthisiotherapy. The contents are contained in 16 chapters carefully arranged and chosen to lend a proper continuity to the subject. The literature on artificial pneumothorax is enormous and the author's selection and classification of authoritative references represent careful study and timely abstracts. The statistical data are reduced to a minimum consistent with satisfactory explanations of the text. The departure from complicated tables is welcomed by the busy practitioner.

The author's excellent training and experience permit a crystallizing of thought on many controversial points, and his own expressed opinions reflect the good judgment of the careful clinician.

The public health physician interested in tuberculosis prevention and control will find in this book a ready "up to the minute" reference on the latest scientific thoughts about the treatment of pulmonary tuberculosis by pneumothorax. It will be particularly welcome in the tuberculosis division or clinics of the health department, and more especially if such outpatient department service includes post-sanatorium pneumothorax supervision and refill treatments.

It would be unusual indeed if every reader of this book would agree with the author on all debatable points. The purpose, however, is served in presenting

accurate thought-provoking material to serve either as a supplement to knowledge of the subject already gained or to stimulate the reader to obtain further detailed knowledge of pneumothorax therapy beyond the limitations of the book itself.

The reviewer believes that this stimulating book from Canada is a real contribution to the field of tuberculosis therapy and should be read, understood, and made available for reference by all physicians actively engaged in the practice of tuberculosis or in the general field of pulmonary diseases.

JOHN A. CARSWEL

Physiology and Pathology of the New-born—*Compiled by A. N. Antonov, M.D. Monographs of the Society for Research in Child Development. Vol. X Serial No. 41, 1945, No. 2. Washington, D. C.: Society for Research in Child Development, National Research Council, 1947. 217 pp.*

This volume is a publication of the Society for Research in Child Development of the National Research Council. It is a bibliography or index of material on the physiology and pathology of the new-born for the period 1930-1940. A. N. Antonov, M.D., of Leningrad, has made a valuable contribution by compiling this extensive bibliography concerning scientific articles from all centers of the world. At even a glance the reader is impressed with the international interest in the physiology and pathology of new-born infants.

The table of contents shows 38 sections, with such titles as Fetus, The Influence of Pregnancy and Labor on the New-born, Anthropometric Data, Metabolism of the New-born, Congenital Abnormalities and Malformations, Birth Injuries, The Respiratory System, Other Systems, and Infectious Diseases. The book is valuable as reference material.

The large number of scientific arti-

cles on physiology and pathology of the new-born is truly impressive and shows the vast amount of work that was done between 1930 and 1940 preparing the way for further scientific knowledge and its application today.

MARTHA L. CLIFFORD

Industrial Environment and Its Control—*By J. M. Dallavalle. New York: Pitman Publishing Company, 1948. 225 pp. Price, \$4.50.*

This is an authoritative work on industrial hygiene presenting the engineering phases of environmental control in the prevention of occupational hazards, and it is written principally for engineers. However, this book should be read not only by industrial hygiene engineers but also by industrial physicians who need to know the engineering phases of industrial health service and the extent to which the medical service must be backed up by competent engineering if satisfactory results are to be obtained.

The book has a notable preface which clearly states both the aims and scopes of environmental control as well as their limitations. The author discusses the influence of atmosphere, the estimation of atmospheric qualities, and the variations from the normal that constitute health hazards. Vibration, fatigue, illumination, and radiant energy are amply presented.

There is a discussion of the methods of ventilation and the design and construction of ventilating systems, exhaust systems, and dust collection systems, together with the control of bacterial infections.

Finally, there is an appendix which covers briefly regulations, standards, and desirable practices, including brief statements on medical service, first aid, physical examinations, and record keeping.

The author is to be commended on a most worth while book. 'A. J. LANZA

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

- ASEPTIC TREATMENT OF WOUNDS.** Carl W. Walter, M.D. New York: Macmillan, 1948. 372 pp. Price, \$9.00.
- BACTERIOLOGY—A TEXTBOOK OF MICROORGANISMS.** F. W. Tanner and F. W. Tanner, Jr. (4th ed.) New York: Wiley, 1948. 625 pp. Price, \$4.50.
- BASIC FACTS OF HEALTH EDUCATION.** Selected Articles from the Ministry of Health. Bulletins which have appeared in the Pharmaceutical Journal, 1944–1947. London: Pharmaceutical Press, 1948. 193 pp. Price, 7s.6d.
- THE CARE OF THE TEETH. PRE-NATAL AND IN INFANCY.** G. Herbert H. Russell, M.B., Ch.B.L.D.S. Eng. Cheshire, England: John Sherratt & Son. 48 pp. Price, 2/net.
- DETOXICATION MECHANISMS. THE METABOLISM OF DRUGS AND ALLIED ORGANIC COMPOUNDS.** R. Tecwyn Williams, Ph.D. New York: Wiley, 1947. 288 pp. Price, \$5.50.
- FUNDAMENTALS OF HUMAN REPRODUCTION.** Edith L. Potter, M.D. (1st ed.) New York: McGraw-Hill, 1948. 231 pp. Price, \$3.50.
- GIVE YOUR CHILD A CHANCE.** Lenore Turner, New York: Georgian Press, 1948. 170 pp. Price, \$1.50.
- GOOD HEALTH IS GOOD BUSINESS.** A Joint Subcommittee Report—Planning Pamphlets No. 62. Washington, D. C. National Planning Association, 1948. 44 pp. Price, \$.25.
- HEALTH OF ARC WELDERS IN STEEL SHIP CONSTRUCTION.** Waldemar C. Dreesen, Hugh P. Brinton, Robert G. Keenan, Thalbert R. Thomas, Edwin H. Place and James E. Fuller. Washington: Supt. of Documents, 1947. 200 pp. Price, \$.55.
- INTRODUCTION TO HUMAN PHYSIOLOGY.** William D. Zoethout, Ph.D. St. Louis: Mosby, 1948. 424 pp. Price, \$4.00.
- LABORATORY EXPERIMENTS IN PHYSIOLOGY.** W. D. Zoethout, Ph.D. (4th ed.) St. Louis: Mosby, 1948. 263 pp. Price, \$3.00.
- THE MARYLAND MEDICAL CARE PROGRAM.** Report of the Staff of the Subcommittee on Medical Care, Committee on Administrative Practice, American Public Health Association. Howard M. Kline, Ph.D., Milton Terris, M.D., Cozette Hapney and Nathan A. Kramer. New York: American Public Health Association, 1948. 151 pp.
- MENTAL HEALTH IN MODERN SOCIETY.** Thomas A. C. Rennie, M.D., and Luther E. Woodward, Ph.D. New York: The Commonwealth Fund, 1948. 424 pp. Price, \$4.00.
- MILK PRODUCTS.** W. Clunie Harvey, M.D., and Harry Hill (2nd. ed.) London: H. K. Lewis & Co., 1948. 343 pp. Price, 30s net.
- NATIONAL CONFERENCE OF SOCIAL WORK 1947, PROCEEDINGS OF THE.** Selected Papers—74th Annual Meeting, 1947. New York: Columbia University Press, 1948. 512 pp. Price, \$5.00.
- NEW YORK CITY'S BABY BOOK.** New York: Department of Health. 136 pp.
- PAMPHLETS THAT PULL.** Alexander Crosby. New York: National Publicity Council, 1948. 33 pp. Price, \$1.00.
- PATHOLOGY OF TUMOURS.** R. A. Willis, D.Sc., M.D. St. Louis: Mosby, 1948. 992 pp. Price, \$20.00.
- PHYSIOLOGICAL EFFECTS OF TIME SCHEDULE WORK OF LUMBER-WORKERS.** Acta Physiologica Scandinavica, Stockholm, 1946. Distr. by Affärssekonomi, Stockholm 3, Sweden. 137 pp. Price, Swed. Crowns, 12:--.
- PRINCIPLES OF MEDICAL STATISTICS.** A. Bradford Hill, D.Sc., Ph.D. (4th ed.) London: The Lancet Limited, 1948. 252 pp.
- PSYCHOBIOLOGY AND PSYCHIATRY.** Wendell Muncie, M.D. (2nd. ed.) St. Louis: Mosby, 1948. 620 pp. 70 illus. Price, \$9.00.
- RECENT PROGRESS IN HORMONE RESEARCH.** Vol. II. Edited by Gregory Pincus. New York: Academic Press, 1948. 427 pp. Price, \$8.00.
- SAFETY FOR THE HOUSEHOLD.** National Bureau of Standards Circular 463. Washington, D. C.: U. S. Govt. Ptg. Office, Supt. of Documents, 1947. 191 pp. Price, \$.75.
- THE SCIENTIFIC PAPER. HOW TO PREPARE—HOW TO WRITE IT.** Sam F. Trelease. Baltimore: Williams & Wilkins, 1947. 152 pp. Price, \$2.00.
- THE STUBBORN WOOD.** Emily Harvin. New York: Ziff-Davis, 1948. 365 pp. Price, \$3.00.
- U. S. GOVERNMENT MANUAL 1946.** Division of Public Inquiries Government Information Service. Bureau of the Budget. Washington, D. C.: Supt. of Documents. Govt. Ptg. Office. 708 pp. Price, \$1.00.
- VETERINARY HELMINTHOLOGY AND ENTOMOL-**

- OGY. H. O. Monning, B. A., Dr. Phil., B.V. Sc. (3rd ed.) Baltimore: Williams & Wilkins, 1947. 427 pp. Price, \$9.00.
- VITAMINS AND HORMONES. Vol. V. Advances in Research and Application. Edited by Robert S. Harris and Kenneth V. Thimann. New York: Academic Press, 1947. 478 pp. Price, \$7.50.
- WESTERN BRANCH ANNUAL—AMERICAN PUBLIC HEALTH ASSOCIATION. A Resume of Papers Presented at the First Post-war Meeting. Berkeley, Calif.: Western Branch, A.P.H.A. 95 pp. Free.
- YOU AND YOUR DOCTOR. Benjamin F. Miller, M.D. New York: McGraw-Hill Book Co., 1948. 183 pp. Price, \$2.75.
- Mary Lee Brown, R.N. Boston: Harvard School of Public Health, 1947.
- THE GRANT FOUNDATION, INC. Report from the Inception of the Foundation November 2, 1936, to October 31, 1947. New York: The Grant Foundation, Inc. 16 pp.
- THE INSTITUTE OF INTER-AMERICAN AFFAIRS. Food Supply Division—A Summary Report 1942-1947. Washington, D. C.: Inter-American Affairs, 1947. 88 pp.
- METROPOLITAN HEALTH COUNCIL. Annual Report Year Ending February 29, 1948. Columbus, Ohio: Metropolitan Health Council. 11 pp.
- SOCIAL SCIENCE RESEARCH COUNCIL. Annual Report 1946-1947. New York: Social Science Research Council. 91 pp.
- STATE AND TERRITORIAL HEALTH OFFICERS AND THE U. S. PUBLIC HEALTH SERVICE, 46th Conference of. Washington, D. C.: Social Security Building, 1947. 77 pp.
- WISCONSIN COOPERATIVE SCHOOL HEALTH PROGRAM. Third Annual Report to the W. K. Kellogg Foundation and the Wisconsin Education Association 1946-1947. Wisconsin: State Department of Public Instruction and State Board of Health. 34 pp.

THE FOLLOWING REPORTS HAVE BEEN RECEIVED

- CLEVELAND'S HEALTH. Annual Review 1946. City of Cleveland: Department of Public Health and Welfare.
- AN EVALUATION OF METHODS FOR INTEGRATING PUBLIC HEALTH IN THE BASIC CURRICULUM OF SCHOOLS OF NURSING IN GREATER BOSTON.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, Ph.D.

"More About Our Ignorance"—Would you like to see a paper that, by example, tells you how to prepare a readable report in addition to passing on some information to you? Then search out this particular British health journal. The paper is about the much written up colds research they have been carrying on with human volunteers.

ANDREWS, C. H. The Common Cold. *M. Officer* 79, 6:55 (Feb. 7), 1948.

Incidental Intelligence—Butylacetanilide repels ticks for 10 days and works against chiggers, too—just in case you wish to protect yourself against either of these pests. You dip exposed clothing in a solution, it seems.

BRENNAN, J. M. Field Tests with Tick Re-

pellants. *Pub. Health Rep.* 63, 11:339 (Mar. 12), 1948.

Largely Undeserved Praise—If you would like to enjoy a mild case of swelled head, read this Britisher's account of his visit to America last fall. He saw everything that was good and nothing that was bad, apparently. I cannot forego just one quote: "Almoning, or as it is called in America, medical social work is developing apace, and a chair in this subject has been established at the University of Yale."

DALEY, A. Impressions of America. *Public Health.* 61, 5:77 (Feb.), 1948.

Muscles and Emotions—Fitness seems to be the ability to perform the

tasks of daily living without undue fatigue, and the qualities making this possible are those of the total personality for physical and psychologic factors cannot be disassociated. This definition works pretty well whether applied to athletes, laborers, sedentary workers, the handicapped or the aged. Measuring fitness is a complicated procedure not lightly to be attempted.

DARLING, R. C., *et al.* Physical Fitness. J. A. M. A. 136, 11:764 (Mar. 13), 1948.

Thirty Million Hungry Children—Says our President—back from a tour of Europe—the greatest need of children everywhere over there is MILK and more MILK. Someone should tell this to our statesmen who refuse us the margarine that would release for these children some of the surplus milk now being churned into unneeded butter.

ELIOT, M. M. The Need of the Children. Survey Graphic. 37, 3:140 (Mar.), 1948.

Children First in Every Country—We have widespread evidence in Europe, this British reporter writes, of the unrest, bitterness, disease, and destitution existing among those who suffered as children in the early war years and are now approaching manhood. But the record is not all black, he concludes.

ELLIS, R. W. B. Effects of War on Child Health. Brit. M. J. 4544:239 (Feb. 7), 1948.

Of Human Interest—There isn't much here but what there is, is 22 Karat. Good public speakers never forget, the professor says, that "people are interested in people." Send out speakers, he advises, who can make people laugh, but he doesn't tell you where to get them.

HANNA, M. Good Public Relations Requires Good Public Speakers. Am. J. Nurs. 48, 3:163 (Mar.), 1948.

This Hits Babies Hardest—Crowd-

ing, flies, improper excreta disposal, and bad personal hygiene all were associated with diarrheal disorders caused by *Shigella* infection. But water, milk and other foods did not seem to be implicated.

HARDY, A. V. and WATT, J. Studies of the Acute Diarrheal Diseases. Pub. Health Rep. 63, 12:363 (Mar. 19), 1948.

Silver-Lining Department—Here is a striking bit of economics passed along to you for what it is worth; the average stay in hospital is now a third of what it was three decades ago, and it costs twice as much per day. An illness that used to cost the victim \$150 now costs him \$100 for his hospitalization.

MACLEAN, B. C. The Hospital as a Community Health Agency. Pub. Health Nurs. 40, 3:115 (Mar.), 1948.

After Twenty Years—Physical defects discovered in New York State school children dropped in incidence, during the past two decades—except dental defects. They increased.

MAXWELL, C. H., and BROWN, W. P. The Age-Incidence of Defects in School Children, Their Changing Health Status. J. Sch. Health 18, 3:65 (Mar.), 1948.

Thought-for-the-Month — Trickle down from on high comes the rain of life-giving subsidies—from federal treasuries to states and from states to the communities—to support competent local health services. What is needed in return is a welling-up from below—from local workers to state commissioners to federal officers—of grassroots advice to avoid arbitrary and bureaucratic rulings that may lower the effectiveness of this productive partnership.

MERRILL, M. H. Federal-State-Local Relationships in the Financing of Local Health Services. Pub. Health Rep. 63, 8:244 (Feb. 20), 1948.

In Union There is You-Know-What—America's professional men and

women are sharing neither the profits of business nor the bargaining power of labor, this authority says. The A.N.A. is demonstrating how better incomes can be secured without sacrificing professional ethics or resorting to demeaning tactics. Is this assertion of any interest to you?

NORTHROP, H. R. *Collective Bargaining and the Professions*. Am. J. Nurs. 48, 3:141 (Mar.), 1948.

Warning Against Clock-Training
—Even though you are an engineer or a technician or a statistician, and even though you have no babies of your own, you should read this paper. As the first discussant says, "It shows that material

can be presented in simple language and yet be of the highest scientific value." And that, Brother, is something you and every one of us jargoneers needs to learn.

SPOCK, B. *Common Behavior Disturbances in the First Two Years of Life*. J.A.M.A. 136, 12:811 (Mar. 20), 1948.

To Measure Under-Reporting — Promising to be the first of a series of discussions on the adequacy of local morbidity reporting practices and ways to increase completeness, this paper gives some hint of the present weakness and variables.

WEST, M. D. *Morbidity Reporting in Local Areas*. Pub. Health Rep. 63, 11:329 (Mar 12), 1948.

THE 76TH ANNUAL MEETING Boston, Mass., November 8-12, 1948

Hotel Reservation Form

The hotels listed below have rooms available for Association delegates at the rates indicated. Please note that NO RESERVATIONS WILL BE ACCEPTED DIRECTLY BY HOTELS. Make your reservation through:

The Convention Bureau, Boston Chamber of Commerce, 80 Federal Street, Boston 10, Mass.

<i>Hotels</i>	<i>Singles</i>	<i>Doubles</i>	<i>Twin Beds</i>	<i>Suites</i>
Bellevue	\$4.00-\$6.00	\$6.00-\$8.00	\$7.25-\$10.00	\$12.00-\$15.00
Bostonian	3.00- 4.50	5.00- 6.50	5.00- 7.00	8.00- 10.00
Bradford	4.00- 6.00	6.00- 7.00	6.50- 8.00	12.00- 14.00
Braemore	4.40- 6.60	6.40- 9.90	6.60- 9.90	9.90- 25.00
Continental	3.50- 4.00	6.60	7.00	8.00- 25.00
Copley Plaza	4.50- 6.60	7.75- 8.80	8.80- 10.00	15.00- 25.00
Copley Square	4.00- 5.00	6.00	7.00	10.00- 14.00
Gardner	2.50- 5.00	4.00- 6.00	4.00- 6.00	7.50
Hemenway	3.00- 3.85	4.40- 5.50	4.40- 5.50	None
Kenmore	4.00- 6.00	6.50- 8.50	6.50- 8.50	10.00- 12.50
Lenox	3.75- 5.00	5.50- 6.50	7.50	10.00- 16.00
Manger	3.85- 5.50	5.00- 7.50	5.50- 7.50	None
Minerva	3.00- 5.00	4.00- 6.00	5.00- 7.00	5.00- 8.00
Myles Standish	3.85- 6.50	5.50- 7.50	6.50- 7.50	6.50- 15.00
Parker House	4.00- 6.50	6.25- 8.50	7.50- 10.00	14.00- 16.00
Puritan	4.40- 6.60	6.60- 8.80	9.90	13.20- 17.60
Sheraton	4.00- 4.50	7.00- 8.00	7.00- 8.00	7.00- 16.00
Somerset	5.00- 9.00	7.00-11.00	7.00- 11.00	10.00- 20.00
Statler	4.00- 9.50	6.50-12.00	8.50- 14.00	17.50- 27.00
Touraine	4.00- 6.00	6.00- 9.00	7.50- 9.00	14.00- 16.00
Vendome	3.75- 7.00	5.50- 8.75	6.50- 8.75	10.00- 15.00

MAKE ROOM RESERVATIONS EARLY

APPLICATION FOR HOTEL ACCOMMODATIONS AMERICAN PUBLIC HEALTH ASSOCIATION

76th Annual Meeting and Meetings of Related Organizations, Boston, November 8-12, 1948

(Note that the Meeting opens Monday, November 8, at 9.30 A.M.)

Please make hotel reservation as indicated below:

Give three choices of hotels.

Hotel 1st Choice; Hotel 2nd Choice; Hotel 3rd Choice

.... Room with Double Bed at \$. per day for persons

.... Room with Twin Beds at \$. per day for persons

.... Room for three people at \$. per day for persons

.... Single room at \$. per day

.... Suite at \$. per day for persons

ARRIVING. NOVEMBER Hour LEAVING: NOVEMBER Hour

Please print (or type) names and addresses of all occupants including persons making reservation.

NAME	STREET ADDRESS	CITY	STATE
.....
.....
.....

Name

Street Address

City State

MAIL TO: The Convention Bureau, Boston Chamber of Commerce, 80 Federal St., Boston, Mass.

RESERVATIONS WILL BE HELD UNTIL 6:00 P.M. ONLY, UNLESS

THE HOTEL IS NOTIFIED OF LATE ARRIVALS

May, 1948

ASSOCIATION NEWS

SEVENTY-SIXTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
BOSTON, MASS., NOVEMBER 8-12, 1948

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Harle V. Barrett, M.D., 408 South Second St., Independence, Kan., Montgomery County Health Officer
Leslie D. Bent, 65 Chestnut St., Montclair, N. J., Asst. Health Officer, Montclair Dept. of Health
George J. Boines, M.D., 511 N. Rodney St., Wilmington 99, Del., President, City Board of Health
Jose Cerra-Quinones, M.D., U.S.P., Naguabo, Puerto Rico, Health Officer, Insular Dept. of Health
R. A. Clanton, M.D., 606 Marg'n St., Grenada, M.ss., Medical Director, Grenada County
Samuel Klauber, M.D., Health Dept., Mayaguez, Puerto Rico, Supervisor, Western District Health Dept.
Cesar J. Lesaca, M.D., M.P.H., 615 N. Wolfe St., Baltimore 5, Md., Medical Officer, Tuberculosis Control (Philippine Bureau of Health)
Dr. A. H. Lockhart, U.S.P., Cayey, Puerto Rico, Director, Cayey Health Unit
Michael R. Macdonald, M.D., C.M., D.P.H., 103 Charlotte St., Sydney, N.S., Canada, Divisional Medical Health Officer, Dept. of Public Health, Province of Nova Scotia
Max B. McQueen, M.D., M.P.H., District Health Unit, Lewiston, Idaho, Director
Cesar A. Negrette, M.D., Maricao, Puerto Rico, Medical Officer, Health Unit
Arthur A. Nichols, M.D., 6 Roberts St., Fargo, N. D., Acting Health Officer, Fargo
Colonel Benjamin Norris, M.D., Ashtabula County Commissioner of Health, Jefferson, Ohio
Manuel Otero-Rogue, Principal, Morovis, [738]
Puerto Rico, Medical Officer, Sanitary Unit, U.S.P.
Edris Rice-Wray, M.D., 659 McKinley St., Apt. 6, Santurce, Puerto Rico, District Supervisor of Public Health, Arecibo, Puerto Rico
Albert H. Rohner, Hartley Dodge Memorial, Madison, N. J., Health Officer, Board of Health
David G. Schmidt, M.D., 465 Magnolia, Larkspur, Calif., Corte Madera City Health Officer
Wai Shun Sien, M.D., 2057 University Ave., Berkeley, Calif., Student, School of Public Health, Univ. of California
J. Gregg Smith, M.D., State Dept. of Public Health, Atlanta, Ga., Trainee
Clinton F. St. Saskatchewan, Officer of
James F. T. General Hospital, P.m.
E. Burford Red Deer, of Health
Herbert Public
Josefin Troy
Par
Alexa Ill.
Pa
Sidn

Lake, N. Y., Bacteriologist, V.A. Hospital, Sunmount, N. Y.

S. O. Brooks, P. O. Box 1763, Monroe, La., Public Health Technologist, State Board of Health

R. Davis, Nevada City Hospital, Nevada, Mo., Technician, Davis X-Ray and Clinical Laboratories

Rafael del Valle-Sarraga, P. O. Box 3305, Santurce, Puerto Rico, Chief, Bureau of Chemistry, Dept. of Health of Puerto Rico

Wesley L. Green, 1321 New Hampshire, Lawrence, Kan., Milk Sanitarian, Lawrence-Douglas County Health Dept.

Bernardo Pena-Garcia, Creole Petroleum Corp., La Salina, Cabimas, Zulia, Venezuela, S. A., Creole Clinic Laboratory Technician I

Mary Ramirez-Puente, 300 G. Benitez St., Santurce, Puerto Rico, Student of Medical Technology

Theodore N. Staudt, 212 Mellett Bldg., Canton, Ohio, Owner, T. N. Staudt Medical Laboratory

Merlin L. Trumbull, M.D., 899 Madison Ave., Memphis, Tenn., Director of Laboratories, Baptist Memorial Hospital

Sylvia M. Vargas-Negron, 415 Tavarez St., Santurce, Puerto Rico, Student of Medical Technology

Flora T. Villalon-Quinones, M.D., Concordia 202, bajos, Habana, Cuba, Adscripto in Microscopia y Quimica Clinica, Havana Univ.

Vital Statistics Section

Grace Cook, Quain & Ramstad Clinic, Box 480, Bismarck, N. D., Chief Medical Record Librarian

Claine S. Cramer, M.P.H., 2352 Eutaw Place, Baltimore 17, Md., Statistician, Baltimore City Health Dept.

Catherine F. Hunt, 40 Plattsburg Court, N.W., McLean Gardens, Washington, D. C., Biometrician, U.S.P.H.S.

Mildred Miller, 405 Johnstown Road, Beckley, W. Va., Senior Clerk, Raleigh County Health Dept.

Vivian Pessin, M.A., 310 E. 12th St., New York 3, N. Y., Senior Statistician, N. Y. City Health Dept.

Charles G. Roswell, LL.B., 145-92 192nd St., Jamaica 5, N. Y., Asst. Director, United Hospital Fund of New York

Robert C. Schmitt, A.M., 203 Dillingham Bldg., Honolulu 16, T. Hawaii, Research Statistician, Public Health Committee of the Chamber of Commerce of Honolulu

Herbert Seidman, 2170 New York Ave., Brooklyn, N. Y., Junior Statistician, American Cancer Society

Jesus Villar-Salinas, M.D., Federico Vial 9, Santander, Spain, Jefe, Institute Provincial de Sanidad

Engineering Section

James P. Anderson, 218 E. 1st St., Long Beach, Calif., Sanitarian, City of Long Beach

Thomas D. Curran, 14901 Terry Ave., Detroit 27, Mich., Sanitarian II, Wayne County Health Dept.

Arturo del Valle Milan, Concordia 97, Mayaguez, Puerto Rico, Sanitary Inspector II, Public Health Unit

W. Walter Kimsey, 318 E. Amherst Drive, Burbank, Calif., Director of Health Services, City of Burbank

Edgar E. C. Powell, 10340 Wadhurst Rd., Edmonton, Alberta, Canada, Health Inspector, City of Edmonton

George W. Rowntree, 28 E. Boulder, Colorado Springs, Colo., Sanitarian, City-County Health Unit

John F. Smith, City Hall, Room 37, Worcester 8, Mass., Asst. Chief Health Inspector, Dept. of Public Health

George H. Sumner, 106 Underhill Ave., Hicksville, N. Y., Junior Public Health Engineer, Nassau County Health Dept.

Enrique S. Vilella, M.S., Los Angeles 2002, Ocean Park, Santurce, Puerto Rico, Sanitary Engineer, University of Puerto Rico, Student Health Service

Industrial Hygiene Section

Juan Alberto Gonzalez, M.S.C.E., 1317 Loiza, Santurce, Puerto Rico, Sanitary Engineer, Dept. of Health

Hubert S. Kline, 37 Pointview, Dayton 5, Ohio, Industrial Hygiene Engineer, Frigidaire Division, General Motors Corp.

Alberto P. Ruiz-Hernandez, 7a Calle del Tepeyac 320, Colonia Industrial, Mexico, D.F., Oficial Sanitario de 3a, Oficina de Especializacion Sanitaria

Eugene L. Walsh, M.D., 911 Forest Ave., Evanston, Ill., Asst. Supervisor of Medical Service, International Harvester Co.

Food and Nutrition Section

Gladys Kinsman, Ph.D., 401 S. Lafayette, Denver 9, Colo., Nutrition Consultant, State Dept. of Public Health

Jane Nowak, M.S., 12835 Steel Ave., Detroit 27, Mich., Nutrition Consultant, State Health Dept.

Vivian M. Wecker, 6 Angier Circle, Auburndale, Mass., Chief, Food Clinic, Beth Israel Hospital

Robert R. Williams, D.Sc., 405 Lexington Ave., New York 17, N. Y., Chairman, Williams-

Epidemiology Section

- Mary A. Fyala, M.D., R.D. 1, Vestal, N. Y., Resident Physician, Philadelphia Hospital for Contagious Diseases
- Samuel J. Hawkins, State Health Dept., Charleston, W. Va., Epidemiologist, Venereal Disease Control, U.S.P.H.S.
- Dwight L. Lichty, D.V.M., 55 Shattuck St., Boston 15, Mass., Student, Harvard Univ., School of Public Health
- Dr. Juan Morata-Canton, Edificio Julita Calle Cristina Esq. Salud, Ponce, Puerto Rico, District Medical Supervisor, Dept. of Health

School Health Section

- Esther F. Bradford, R.N., Taylor University, Box 467, Upland, Ind., School Nurse
- David R. L. Duncan, M.D., 2415 S. Madison St., Denver 10, Colo., Examining Physician, Denver Public Schools
- Herbert Levy, 1567 Union St., Brooklyn 13, N. Y., Laboratory Instructor, New York University
- Dr. Natesaier Purshottam, The Hindu, Mount Road, Madras City, India, United Nations Fellow, Ministry of Health, New Delhi, India
- Bertha B. Seitock, R.N., M.A., 204 E. 36th St., New York 16, N. Y., Student, New York Univ.
- Erlene Thornburgh, 2256 Ceres Ave., Whittier, Calif., School Nurse, East Whittier School District

Dental Health Section

- Donald W. Gullett, D.D.S., 211 Huron St., Toronto, Ontario, Canada, Secy., Canadian Dental Assn.
- Maurice P. Trahan, D.D.S., 1127 Maison Blanche Bldg., New Orleans, La., Dental Consultant, City Health Dept.

Unaffiliated

- Robert K. Anderson, D.V.M., 1235 E. 12th Ave., Denver, Colo., Public Health Veterinarian, Denver City-County Health Dept.
- Angel M. Ayala, M.D., Sol St., Anasco, Puerto Rico, Medical Officer, Dept. of Health
- Rosa Baez, M.P.H., 38 Lucas Avadeo St., Ponce, Puerto Rico, Public Health Technician
- Francis O. Bates, Roper Hospital, Lucas & Calhoun, Charleston, S. C., Superintendent
- Nora Beauchamp, Box 124, Mayaguez, Puerto Rico, Health Technician
- Howard E. Bishop, Robert Packer Hospital, Sayre, Pa., Administrator
- Ephraim M. Bluestone, M.D., 150 E. 210th

- St., New York 67, N. Y., Director, Montefiore Hospital
- Madison B. Brown, M.D., 1312 Ramblewood Road, Baltimore 12, Md., Asst. Director, Johns Hopkins Hospital
- John W. Brownlee, LL.B., 128 Merchants Row, Rutland, Vt., Exec. Secy., Vermont State Medical Society
- Guy W. Brugler, M.D., 300 Longwood Ave., Boston 15, Mass., Administrator, Children's Medical Center
- Felicidad R. Catala, M.S., Box 124, University of Puerto Rico, Rio Piedras, Puerto Rico, Social Worker
- James R. Clark, 121 DeKalb Ave., Brooklyn 1, N. Y., Director, The Brooklyn Hospital
- Charles T. Dolezal, M.D., 3395 Scranton Rd., Cleveland 9, Ohio, Superintendent, Cleveland City Hospital
- J. Albert Durgom, 31 Clinton St., Newark, N. J., Exec. Director, Hospital Service Plan of N. J.
- Ramon Fernandez-Marina, M.D., Rio Piedras, Puerto Rico, Director, Insular Psychiatric Hospital, Government of Puerto Rico
- Sarah H. Hardwicke, M.D., Strong Memorial Hospital, Rochester 7, N. Y., Asst. Director
- James L. Houser, P. O. Box 2637, Boise, Idaho, Public Health Representative, Venereal Disease Control, U.S.P.H.S.
- Charles E. Kohler, U. S. Public Health Service, Box 3788, San Juan, Puerto Rico, District 6, Entomologist
- Maxwell E. Lapham, M.D., 1430 Tulane Ave., New Orleans 13, La., Dean, School of Medicine, Tulane Univ.
- William S. McNary, 234 State St., Detroit, Mich., Exec. Vice-President, Michigan Hospital Service
- Carl M. Metzger, 888 Delaware Ave., Buffalo 9, N. Y., Exec. Director, Hospital Service Corp. of Western New York.
- Richard O. Parker, Peoples Bank Bldg., Canton 2, Ohio, Exec. Director, Hospital Service Inc.
- Hilary A. Schroder, P. O. Box 1798, Jacksonville, Fla., Exec. Director, Florida Hospital and Medical Service Corp.
- Harold C. Stephenson, 5 Hopper St., Utica, N. Y., Managing Director, Hospital Plan, Inc.
- Merrell L. Stout, Womens Hospital, Baltimore 17, Md., Director, Hospital for Women of Maryland.
- Virginia Tranum-Pereyo, Cerra 632, Santurce, Puerto Rico, Student, School of Tropical Medicine
- James D. Vagneur, D.V.M., 1846 N. 17th St., Grand Junction, Colo., City Veterinarian

The Committee on Administrative Practice will plan for occasions during the 76th Annual Meeting of the Association in Boston, November 8-12, when Dr. Buck's friends will have an opportunity to greet him.

Succeeding Dr. Buck as the Association's Field Director is Roscoe P. Kandle, M.D., M.P.H., who was associated with Dr. Buck during 1946 and who left the Association staff to become Director of the Bureau of Preventable Diseases with the New Jersey State Department of Health in Trenton. Dr. Kandle is well equipped to carry on. With him is associated Robert E. Rothermel, M.D., M.P.H., as Assistant Field Director. Both Dr. Kandle and Dr. Rothermel are currently engaged in a survey of the State of Pennsylvania at the request of the Pennsylvania State Department of Health and Governor Duff.

GIFT TO COMMITTEE ON CHILD HEALTH

At the first meeting of the Associa-

tion's new Committee on Child Health in New York on March 20, announcement was made of a gift of \$300.00 from the residual funds of the Association of Women in Public Health.

The Association of Women in Public Health, first organized in 1920, voted to disband late in 1947 and to join forces fully with the American Public Health Association. Its Treasurer, Dr. Susan M. Coffin, referred to the gift as a "humble dowry" presented at the time of what Dr. C.-E. A. Winslow termed her Association's "marriage with the American Public Health Association."

The new Committee on Child Health at its first meeting explored areas of co-operation with such agencies as the American Academy of Pediatrics, the Children's Bureau, the National Institute of Health, school health organizations, and the Association's Standing Committees on Professional Education, Research and Standards, and Administrative Practice.

offices and laboratory. Salary for man with degree in public health \$7,500 plus 8¢ per mile travel. Write City-County Health Department, Safety Building, Eau Claire, Wis.

Supervising Nurse with certificate in public health nursing. Salary range \$260-\$300. Car furnished. Provision for vacation, sick leave, retirement benefits, permanency. For further particulars write Charles A. Neafie, M.D., Director, Department of Public Health, Pontiac 15, Mich.

Supervisor of Public Health Nurses. Baltimore County Health Department. Urban, suburban, and industrialized areas. Generalized service; director, four supervisors, 36 field nurses. Degree and experience required. Salary \$3,100 to \$3,600; for special preparation in child hygiene, venereal disease, mental hygiene, or orthopedics, \$3,600 to \$3,900. Retirement plan; 1 month vacation; 5 days a week. For use of personal car, an allowance of 7¢ per mile. Write to Dr. William H. F. Warten, Health Officer, Baltimore County Health Department, Towson 4, Md.

Public Health Nurses for attractive rural area in northern Michigan within short distance of several urban centers. Opportunity for supervised experience and university study. Salary excellent, dependent upon experience and qualifications; systematic increments, 40 hour week, liberal travel allowance. Write Director, Eaton County Health Department, Charlotte, Mich.

Wanted for City Health Department. Midwest. **Public Health Physician.** Salary \$370 to 415 per month plus \$30 per month for using his own car.

Epidemiologist, (Physician), salary \$410 to \$455 per month plus \$30 per month for using own car. Both these positions require a license to practice medicine in Ohio or ability to obtain such license if selected for the position.

Senior Bacteriologist, Public Health Laboratory Service. (Male or female.) Salary \$420 to \$520 per month.

Write Box A-9. Employment Service. A.P.H.A.

Public Health Staff Nurses for Linn, Yamhill, and Union Counties. Applicants must have had at least one year in approved program of study in Public Health Nursing. Under Merit System. Salary range \$2,700-\$3,300 plus travel allowance. Address correspondence to: Dr. Harold M. Erickson, State Health Officer, Portland 5, Ore.

Community Health Educator for Midwestern city. Demonstration program under joint sponsorship of city health department and a local voluntary agency. Program will eventually be absorbed by the official agency. University center. Challenging opportunity of demonstrating value of health education to community. Write Box A-13. Employment Service. A.P.H.A.

Public Health Nurse: Generalized public health nursing program in progressive official agency in rural-suburban area adjoining Washington, D. C. Beginning salary \$2,400. Trainees accepted. Fifteen day vacation and sick leave, 35½ hours per week. Mileage allowed for use of personal car. Write Director of Nurses, Montgomery County Health Department, Rockville, Md.

Director with supervising experience in public health nursing to direct newly re-organized visiting nurse association in industrial city of 22,000. Salary, car allowance and other details upon request. Write Box A-14. Employment Service. A.P.H.A.

Full-time Health Officer, town of 26,000, convenient to medical and cultural centers, salary \$6,000 plus mileage. Write: Chairman, Board of Health, Milford, Conn.

Public Health Nurse. Salary range \$2,640-\$3,120 (probably more beginning July 1). One year of postgraduate public health nursing training. Generalized service. Merit system and good personnel policies. Write: Division of Public Health Nursing, Kern County Department of Public Health, P. O. Box 120, Bakersfield, Calif.

Alaska Territorial Department of Health. Health Education Consultant wanted. Salary range \$4,104-\$4,644; minimum requirements college degree and one year graduate work in public health. Experience: one year full-time paid employment in public health education plus additional one year employment in any of allied fields. Write Box 1931, Juneau, Alaska.

Hearing and Vision Consultant. Minimum of two years' practical experience in hearing and vision programs; college graduate plus one year graduate training in psychology, speech, or related field with studies of handicapped children; \$3,360 to \$4,260. Civil Service status. Retirement. Permanent. Apply to: Harold M. Erickson, M.D., State Health Officer, Oregon State Board of Health, 1022 S.W. 11th Ave., Portland 5, Ore.

Qualified Public Health Nurse for itinerant work in tuberculosis in areas without local public health nursing services. Beginning salary \$230 per month with \$100 expense account. Furnish own car. Write: Public Health Nursing Section, State Dept. of Public Health, 515 Majestic Building, Denver 2, Colo.

Graduate in Bacteriology with some background in chemistry and experience in field of sewage and water research or treatment. To take charge of section in newly organized research project, Eastern U. S. Salary \$3,200-\$4,200 depending upon qualifications. Write Box A-11. Employment Service. A.P.H.A.

Nurses are needed for public health work in Texas. The program is conducted under a Merit System. Compensation range for Sr. Public Health Nurses from \$2,277 to \$2,553 per month. Compensation range for Jr. Public Health Nurses from \$2,001 to \$2,415. Compensation for War Emergency Nurses from \$1,725 to 2,139. In addition to above salary; possible provision of approximately \$600 car allowance annually. Write Box A-12. Employment Service. A.P.H.A.

District Health Officer. Two positions opened in progressive areas. Salary \$7,440 to \$9,120 per annum, plus traveling expenses. Applicant should possess three years of experience in professional medical work and one year graduate study in public health. Address inquiries to Arthur L. Ringle, M.D., State Director of Health, 1412 Smith Tower, Seattle, Wash.

Public Health Nurses. Several excellent positions available in full-time health departments in attractive areas in State of Washington. Salary range \$2,640 to \$3,360 per annum, plus traveling expenses. Applicant should possess one year of experience in public health work and one year of graduate study in public health. Address inquiries to: Anna R. Moore, R.N., Chief, Public Health Nursing Division, 1412 Smith Tower, Seattle, Washington.

City Health Commissioner for New England city; 55,000 population. Progressive city. Excellent environment. Salary \$6,000. Reply in detail. Mayor's office, City Hall, Pittsfield, Mass.

Veterinarian for modern (quality) milk control program. Beginning salary \$3,120, annual increments. Car furnished. Position provides for vacation, sick leave, retirement benefits, permanency. For further particulars write Charles A. Neafie, M.D., Director, Department of Public Health, Pontiac 15, Mich.

Pathologist, certified by American Board of Pathologists. Salary commensurate with ability and experience. Excellent opportunity. Large addition under construction. Write in detail to Superintendent, South Side Hospital, Pittsburgh, Pa.

Three openings for **Public Health Nurses** in Santa Cruz County. Salary \$248-\$260 monthly. General services in rural area. Must furnish own car, mileage paid. Apply to: Charles C. Gaus, M.D., Santa Cruz County Health Department, 21 Front Street, Santa Cruz, Calif.

Openings in Public Health Department, New Mexico

Public Health Nursing Consultant	\$325-\$420
Public Health Nurse-Midwife Consultant	325- 420
Public Health Nursing Supervisor	250- 325
Public Health Nurse-Midwife	225- 290
Public Health Nurse	200- 260
Graduate Nurse	170- 200

Write to: Merit System Council, Box 939, Santa Fe, N. M.

Sanitary Engineer or Sanitarian, recent graduate, with engineering or science degree. Generalized sanitation program. City of 50,000 population. Car allowance. Vacation, sick leave and retirement benefits. Starting salary \$3,600 per annum. Communicate with J. Burris Perrin, M.D., C.P.H., Health Officer, City of La Crosse, Wis.

Dental Hygienist. City of 50,000 population, twenty-four schools. Dental clinic. Starting salary \$2,900 per annum with vacation, sick leave and retirement benefits. Communicate with J. Burris Perrin, M.D., C.P.H., Health Officer, City of La Crosse, Wis.

Neuropsychiatrist with pediatrics training to direct child guidance program being conducted by private foundation on state-wide basis, New Mexico. Must be diplomate of his board. Also assistant to Director, some general qualifications. Salaries at general level paid for similar services in comparable locations. New Mexico Health Foundation, 819 East Central, Albuquerque, N. M.

Health Officer for six county unit in Northeast Colorado with offices in Sterling. Estimated population of district 59,000. Budget provides for personnel of 16. Minimum salary \$6,000 plus travel, and may be increased depending upon qualifications of applicant. Write Dr. Paul R. Hillebrand, Brush, Colo.

Physicians Wanted

The Tennessee Valley Authority announces openings for well qualified physicians. Training and experience in Public Health and Employee Medical Services are desirable. Salaries are based on 40 hour week schedule with periodic within-grade increases. Retirement, annual and sick leave benefits are provided. Interested candidates should write the Tennessee Valley Authority, Division of Personnel, Knoxville, Tenn.

Graduate Assistantships in Bacteriology

Candidates must enroll in Graduate School. Eight credit hours of graduate work leading to master's or doctor's degree permitted per semester. Stipend \$1,000 for the academic year. Approximately 12 hours of laboratory teaching or preparations required per week. Send application for admission to Dean of Graduate School. Send personal data, transcript, and recommendations to Chairman of Department of Bacteriology, University of Michigan, Ann Arbor, Mich.

Examinations for Permanent Corps, U. S. Public Health Service

Examination for appointment to the Regular Corps of the U. S. Public Health Service for the grades of Assistant Sanitary Engineer and Senior Assistant Sanitary Engineer will be held in June, 1948. About 15 appointments are to be made. Application forms and additional information can be obtained from the Surgeon General, U. S. Public Health Service, Washington 25, D. C. Applications must be filed with the Surgeon General prior to June 1, 1948.

Applicants for the Assistant grade must be at least 21 years old and U. S. citizens, must possess a degree in engineering and must have had at least 7 years of education (exclusive of high school) and professional training or experience at least 2 years of which shall have been of a professional nature in public health or a related field.

An applicant for the Senior Assistant grade must meet the requirements for the Assistant grade and have in addition 4 more years of education and professional training or experience. A total of at least 6 years shall have been of professional training or experience in public health.

The starting yearly salary, with dependents, for the Assistant grade is \$3,811 and for the Senior Assistant \$4,351.

Laboratory openings requiring professional training and experience in State Health Department, East.

1. Research Microbiologist
2. Principal Biochemist
3. Senior Sanitary Chemist
4. Dairy technologist

Write Box A-15. Employment Service. A.P.H.A.

Qualified Director of Public Health Nursing program within Department of Nursing Education in College of Arts and

Sciences in Eastern University. Annual salary \$5,000. Write Department of Nursing Education, University of Rochester, Rochester 3, N. Y.

Public Health Nursing Education Director, leading to Director of Nurses position within a year. Salary \$275-\$300; good experience and background.

Also, opening for Public Health II, \$230 beginning salary.

Write: Director, Weld County Health Department, Court House, Greeley, Colo.

POSITIONS WANTED

Academic position as Professor of Bacteriology or Preventive Medicine. Ph.D.; M.D. expected in spring, 1948. Sixteen years' experience in teaching and research (7 years as Professor of Bacteriology). Many publications including textbook of bacteriology for medical students. Write Box Ph-2. Employment Service. A.P.H.A.

Statistician-Administrator. Ten years' professional experience. Completing assignment in nation-wide health survey as chief of staff of 40-80 professional and

clerical personnel doing following operations: coding, IBM tabulations, computations, analyses, etc. Intensive training in statistics, mathematics and accounting. Write Box St-1. Employment Service. A.P.H.A.

Physician, Woman, New York University graduate 1945, M.P.H. expected May, 1948; interested in position in or outside the U. S. Predominant interest communicable disease control. Write: Box Ph-3. Employment Service. A.P.H.A.

Engineer, ASCE, June; B.S., Public Health Eng.; M.S., Sanitary Eng.; desires to develop idea for "Model Communities" as adapted to rural areas in Southern Asia; South America. Interested in employment with organization or gov-

ernment engaged in redeveloping existing communities with regard to housing, sanitation, water supply, and general municipal facilities. Experienced overseas and domestic; single; 24. Write: Box E-3. Employment Service. A.P.H.A.

Advertisement

Opportunities Available

WANTED—(a) Several well qualified public health physicians and dentists for appointments to Germany, Austria, and Italy; headquarters of organization in Paris. (b) Assistant director; crippled children's commission; Middle West; \$7,000-\$9,200. (c) Director of medical and health service, national organization; duties consist of administering and planning medical service of eastern area; physician with administrative experience in public health required. (d) District health officer; duties consist of directing county health department and developing program; \$7,400-\$9,100; Pacific Northwest. (e) Public health officer; Korea. (f) Director of health service; 2,100 students; position carries faculty rank; town of 5,000 located short distances from several university centers; Middle West. (g) Director; city (200,000 population) health department; capable organizer required; Southwest; \$10,000. PH15-1 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

WANTED—(a) Health educator; middle western city of 40,000; \$4,500-\$5,000. (b) Health educator to take charge of mobile unit and conducting health program in cancer; graduate nurse preferred; Middle West. (c) Public health statistician and, also, health educator; county department of health; Southern California. (d) Sanitary engineer to direct department serving population of 7,000,000; experience in water and malarial control required; M.A. degree and public health background essential; South America. (e) Assistant director of health education; municipal health department; West. (f) Sanitary chemist, B.S. degree in chemistry with four years' experience or Ph.D. in biochemistry; interesting position; health

department of modern community in Southwest; would be connected with new hospital and research institute. (g) Health educator to direct division of county community fund and council of social agencies; newly created position; \$4,000. PH15-2 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

WANTED—(a) Public health nurse with Master's degree and minimum of six years' experience to direct program in public health nursing connected with department of education, eastern university; appointment carries rank of assistant professor; eleven month year; \$5,000. (b) Public health nurses for assignments in Europe; will work from Paris headquarters assigned to Germany, Austria, or Italy; well-rounded background in public health nursing required; \$4,000-\$5,000, transportation plus per diem covering differential in cost of living. (c) Student health nurse; young women's college; Pacific Coast. (d) Supervisor of nurses; health department of public school system; Bachelor's degree required; Middle West; \$4,000. (e) Student health nurse; coeducational college, 1,800 students; well equipped infirmary of 64 beds; private apartment available; \$3,600. (f) Industrial nursing consultant; duties consist of inspecting plants; dealing with management; public health training and industrial experience required; considerable traveling; headquarters in Chicago. (g) School nurse; fashionable residential town located short distance from Chicago; opportunity for continuing studies; unusual opportunity. PH15-3 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

Opportunities Wanted

Young dentist; three years, general practice; four years, director, public school dental clinics of large middle western city; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Young public health specialist; recently received Master's degree in Public Health; state university; has had several years' experience as assistant, department of bacteriology, state department of health; for further information, please write Burneice Larson, Director, Palmolive Building, Chicago 11.

Public health nurse; B.S., M.A. degrees, public health nursing; six years, supervisor, state department of health; three years, maternal and child health nursing consultant; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Sanitary engineer; Bachelor of Science in Civil Engineering (major: Sanitary Engineering), Master's in

Public Health Engineering; ten years, director, department of engineering, state department of health; duties include responsibility for entire environmental sanitation in public health engineering program for a population of over million; for additional information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Health educator; Ph.D.; six years, health educator nationally known organization; three years, health educator in industry; teaching experience; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health physician; medical degree, eastern university; M.P.H. Johns Hopkins; 17 years' experience in public health field; during war held important assignment abroad; now director of health, city of 100,000; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

NEWS FROM THE FIELD

WORLD HEALTH ORGANIZATION

"Ever since it was proposed at the San Francisco Conference of 1945 and endorsed by the State Department, this country has taken an active part in the creation of a World Health Organization. We were represented at a preliminary health conference held in Paris in 1946 and later in the same year at the definitive International Health Conference which was held in this city by the representatives of sixty-eight nations and which decided that a World Health Organization was to be established as soon as twenty-six nations had signified their approval. Meanwhile an interim commission, with offices in Geneva and New York, has been demonstrating what such an organization can accomplish, one conspicuous example being the aid rendered in controlling a recent cholera epidemic in Egypt which threatened to involve the whole Near East. Last year the Senate passed a bill which would have made the United States a member of the World Health Organization and which was approved by the House Committee on Foreign Affairs.

"Despite this history, despite the support given to a World Health Organization by the American Public Health Association and virtually every public health authority, the Rules Committee of the House has seen fit to table the Senate's bill. No reason for an action which was taken behind closed doors. Twenty-two nations have already signed the covenant of the World Health Organization, and four more will do likewise in six or eight weeks. This means that an organization will be created, but that the United States will not be a member. The Rules Committee of the House owes the public an explanation.

If it has any good reason for failing to approve the action of the Senate that reason ought to be presented. This country has always been a leader in supporting international efforts to control the spread of disease. At a time when most of continental Europe is undernourished and tuberculosis and other infections are increasing the United States cannot afford to give up that leadership and assume the role of an indifferent observer."—*New York Times*, Mar. 20, 1948.

1948 NORTH CAROLINA WATER WORKS OPERATORS' SCHOOL

The 1948 North Carolina Water Works Operators' School will be held June 7-11 at the University of North Carolina. This school is sponsored by the North Carolina Water Works Operators' Association and the North Carolina Section of the American Water Works Association and is conducted co-operatively by the School of Public Health and the Institute of Government of the university.

Students will be divided into 4 groups according to background, training, and present interest. Instruction will be given in 20 subjects, many of them common to 2 or 3 groups. Not only will technical problems such as filtration, chlorination, corrosion, water quality, hydraulics, and others be discussed but also records, personnel, and legal problems.

As in former years, the school is open both to North Carolina water plant personnel and to residents of neighboring states.

The final schedule of instruction and other information may be secured from Assistant Director, Institute of Government, Chapel Hill, N. C.

THE RETIRING AND INCOMING SURGEONS GENERAL OF THE U. S. PUBLIC HEALTH SERVICE



THOMAS PARRAN, M.D., Surgeon General of the U. S. Public Health Service, 1936-1948



LEONARD A. SCHELLE, M.D., Surgeon General of the U. S. Public Health Service, April 6, 1948

1917-1948, Commissioned Officer in the Regular Corps, U. S. Public Health Service, serving until 1930 in 14 states on public health research and administrative assignments; 1930-1936, Commissioner of Health, New York State; Fellow of the American Public Health Association, and its President in 1937; 1939, winner of the Association's Sedgwick Memorial Medal "for distinguished service in public health"; 1947, winner of the Lasker Award of the Association "for outstanding contributions to the national health and to the World Health Organization"; 1946, Chairman of United Nations International Health Conference in New York City and Chairman of the U. S. delegation.

Commissioned Officer in the U. S. Public Health Service, 1934; Health Officer, Queen Anne's County, Md., 1936-1937; Special Fellow, Memorial Hospital, New York, 1937-1939; Officer in Charge of the National Cancer Control Program of the National Cancer Institute, 1939-1942; Assignments with the Public Health Branch, Military Government, U. S. Army, for which he was awarded the Legion of Merit and American Typhus Medal, 1943-1945; Assistant Chief, National Cancer Institute, 1946-1947; Assistant Surgeon General and Director of the Cancer Institute, 1947; Member of the American Public Health Association since 1937.

SECOND N.T.A. RESOLUTION ON LOCAL HEALTH UNITS

The following resolution was passed by the Board of Directors of the National Tuberculosis Association at its meeting on March 19:

The National Tuberculosis Association re-emphasizes its policy that tuberculosis services, to be most effective, should be integrated with general community health facilities and to that end urges its state and local affiliates to work toward the establishment of adequately financed and adequately staffed local health services.

The National Tuberculosis Association endorses the principle enunciated by representatives of 65 national citizens' organizations in a meeting at Princeton, N.J., on September 10, 1947, to the effect that vigorous steps be taken to obtain complete coverage of all states and all communities by local full-time health units under competent professional direction.

The National Tuberculosis Association offers its coöperation to the National Health Council in this program.

The National Tuberculosis Association further endorses in principle the need for federal legislation and assistance to states to complete the coverage of their respective populations and areas with full-time local health units under professional direction.

An earlier resolution of the N.T.A. urged its state and local affiliates to co-operate in developing local official health services as a necessary prerequisite to effective local tuberculosis control activities.

INTERNATIONAL POLIOMYELITIS CONFERENCE

The First International Conference on Poliomyelitis in New York City, July 12-17, was announced briefly in the February *Journal* (p. 252).

More detailed plans are now available. Ten world medical and research authorities on poliomyelitis have been named presiding officers for the plenary sessions. These presiding officers and subjects include:

Oswaldo P. Campos, Clinical Orthopedic Surgeon, Hospital Jesus, Rio de Janeiro, Brazil, "The Importance of Poliomyelitis as a

World Problem"; Rustin McIntosh, Professor of Pediatrics, Columbia University, "Poliomyelitis: The Early Stage"; Robert Kno-Song Lim, Surgeon General, National Defense Medical Center, Shanghai, China, "The Management of Poliomyelitis: The Early Stage"; Arthur Steindler, Professor of Orthopedic Surgery, State University of Iowa, "Poliomyelitis: The Convalescent Stage"; Arvid Wallgren, Professor of Pediatrics, Royal Caroline Medical Institute, Stockholm, Sweden, "The Management of Poliomyelitis: The Convalescent Stage"; Carlos S. Ottolenghi, Docente Libre de Ortopedia, Buenos Aires, Argentina, "The Management of Poliomyelitis: The Late Stage"; James E. Paullin, Professor of Clinical Medicine, Emory University, "Bulbar Poliomyelitis"; Pierre L. LePine, Director of Laboratories, Pasteur Institute, Paris, "Immunology and Chemotherapy in Poliomyelitis"; Harry S. Mustard, Commissioner of Health, New York City, "The Public Health Aspects of Epidemic Poliomyelitis"; and Thomas Parran, Surgeon General, U. S. Public Health Service, "Poliomyelitis Throughout the World."

The Conference is being held under the auspices of the National Foundation for Infantile Paralysis with the coöperation of 23 United States government agencies and scientific societies, among them the American Public Health Association.

Conference headquarters have been set up in the Waldorf Astoria Hotel, New York City.

INSECT CONTROL IN RETROSPECT

This announcement will be too late to be of any great benefit to health workers in the field. However, it may tend to indicate trends which are taking place in insect control activities. Within almost a week, notices were received of two conferences for pest control operators; the first, that of the New York State Pest Control Association held at Cornell University, March 29-30, and second, that of the 12th Annual Purdue Pest Control Operators Conference held at Purdue University, April 5-9. Anyone who may be interested in programs or methods of organization should write

to Charles E. Palm, Entomology Department, Cornell University, Ithaca, N. Y., for the former, and to Professor J. J. Davis, Agricultural Hall, Purdue University, Lafayette, Ind., for the latter.

WATER EMERGENCY PUBLICITY MATERIAL

The Mathieson Alkali Works has prepared and distributed to state health officers in areas likely to be affected, a packet of material designed to advise the public of necessary emergency health measures in the event of floods. Included in the packet are releases for use in newspapers before, during, and after a flood. There are similar releases for radio broadcasts and a bulletin for posting in public places. Also included are recommendations concerning typhoid inoculations, treatment of water for drinking and cooking purposes, handling of contaminated food and food containers, disinfecting wells in flood areas, and clean-up of buildings after floods. A list of distributors handling chemicals which might be in demand during flood emergencies is also contained in the packet. For further information, write to Mathieson Alkali Works, Inc., 60 East 42 Street, New York 17, N. Y.

NEW ENGLAND MEETING

The annual Massachusetts Public Health Conference and the New England Health Institute will be held at the University of Massachusetts, at Amherst from June 16 to 18, 1948. Among the speakers at this three day session are:

Martha M. Eliot, M.D., President, A.P.H.A.
Leonard A. Scheele, M.D., Surgeon-General,
U.S.P.H.S.

Ira V. Hiscock, Sc.D., Professor of Public Health, Yale University

Hugh R. Leavell, M.D., Professor of Public Health Practice, Harvard University

V. A. Van Volkenburgh, M.D., Assistant Commissioner, New York State Department of Health

Charles F. Wilinsky, M.D., President-Elect A.P.H.A., will preside, and the New England state health commissioners will participate.

All members of the A.P.H.A. are invited and ample dormitory accommodations are available for all who wish to attend.

HEARING ON LOCAL HEALTH

SERVICES BILL

The Committee on Interstate and Foreign Commerce of the House of Representatives held a hearing on the Local Health Services Bill (H.R. 5644 and 5678) on April 8. Five members of the committee were present and heard testimony in favor of the bill from Mrs. L. W. Hughes, President of the National Congress of Parents and Teachers, James R. Miller, M.D., member of the Board of Trustees of the American Medical Association, Vlado A. Getting, M.D., President of the State and Territorial Health Officers Association and Haven Emerson, M.D.

The only opposing testimony, based on a fear of further federal centralization, was given by H. B. Anderson, Secretary of the Citizen's Medical Reference Bureau. He testified that he represented a membership of 1,000 members who had not previously been consulted, but would approve his action at a later date.

No hearing has yet been held on the identical Senate bill providing for federal grants-in-aid to state health departments earmarked specifically for the development of local health units on the basis of an overall state plan. The Chairman of the Senate Subcommittee on Health of the Committee on Labor and Welfare is Senator H. Alexander Smith of New Jersey.

PREVENTIVE MEDICINE TO THE FORE

At the Health and Family Life Symposium of the Community Service Society of New York, on March 18, Bailey

B. Burritt, the retired Director of the Society and Executive Director of the National Health Council, announced a project for the study of 200 families who live in one of New York City's neighborhoods to learn "what preventive and health maintenance services would be effective and practical." This service would utilize many of the techniques learned by the Peckham experiment in England. This experiment and its results were discussed at the same meeting by Dr. Innes Pearse, medical director.

Among other current activities, in exploring the possibilities of preventive medicine, is the University of Minnesota's project whereby 300 St. Paul and Minnesota volunteers in the prime of life are being examined periodically for 10 years by clinicians in order chiefly to note the factors that account for high blood pressure and for hardening of the arteries.

In New York City, the Health Commissioner, Harry S. Mustard, M.D., has appointed C. Ward Crampton, M.D., Chairman of an advisory committee on geriatrics. New York State has a joint legislative commission on problems of aging.

GRADUATE FELLOWSHIPS IN COMMUNITY NUTRITION AT THE UNIVERSITY OF TENNESSEE

The College of Home Economics of the University of Tennessee offers several one year graduate fellowships in Community Nutrition of \$1,200 and free tuition. The program, leading to the degree of Master of Science in Community Nutrition, includes three-quarters of work in residence at the university and one-quarter of supervised field work in a health agency. Candidates are trained for positions as nutritionists with health and welfare agencies.

Academic requirement for admission is a baccalaureate degree in home economics with a major in foods and nutrition, or its equivalent. Two years of

experience such as teaching, extension work, Farmers Home Agency work, hospital, or other food service or equivalent, are required. Interests and ability of the candidate are considered in accepting students for training.

Application blanks and further information may be obtained from the College of Home Economics, University of Tennessee, Knoxville.

FIRST NATIONAL SANITATION CLINIC

The first National Sanitation Clinic will be held at the University of Michigan, June 21-25 with the coöperation of the National Sanitation Foundation. Approximately 250 participants will divide themselves into 12 clinic groups for intensive deliberations on as many subjects related to food sanitation. In general each group will include 6 representatives from public health and 6 from industry, 2 co-chairmen, and from 2 to 5 consultants.

The stated purpose of the clinic is to discuss various phases of environmental sanitation control—with particular reference to foods—in an effort to arrive at a statement of principles, methods of procedure, equipment, etc., that are acceptable to public health officials and to industry. It is hoped that the agreements reached in this group may be approved by both public health officials and industry as reasonable goals and guides in food sanitation.

DR. HILLEBOE MAKES TRIP TO EUROPE

Herman E. Hilleboe, M. D., New York State Commissioner of Health, spent the last half of February on a trip to Europe, going first to Geneva, Switzerland, where he represented the United States in a four day discussion of worldwide tuberculosis control with members of the Expert Committee on Tuberculosis of the Interim Commission of the World Health Organization.

In addition, Dr. Hilleboe had a one day conference on tuberculosis control

with Rome public health physicians, made a three day study in Athens of the mass BCG vaccination program now in progress in Greece, and examined the research work currently being conducted by the State Serum Institute of Denmark in Copenhagen. There a coöperative research project was formulated to be carried on by the Serum Institute and the New York State Health Department's Division of Laboratories and Research.

TEXAS PUBLIC HEALTH ASSOCIATION

The Texas Public Health Association held its Annual Meeting in Houston February 22-25. This meeting was the largest ever held, with a total attendance of 575.

The out-of-state speakers included Pearl McIver, R.N., Martin A. Frobisher, Jr., D.Sc., Charles B. Frasher of the A.P.H.A. Merit System Service, Albert E. Bailey, Ph.D., James A. Doull, M.D., and Ira V. Hiscock, Sc.D., who led a panel on Public Health Administrative Practices.

The new officers of the Texas society are:

President—Austin E. Hill, M.D.

President-elect—W. R. Ross, M.D.

1st Vice-President—B. A. Young

2nd Vice-President—Belle Blackwell, R.N.

Executive Secretary—Earle W. Sudderth

A.P.H.A. UNDERTAKES STATE STUDY IN PENNSYLVANIA

Norris W. Vaux, M.D., Secretary of Health for Pennsylvania, has recently announced a survey of public health activities of Pennsylvania by the Committee on Administrative Practice of the American Public Health Association.

In commenting on this study, Dr. Vaux said:

The Pennsylvania Department of Health has had a long and honorable history. Its activities through the years have expanded with increasing knowledge in the techniques of preventive medicine and in the control of disease.

This expansion has been so rapid and diverse that there has been little opportunity to pause

and take stock, an essential practice for every organization that wants to know its present status and what future direction it should take.

With this thought in mind, Governor Duff, and I, believe that a thoroughgoing evaluation of the Commonwealth's public health administration which will measure structure and activities against currently accepted public health procedures and practice will be of value in strengthening the resources of the Department and in assuring it of an administrative structure soundly conceived and adequately operated.

With the Governor's approval, therefore, the Department of Health has requested the American Public Health Association through its Committee on Administrative Practice, which has conducted many local health studies, to survey the public health activities of Pennsylvania.

Important among the aspects of this survey will be the efficiency, extent, and effectiveness of (1) the state Department of Health; (2) local health services to communities; and (3) the relationship of the state voluntary health agencies to the state and local health services.

A representative committee of public minded and influential citizens, now being appointed by Governor Duff, will serve in an advisory capacity and Dr. Vaux has expressed the hope that this committee will be an effective instrument for implementing the survey's recommendations.

N.T.A. POLICY ON BCG VACCINATION

The Executive Committee of the American Trudeau Society, the medical section of the National Tuberculosis Association, recently adopted a statement of policy with respect to BCG vaccination against tuberculosis. Because such vaccination does not provide complete protection against tuberculosis its use for the general population is not recommended until further controlled studies are conducted.

The Society's recommended policy is for BCG vaccination of members of groups constantly exposed to tuberculosis if they have a negative reaction to the tuberculin test. The person with a positive reaction, indicating that he has had a primary tuberculosis infection

and his body has built up a degree of acquired immunity, probably does not benefit from BCG vaccination. For the present, therefore, BCG vaccination is recommended for doctors, medical students and nurses, hospital and laboratory personnel in contact with the tuberculosis bacillus, individuals unavoidably exposed to tuberculosis in the home, and patients and employees of mental hospitals, prisons, and other custodial institutions.

The Society warns against placing complete reliance on BCG even for these groups and points out that proper precautions should be taken to minimize or prevent "undue hazardous exposure of hospital patients and personnel and members of a household if an infectious patient is under treatment in the home."

PERSONNEL AND SERVICES OF LOCAL HEALTH UNITS

The U. S. Public Health Service through the Records and Reports Unit of the Bureau of State Services has just published a report of public health resources in local full-time health jurisdictions, including state districts. The number of personnel in 4 categories is analyzed according to whether they meet the minimum standards set up by the Subcommittee on Local Health Units in its report, *Local Health Units for the Nation*.

The report also gives detailed information on public health clinic service available in local jurisdictions receiving federal-state financial aid.

The report, prepared by Evelyn Flook and Arthur P. Gill, is available from the Bureau of State Services, U. S. Public Health Service, Washington 25, D. C.

FIELD TRAINING IN PUBLIC HEALTH ENGINEERING

The Michigan Department of Health announces summer field training opportunities to individuals desiring experience in public health engineering work.

The program will be similar to one conducted by the department last year.

Graduates or undergraduates of recognized professional schools with training in one of the branches of public health (engineering, dairy science, food technology, bacteriology, etc.) will be accepted. Undergraduates must have completed their junior year of study. Assignments will be to county health departments with special facilities for the training. Stipends of \$150 per month will be paid each candidate by the W. K. Kellogg Foundation. Veterans are entitled to the federal subsistence allowance while in training. Work will start about June 14 and continue to the middle of September.

Additional information can be obtained from John M. Hepler, Director, Bureau of Engineering, Michigan Department of Health, Lansing.

MARKLE FOUNDATION MEDICAL SCHOLARS

With the avowed purpose of relieving the current shortage of scientists equipped to carry on and teach research, the John and Mary R. Markle Foundation of New York recently announced a "Scholars in Medical Science" program. A total of \$400,000 has been allocated to support, for a 5 year period, 16 doctors carrying on research in a variety of medical subjects in 16 different universities.

100 YEARS OF A.A.A.S.

Planning has begun for the centenary celebration of the founding of the American Association for the Advancement of Science. Chairman of the Centennial Policy Committee is Dr. Harlow Shapley, Director of the Harvard Observatory. The keynote of the meeting, to be held in Washington, D. C., September 13-17, is "One World of Science." Preliminary plans call for technical symposia, 4 or 5 concurrently each morning, for free afternoons to visit the scientific and cultural institutions of Washington,

and for non-technical broad surveys of current progress in important fields of science for the evenings.

NATIONAL HEART INSTITUTE PROPOSED BY SENATE BILL

On February 25, Senators Ives, Bridges, Murray, and Pepper introduced the bi-partisan bill S2215, which would establish a National Heart Institute under the U. S. Public Health Service. It would provide greatly increased federal support of research in and control of cardiovascular diseases. The bill differs only slightly from the Keefe and Smathers bills introduced in the House in January.

U. S. PUBLIC HEALTH SERVICE 1949 BUDGET

The Washington Report on the Medical Sciences, a weekly newsletter concerning medical and public health matters, reports liberal grants to the U. S. Public Health Service by recent action of the House Appropriations Committee. The overall 1949 budget approved for the Service was \$173,230,500, an increase of 30 per cent over the previous year. Seventeen million dollars was approved for venereal disease control. Because the committee was impressed with the BCG studies conducted by the Public Health Service, over 9 million dollars was appropriated for tuberculosis control, two-thirds of which is for grants-in-aid to state and local health departments.

The National Institute of Health was granted its full request of \$13,570,000, plus an additional \$100,000 for peptic ulcer research. More than half of the institute's appropriation is for research grants to hospitals, clinics, universities, and other organizations.

The Institute's funds for cardiovascular studies were increased from half a million in 1948 to \$1,382,500 in the 1949 appropriation of the House. The cancer appropriation of \$14,000,000

was renewed plus an additional \$8,000,000 recommended for grants-in-aid for planning, land acquisition, and building of research centers.

A new item of a million and a half dollars was recommended for nation-wide demonstrations in schools of the effectiveness of sodium fluoride in preventing tooth decay.

PERSONALS

Central States

C. A. ABLE, formerly Director of the Country Dairy Inspection Section of the Chicago Health Department since 1940, has recently become Director of Public Health Research of the Diversey Corporation, also of Chicago. Mr. Able organized and served for 20 years, the Bureau of Inspection for the Alabama State Department of Health. He is a referee on the Committee on Standard Methods for Dairy Products, A.P.H.A.

CORINNE EDDY, M.D.,[†] was appointed Health Officer for the DeWitt-Piatt County (Illinois) Health Department with offices in Clinton on January 1. Dr. Eddy was formerly Director of the City-County Health Department, Lincoln, Neb.

DONALD M. HARRIS, M.D.,* became Health Officer of the newly organized full-time Health Department of Gary, Ind., on February 1. According to the *Monthly Bulletin* of the Indiana State Board of Health he is "the first formally trained full-time health officer (local) in Indiana." He had previously served in local health units in Iowa, Michigan, and Nebraska.

J. P. OWENS, M.D., has been named to succeed E. H. SCHOENLING, M.D., as Hamilton County, Ohio, Health Commissioner. Dr. Owens has been a practising physician in Cincinnati chiefly interested in industrial medicine.

Eastern States

WENDELL R. AMES, M.D.,* former Health Commissioner of the Cattaraugus County, N. Y., Health Department, has been appointed Deputy Health Commissioner for Preventable Diseases, including tuberculosis control of the new Buffalo City-Erie County Health Department.

CHARLES S. CAMERON, M.D., recently a corps member of the U. S. Naval Medical Corps, has been appointed Medical Director of the American Cancer Society, New York, N. Y. Dr. Cameron is a Fellow of the American College of Surgeons.

J. ELLIOTT HALE,† formerly Director of the Industrial Hygiene Division of the Bureau of Health, Maine State Department of Health and Welfare, has taken up new duties as Superintendent of the Kennebec, Me., Water District.

GEORGE E. LAUBACH, licensed Health Officer in New Jersey, became Health Officer of the City of Elizabeth on January 15. He had previously been Health Officer of Dover.

EARL LUDLAM, D.D.S., has succeeded J. M. WISAN, D.D.S.,* as Chief of the Division of Dental Hygiene of the New Jersey State Health Department. He has been Assistant Director of the division for the past 10 years. Dr. Wisan resigned to become Director of the Division of Health Education of the American Dental Association whose headquarters are in Chicago, Ill.

CLINTON P. McCORD, M.D., of Albany, N. Y., has been appointed as Consultant in Psychosomatic Medicine in the New York State Department of Health, preparatory to the launching of a state-wide educational program related to emotional factors in disease. Dr. McCord has been practis-

ing neuro-psychiatry and analytic psychiatry for the past 35 years and is a Diplomate of the American Board of Neurology and Psychiatry and Consultant to the Albany Society for Advancement of Psychosomatic Medicine.

WILLYS M. MONROE, M.D.,† will become Health Officer of Greenwich, Conn., on July 1. He has been Health Commissioner of Pittsfield, Mass., since 1923 and served in both world wars, returning from recent military service with the rank of lieutenant colonel.

PHILIP S. PLATT,* Director of Lighthouse of the New York Association for the Blind spoke on voluntary health agencies at the annual meeting on April 15 of the Hartford, Conn., Tuberculosis and Public Health Society.

WILLIAM REINER-DEUTSCH, M.D.,† Director of Industrial Testing Laboratories and Technical Director of the National Brewers' Academy and Consulting Bureau, New York, N. Y. has been elected corresponding member of the Société de Biologie de France.

ELIZABETH P. RICE, formerly clinical professor of the social aspects of medicine at the Yale School of Medicine, New Haven, Conn., and assistant professor of the social aspects of nursing at the Yale School of Nursing, has been appointed the first Social Service Worker to the Faculty of the Harvard School of Public Health, Boston, Mass., as part of a new program to study the role of family life in the health of children. Miss Rice will commence a study of the preventive aspects of social work.

HELEN E. WEAVER, R.N.,† has been appointed as Consultant in Nursing Activities, the National Society for the Prevention of Blindness, New York, N. Y. Miss Weaver was formerly Consultant Public Health Nurse of the Division of Venereal Disease Con-

* Fellow A.P.H.A.

† Member A.P.H.A.

trol, New York State Department of Health, Albany.

SIDNEY I. WOLFSON,[†] has resigned as assistant to the District State Health Office, Freehold, N. J., to become Health Officer of Dover.

MARGARET POND ZEALAND was appointed nutritionist of the New Jersey State Health Department in February. Mrs. Zealand formerly served as dietitian in several hospitals in New York City.

Southern States

HAROLD V. DARNELL, B.Sc., has been appointed as assistant to ROBERT P. FISCHER, M.D.,* Secretary of the American Pharmaceutical Association, Washington, D. C. Mr. Darnell has been Executive Secretary of the Indiana Pharmaceutical Association since 1939.

ESTHER M. FINLEY,* Senior Assistant Nurse Officer of the U. S. Public Health Service, Washington, D. C., has been appointed Director of the Public Health Nursing Program for the Kanawha-Charleston Health Department, W. Va.

JOSEF JORDAN WEISSKOPF, M.D.,[†] recently appointed Surgeon in the Reserve of the U. S. Public Health Service, was called to active duty as of April 30. Since January, 1945, he has been Chief, Planning Branch, Medical and Sanitation Supplies Division, UNRRA.

Western States

NEW MEMBERS OF THE FACULTY AT THE SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF CALIFORNIA, SAN FRANCISCO, ARE:

JACOB YERUSHALMY, Ph.D.,* as Professor of Biostatistics. Dr. Yerushalmy was formerly Principal Statistician, Division of Tuberculosis, U. S. Public Health Service. He recently

returned from Denmark where he served as Consultant in the tuberculosis control program.

EDWIN H. LENNETTE, M.D., Ph.D., who recently became the director of the Virus Laboratory, California Department of Public Health, has also been appointed Lecturer in Public Health. Dr. Lennette was a member of the Field Staff of the International Health Division of the Rockefeller Foundation until 1946 when he became Chief of the Medical Veterinary Division of the War Department.

DAVID FROST, M.D.,[†] became the first full-time Health officer of the City of Alameda, Calif., in February, 1948. He was formerly Chief of Venereal Disease Control in the Oakland Health Department.

Other Areas

ROBERT H. MARKS, M.D.,[†] Chief of the Tuberculosis Bureau of the Hawaii Territorial Department of Health, has announced his resignation, effective February 26. He returns to the mainland as Medical Director of Jefferson Sanatorium, Birmingham, Ala.

LUIS M. MORALES, M.D., former President of the Medical Association of Puerto Rico, was elected a member of the Council of the National Committee on Mental Hygiene at the organization's recent annual meeting in New York.

Deaths

EDWARD THOMAS DEVINE, Ph.D., known in social work and reforms, died in Chicago on February 27, at the age of 80.

HAROLD GILBERT MCGEE,* Charter Fellow of the Engineering Section of the Association, and Director of the Municipal Research Bureau of the Akron Chamber of Commerce since 1923, died at his home in Hudson, Ohio, on February 13. Besides being a tax and

* Fellow A.P.H.A.

[†] Member A.P.H.A.

finance expert in his early career he had also been Sanitary Engineer in the Michigan State and Jackson City Board of Health, and in the Ohio State and Lucas County boards. He was the author of numerous articles in engineering and public health journals as well as reports on municipal, school, county, and state budgets.

CONFERENCES AND DATES

- American Association for the Advancement of Science. Centennial Meeting. Washington, D. C. September 13-17.
- American Congress of Physical Medicine. Hotel Statler. Washington, D. C. September 7-11.
- American Dairy Science Association. University of Georgia, Athens, Ga. June 14-16.
- American Dental Association. Chicago, Ill. Week of September 12.
- American Dietetic Association. Boston, Mass. October 18-22.
- American Hearing Society. National Conference and Annual Meeting. Pittsburgh, Pa. May 19-23.
- American Home Economics Association. 39th Annual Meeting. Minneapolis, Minn. June 21-24.
- American Hospital Association. 50th Anniversary Convention. Atlantic City, N. J. September 20-24.
- American Library Association. Atlantic City, N. J. June 13-19.
- American Occupational Therapy Association. Hotel Pennsylvania, New York, N. Y. Sept. 7-11.
- American Public Health Association—76th Annual Meeting. Boston, Mass. November 8-12.
- American Public Works Association. Boston, Mass. October 17-20.
- American Red Cross. San Francisco, Calif. June 20-24.
- American Society for the Study of Sterility. Fourth Annual National Session. Chicago, Ill. June 21-22.
- American Society of Planning Officials. New York, N. Y. October 11-13.
- Biennial Nursing Convention — American Nurses Association, National Organization for Public Health Nursing, National League of Nursing Education. Chicago, Ill. May 31-June 4.
- Canadian Public Health Association. Vancouver, B. C. May 18-20.
- Civil Service Assembly of the United States and Canada. Ottawa, Canada. October 4-7.
- Colorado Public Health Association. Savoy Hotel, Denver, Colo. May 21-22.
- Conference of State and Provincial Health Authorities. Chicago, Ill. June 25-26.
- Connecticut Public Health Association. New Haven, Conn. May 12.
- First International Poliomyelitis Conference. Waldorf Astoria. New York, N. Y. June 12-17.
- Florida Public Health Association. Panama City, Fla. October 7-9.
- Fourth International Congresses on Tropical Medicine and Malaria. Washington, D. C. May 10-18.
- Georgia Public Health Association. Savannah, Ga. May 10-12.
- Indiana Public Health Association. Indianapolis, Ind. June 2-3.
- International Congress on Mental Health. London, England. August 11-21.
- International Federation of Housing and Town Planning. Zurich, Switzerland. July 20-26.
- Iowa Public Health Association. Annual Meeting. Burlington, Iowa. May 27-28.
- Massachusetts Public Health Association. Amherst, Mass. June 16-18.
- Missouri Public Health Association. Hotel Chase, St. Louis, Mo. May 12-14.
- National Association of Sanitarians. Portland, Ore. June 7-9.
- National Education Association of the United States. Cleveland, Ohio. July 5-9.
- National Gastroenterological Association. New York, N. Y. June 7-10.
- National Tuberculosis Association. Annual Meeting. New York, N. Y. Week of June 14.
- New England Health Institute. Amherst, Mass. June 16-18.
- New Mexico Public Health Association, Las Cruces, N. M. May 20-22.
- New York State Association of Milk Sanitarians. Buffalo, N. Y. September 22-24.
- Society of American Bacteriologists. Minneapolis, Minn. May 10-14.
- Tennessee Public Health Association. Andrew Jackson Hotel, Nashville, Tenn. May 3-5.
- Utah Public Health Association, with Western Branch A.P.H.A. Salt Lake City, Utah. May 25-27.
- Western Branch, American Public Health Association. Salt Lake City, Utah. May 25-27.
- West Virginia Public Health Association. Prichard Hotel, Huntington, W. V. May 27-28.

**ECONOMICAL
SANITIZATION
OF MILK UTENSILS**



with the



B-K
REG. U. S. PAT. OFF.
PLAN

You won't find a sanitation program today that is much simpler than the B-K Plan... at such low cost. You will get results with it, if you follow the easy directions. But remember—no system can produce these results without a certain amount of cleaning and good old fashioned elbow grease.

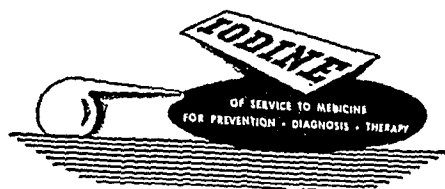
The B-K Plan stresses, after use, first the rinsing of utensils and equipment in cold water and then the scrubbing in hot water containing soapless General Manual Kleanser. Before milking, rinse milking machines, and utensils, and wipe cow's udder and teats with efficient, inexpensive B-K solution. These simple steps have helped many average-size farms get surprisingly low counts.

B-K* Chlorine-Bearing Powder contains 50% available chlorine. It speedily sanitizes dairy utensils and reduces the number of bacteria that result in poor quality... thermodurics and others. General Manual Kleanser loosens milk solids and really cleans.

Farm operating costs remain high... and past experience shows that milk prices are sometimes reduced without a proportionate lowering of costs. Recommend the simple, economical B-K Plan and you will help both farmer and city milk supply.

Literature explaining the role of bacteria in milk and their control is available for farmers. Programs of education also on request. Send for them—by writing to B-K Division, Pennsylvania Salt Manufacturing Company, 1000 Widener Building, Philadelphia 7, Pa.

*Reg. U. S. Pat. Off.



The Role of **IODINE** *in Clinical Diagnosis*

- Diagnosis is the art or scientific process by which a disease is recognized. Success or failure in establishing a correct diagnosis depends in large measure on the use of reliable, safe and efficient clinical and laboratory procedures.

- Iodine compounds occupy a unique position as indispensable aids in providing X-ray evidence that is informative and most frequently complete. They supply the ideal contrast media for many diagnostic procedures—including bronchography, cholecystography, pyelography and myelography. Without these compounds, an accurate diagnosis might be difficult or impossible to make.

- Likewise in the fields of prevention and therapy, few medicaments serve such useful and varied purposes as Iodine with its many compounds and derivatives.

**IODINE
EDUCATIONAL
BUREAU, Inc.**

120 BROADWAY, NEW YORK 5, N. Y.

American Journal of Public Health

and THE NATION'S HEALTH

Volume 38

June, 1948

Number 6

Air Pollution*

Engineering Section

SINCE the field that might be considered by this committee is large, it was believed advisable to restrict the scope of this year's report to one phase of the air pollution problem; namely, atmospheric pollution. The report does not include air pollution in enclosed spaces except as they may affect the outside atmosphere. It also seemed advisable in this initial report to limit its scope to certain available information on the source, character, and effect of atmospheric pollution and to some information on the methods of control.

Broadly speaking, atmospheric pollutants include smoke, dust, gases, vapors, fumes, and mists that may be present in the air and that create a nuisance, adversely affect animal or plant life, or cause property loss or damage.

Smoke and dust are no doubt the most widely recognized atmospheric contaminants. Investigation of atmospheric pollution in many cities, including the fourteen large cities in the United States surveyed¹ by the U. S. Public Health Service (1931-1933), have recorded the conditions that exist in some urban communities in the United

States and have brought out certain fundamental relations that are of importance in organizing and carrying out smoke and dust abatement programs.

Ely² has pointed out that "the so-called smoke abatement problem divides itself into two parts, the smoke problem and the dust problem. The smoke problem, i.e., smoke stacks, is one of combustion and it is always possible with proper equipment and design to stop a smoking stack. The other problem, that of dust and dirt, is a matter of air pollution, and its solution depends on many factors." It should be realized that the smoke stack, even when not smoking, may be the source of fly ash and dust, particularly in the case of pulverized coal furnaces with ineffective fly ash catchers.

In reference to dustfall due to substances other than smoke, the Chicago Association of Commerce in a report on air pollution points out the importance of "refuse in alleys, dust in the streets and vacant lots, dirt on rooftops, and material from tires, clothing, shoes, buildings and all other things that 'wear' as a result of busy city life. At times even soil from farms hundreds of miles away is important." Another form of dust particle that should not be overlooked is the pollen which, in certain concen-

* Report of the Committee
COMMITTEE ON AIR POLLUTION
Organized 1946.

trations, is responsible for allergic reactions in susceptible individuals.

To these more common forms of smoke and dusts, present to some extent in the air of practically every community, must be added the gases, fumes, vapors, and mists, originating particularly from industrial establishments, that are present in some communities as atmospheric contaminants in sufficient concentration to produce a nuisance, cause property loss, and in some cases affect the public health.

While the presence in the atmosphere of any of the contaminants mentioned may conceivably have health implications, it has always been difficult, and in many instances impossible to demonstrate actual damage to health.

Stead³ has included in the industrial contaminants that cause nuisances: (a) inert smokes and dusts, (b) mucous membrane irritants, and (c) malodorous substances.

Smokes that result from the combustion of fuel contain soot, fly ash, and unburned or partially burned fuel. Smoke alone, for example, in excessive quantities is disagreeable, discomforting, and of economic significance, but the evidence so far collected has not been able to establish a definite relationship between smoke and health.

The discharge into the atmosphere of dusts from industries such as smelters, cement plants, rock crushers, sand blast plants, and roofing plants, and of some of the organic dusts may, however, have health implications.

Mucous membrane irritants emitted from industrial plants include respiratory irritants such as sulfur dioxide, chlorine, and phosgene, and eye irritants such as acrolein, butadiene, chlorine, and hydrogen sulfide. The discharge of irritating gases into the atmosphere in objectionable quantities will naturally cause serious complaints.

Malodorous substances may originate from a variety of industries and other

sources including rendering plants, tanneries, soap factories, glue plants, oil refineries, sewage disposal plants, internal combustion engines, etc. Stern⁴ points out that "the chemical groups most frequently responsible for unpleasant odors are the sulfides, disulfides, mercaptans, thiocyanates, isocyanides, compounds analogous to the foregoing of selenium or tellurium, and aldehydes" and that "many of these substances are recognizable as malodorous at less than 0.1 p.p.m., some at as low as 0.0000001 p.p.m."

Various methods and techniques have been devised for locating and studying the source, distribution, and effect of atmospheric pollution. Unless the source and distribution of the contaminant can be determined by direct observation, the discovery of the origin of atmospheric contaminants may be a difficult one requiring the exercise of highly specialized technical skills. The "Report Submitted to the Trail Smelter Arbitral Tribunal," *Bulletin 453*, U. S. Bureau of Mines,⁵ is an illustration of the exhaustive technical investigation that may be necessary to determine the damage resulting from the discharge of SO_2 from a smelter under the meteorological conditions that existed in the area surrounding this plant.

A number of devices such as electrostatic and thermal precipitators, impinging apparatus, filters, and atomizers, have been developed for the sampling of dust and bacteria in air. These devices are described in various publications. Probably the most common measure of smoke density is the Ringelmann⁶ chart, which is used as a guide in the enforcement of many smoke ordinances.

To establish proof as to the distribution from a given source of such common substances as smoke or fly ash, a number of methods have been used or suggested. One method consists of adding radioactive salts to the smoke

stream in a stack and recovering the radioactive components in the area under observation. Another method described by Sinatt⁷ is the identification of cenospheres, which are hollow spheres that are produced when certain solid fuels are burned at temperatures above 600° F. in a limited air supply. If deposits of these cenospheres are recovered from the area of complaint, they constitute evidence of the source of the trouble.

An indirect effect of smoke and dust is the diminution of sunlight and the increase in fogs, clouds, and haze. Fogs accentuated by smoke and dust add to certain hazards associated with motor and airplane transportation. This hazard has been considered in connection with the location of some important airports in this country. Studies have been reported by Drinker⁸ on methods for eliminating fogs at airplane landings, but these have apparently not yet reached a practical stage.

The health hazards associated with the release of radioactive substances into the atmosphere have aroused world-wide interest. In times of peace some of the actual and potential sources of these radioactive atmospheric contaminants are plants producing plutonium, uranium, and radioisotopes, and possibly to some extent laboratories conducting experiments with radioactive substances. Studies⁹ have been made on the possibilities of the release of radioactive dusts and gases from atomic energy plants, and progress has been made in developing methods for health protection against atmospheric contamination from such plants. Much information on this subject is not yet released for publication.

The control of pollens responsible for allergic reactions in certain individuals has been given more attention in the past few years. Various methods have been tried to control hay fever pollen-producing plants, including cutting the

plants before they blossom, and chemical treatment. Among the chemicals recently used for the destruction of these plants, especially ragweed, which is a most important member of the hay fever producing group, is dichlorophenoxyacetic acid commonly known as 2,4-D. This is a synthetic plant hormone which disturbs plant growth and eventually destroys the plant. The chemical is usually applied in the form of a spray but may be dusted. A large number of communities are reported to have used 2,4-D, among them the City of New York.

Sol Pincus has made the following brief statement for this report concerning the use of 2,4-D by the New York City Health Department:

In 1946, it was estimated that 10,000 acres were infested with ragweed in the five boroughs. It was decided that the use of the new chemical, 2,4-D, dichlorophenoxyacetic acid, would be the most economical method to control ragweed in New York City. Starting very late in the season, we were able to control the growth of 3,000 acres of ragweed, which contributed probably to the unusually low atmospheric pollen concentration during the ragweed season. It was a coöperative program. Equipment and personnel were contributed by the coöperating departments with the Health Department coördinating the work, furnishing the technical direction, chemicals and supplies.

At the close of the 1946 season, a survey was conducted by the Police Department which resulted in 85 Precinct maps showing the locations and areas of ragweed growth in the city. These maps served as guides in the preparation of plans for the 1947 campaign.

It was estimated that 8,000 acres had to be treated in 1947. We obtained six high-pressure power spraying units from the War Assets Administration, two skid-mounted decontaminating units from the U. S. Public Health Service, and various supplementary equipment from the War Assets Administration.

Public and private vacant properties were treated alike without making a charge to the private owners. During the 1947 season, it is estimated that approximately 4,000 or 4,500

acres will be sprayed. It has been adjudged that one application of the chemical is sufficient to kill the ragweed or prevent the pollination and seed production.

A spray solution containing 1,000 p.p.m. of 2,4-D was used. This was applied at the rate of approximately 300 gal. per acre. The sodium and ammonium salts of 2,4-D were used. The cost of the chemical was approximately \$1.25 per lb., and the cost for the area sprayed including labor and use of equipment and chemicals, was approximately \$11.00 per acre, in 1946. Figures for 1947 are not yet available.

It was noted that the area sprayed during July and August of 1946 showed very little or no growth of ragweed during the 1947 season.

Many neighboring communities have instituted similar programs in reduction of ragweed pollen. This department coöperated in making available our experiences and also in giving a training course under New York University direction to health officers and other officials of these communities.

While encouraging results have been obtained in the elimination of hay fever pollen-producing plants in certain areas where regulatory measures are in effect, the control of pollens from outside areas still remains a problem. Investigations have shown the long distance that pollens may travel under meteorological conditions favorable to their migration. The question, however, of the kind and the concentration of hay fever-producing pollens, regardless of their source, becomes an important factor in dealing with any situation.

Various methods have been developed for sampling and counting air-borne pollen and for computing the results of such examinations in terms of pollen concentrations in the atmosphere. Dahl and Ellis,¹⁰ after a study of the methods for computing pollen concentrations state that "those which utilize volumetric factors derived from Stokes' law are less accurate than those methods which employ a unit area basis," and that "it is to be desired that reports should include a record of the amount of pollen per unit of area of the exposed

slide, whether volumetric data are computed or not."

The measurement of gases and vapors emitted from various sources presents serious difficulty when low concentrations are encountered, because the lower limit of most chemical methods is around 1 p.p.m. by volume. Some instruments, however, have been developed that are helpful in this connection. The Thomas Autometer¹¹ is one apparatus which will collect its own samples and measure and record concentrations of sulfur dioxide and sulfur trioxide as low as 2 parts per billion. This machine has also been developed to measure separately the concentration of other gases, including hydrogen sulfide, carbon disulfide, ethyl mercaptan, and thiophene. The method, at a higher operating temperature, is also applicable to chloroform, carbon tetrachloride, ethylene chloride and chlorobenzene.

Whipple¹² in 1921 pointed out many of the fundamentals in regard to odors and their relationship to odor nuisances in a discussion on odors and their travel habits.

The measurement of odors from various sources is attended by many difficulties. Various methods^{4, 13-15} that employ the sense of smell of the observer have been devised for evaluating the intensity of odors. Odor scales^{4, 16} indicating threshold odor concentrations and tables showing the concentrations and characteristics of various readily perceptible substances in air have been prepared.

Hemeon and Hatch¹⁷ point out that "osmometry is in need of research cultivation; we know little about it. Moreover, the subject of odors is inextricably entangled with psychological factors which although usually foreign to chemist and engineer cannot be ignored. The facts of olfactory fatigue and revivification by periodic variation in concentration are relevant, as is the

law expressing the logarithmic relation between sensory response and the magnitude of stimulus—i.e., concentration of the vapor or gas.”

The instrumental measurement of odors presents a difficult problem, however, because odors are due to the perception of molecules rather than a response to conditions. Some attempts have been made to develop physical methods of measurement, such as the work of Dyson,¹⁸ who used the Raman shift for this purpose. Apparently, however, no practical method has so far been devised, and there is need for research in this field.

A large amount of technical work has been undertaken on methods to prevent atmospheric pollution from smoke, dust, gases, vapors, and fumes.

Probably the greatest amount of attention has been focused on smoke control, since this kind of air pollution is obvious and attracts public attention. Fuels and combustion equipment and methods have been studied. As a result detailed information is available on the construction and operation of nearly all types of fuel burners to improve or correct combustion difficulties.

Extensive studies have been made on the polluting substances released from stacks and the dilution that may be anticipated under varying meteorological and other environmental conditions. Investigations of the U. S. Bureau of Mines¹⁹ indicate that factors of dilution of the polluting material at given points of travel can be computed with rough accuracy for a given horizontal distance if the stack velocity and wind velocity are known.

The importance of meteorological and other environmental studies should not be overlooked in selecting new plant sites, especially where gaseous waste disposal problems are anticipated.

Meteorological factors are involved both in the creation and in the solution of atmospheric pollution problems. For

example, there are the disturbing effects of temperature inversion, which cause a natural rise of atmosphere containing contaminants when the earth's surface is warmer than the air, but produce the formation of a so-called “lid,” holding pollution down near the earth's surface, when the earth is colder than the air.

The control of industrial dusts, gases, vapors, and fumes at the source also presents difficult technical problems. However, considerable progress has been made in their solution. Hemeon and Hatch¹⁷ mention among the available control methods the following: “scrubbing and absorption towers for vapors and gases, especially acid gases, various types of dust and fume collectors, and miscellaneous chemical processes such as combustion of organic contaminants or neutralization in conjunction with scrubbing.” In some cases the use of raw materials free from objectionable impurities may eliminate the difficulties, while in others the utilization of the contaminant in the manufacture of a useful by-product may provide a solution. These authors mention the substantial body of experience in gas cleaning in industry, much of which has not been applied to atmospheric pollution control. They emphasize the need for “further research and field study, particularly with respect to the collection of dust and fumes, to provide basic information on stack gas cleaning equipment and other control measures especially for small plants.”

Many large and small cities in the United States have recognized the problem of atmospheric pollution and have passed ordinances regulating smoke or smoke and dust, while some of the large cities have a relatively complete coverage of the important atmospheric contaminants. No attempt has been made in this report to make a nation-wide survey of the administrative control of atmospheric pollution. However, for illustrative purposes, information was obtained

on control practices in three large cities; namely, New York, St. Louis, and Los Angeles, which have organized control programs.

Control of atmospheric pollution in New York City* is an activity of the Bureau of Sanitary Engineering of the Department of Health under the general supervision of the Sanitary Engineer Director of the Bureau.

A special force of smoke inspectors has been organized consisting of one supervising inspector and six field inspectors. The regular district inspectors (approximately 70) take care of the routine complaints of smoke, odors, fumes, etc. The special smoke inspectors make investigations involving larger plants, utilities, harbor craft, etc. They also make surveys of air pollution in areas of greatest intensity of smoke discharge. The supervising smoke inspector checks over the work of the regular district inspectors in air pollution.

The district inspectors, in groups of five are given an intensive course by the supervising smoke inspector in methods of investigating and controlling air pollution. The course takes about six weeks.

Eleven committees have been organized to coöperate with the Health Department. These committees represent: (1) real estate and industry, (2) railroads, (3) utilities, (4) harbor craft, (5) solid fuels, (6) fuel oils, (7) public health aspects, (8) laws and legislation, (9) plant operation, (10) city departments, (11) public coöperation. The committees have met in most instances monthly with the Commissioner of Health and the Director of the Bureau of Sanitary Engineering.

Monthly sootfall collections have been made for the past five years from 13 locations, mostly in areas of high smoke

discharge. These monthly samples have been analyzed for solids and ash in both the water-soluble and water-insoluble components of the sample. The results obtained, when compared with those of previous periods, give a rough estimate of the increase or decrease in smoke discharge over wide areas of the city.

In comparison with the sootfall records obtained during a WPA air pollution survey in 1936, recent results show that there was a large increase in sootfall during 1943 and 1944, which has subsequently lessened considerably. The increase during the war period was concurrent with a tremendous overloading of coal-burning power plants.

A great amount of rehabilitation of fuel-burning plants and installation of soot collectors has been accomplished during the past two years. The large electric companies have made significant improvements at their generating plants at a cost of millions of dollars. A number of the industrial plants, hospitals, and mercantile establishments also have improved their fuel-burning equipment and put in soot collectors.

A detailed program for the extensive training of janitors and superintendents has been prepared and will start in the fall of 1947 in some of the Board of Education high school buildings.

At the same time that the janitors and superintendents are acquainted with methods of firing furnaces and preventing smoke and odor complaints, they will be given instruction in rodent and vermin control and in the sanitary maintenance of buildings.

A program for future extension of this work has been drawn up and will include the addition to the department of a mechanical engineer—an expert in smoke control work, two assistant engineers, and a number of field inspectors. This expansion is now awaiting the allotment of funds by the city authorities.

* Information concerning New York City was furnished by Sol Pincus, Senior Sanitary Engineer, New York City Health Department.

St. Louis* has attracted considerable national attention because of the extent of its air pollution problem and the efforts made to control it. These efforts, principally due to the anti-smoke ordinance and its enforcement, appear to have produced a definite and permanent improvement. This is particularly true of sootfall, visible smoke, and volatile sulfur compounds in the air caused by combustion of solid fuels.

The city, being located close to the Southern Illinois high-volatile bituminous coal fields, uses such fuel in great quantity. The anti-smoke ordinance secures the control of the pollution of air from such fuel use by a multiple approach:

1. It prohibits the use of high-volatile bituminous fuel except in mechanically-fired furnaces and power plants.
2. It requires the air- or water-washing of all high-volatile bituminous fuels to reduce sulfur compounds.
3. It sets certain limits for fly ash emission which invariably require collector installations on powdered-fuel power plants.
4. It has the usual and necessary measures of promoting proper firing, registration of new heating installations, maximum density and duration limitations for smoke emission and a qualified inspection force.

Enforcement of the anti-smoke ordinance is the responsibility of the Commissioner of Smoke Regulation who directs a division which is a part of a Department of Public Safety. The Health Division, a part of the Department of Public Welfare, works closely with the smoke control office and has assisted in providing some technical assistance, particularly along the lines of laboratory and air analysis techniques.

Most of the present air pollution problems center in fly ash emission from plants permitted to postpone collector installations due to wartime equipment

shortages and such emission from large plants near to but outside the city limits and, therefore, beyond the city's legal jurisdiction. Some smoke and chemical odor problems occur at times due to such materials being carried over the city from the highly industrial area just to the east of the city, in Illinois.

The remaining air pollution problems are, in general, not city-wide but rather limited to local neighborhoods, and are due to isolated industries producing objectionable dusts, fumes, or gases. Almost invariably, these cannot be demonstrated to be either a health hazard or a public nuisance (involving property damage over a considerable area). At present, the city charter and ordinances give power to the Health Commissioner to declare and abate public nuisances (after hearings). Those air pollution situations which come within this category can be and have been controlled by this legal means. The Health Division has extensive air sampling equipment and experienced personnel in its Industrial Hygiene Section. Through these means, it is able to locate responsibility and recommend and enforce corrective action.

The inadequacy of present laws for air pollution problems not of public nuisance proportions is recognized. Plans are now being made for the formulation of an overall air pollution control ordinance. Provision for an adequate and qualified staff is also planned.

The Los Angeles* air pollution control problem differs from that of most eastern cities. No coal is burned; instead gas is used by all homes and by most apartment buildings and hotels. In summer most industrial power plants are operated by gas, while in winter large power and heating installations employ oil burners.

The greatest accumulation of smoke

* Information concerning St. Louis was furnished by John Buxell, Engineering Director, St. Louis Health Division.

* Information concerning Los Angeles was furnished by Charles L. Senn, Engineer-Director, Sanitation Bureau, City Health Department.

and other air pollution is associated with hot summer weather when visible smoke production is at a minimum. This is due to the occurrence of extreme temperature inversions coupled with an almost complete absence of wind and turbulence.

A city ordinance places certain responsibilities for air pollution control on the Los Angeles Health Department. The Air Pollution Control Division of the City Health Department is one of the divisions of the Sanitation Bureau. The division personnel consists of a director, four inspectors and a clerk-stenographer. One inspector is responsible for collecting samples and for studies of industrial fumes and gas nuisances. A second devotes his entire time to railroad smoke control. A third is concerned principally with the control of smoke from Diesel trucks. The fourth inspector is assigned to the harbor district which includes the two major oil refineries which are located in the city.

Most of the control work is based on the use of the Ringlemann chart and on organoleptic tests. The facilities of an industrial hygiene laboratory are available. Samples are collected with electrostatic precipitators and two scrubbing devices. The main laboratory effort has been directed toward attempting to isolate the particular chemical that acts as a lacrimator, since eye and throat irritations are the principal causes for complaint by citizens.

The present status of the organization of the Department of Health is somewhat questionable because of newly enacted state legislation. An amendment to the State Health and Safety Code sets up a state-wide control system concerning smoke, dust, obnoxious gases, and industrial waste fumes discharged into the air. The act provides for the creation of smoke abatement districts that would be under the direct supervision of county boards of super-

visors, whose authority would supersede that of an incorporated city except where local ordinances are stricter than the state law.

It is obvious that the engineer must play an important part in the control of air pollution. The position of the engineer in this field and the knowledge necessary to function satisfactorily were discussed by Phelps and others²⁰ in a symposium on "The Role of the Engineer in Air Sanitation," of the American Society of Civil Engineers, 1941.

DISCUSSION

The control of atmospheric pollution is an administrative and technical problem that can be solved by engineering means. While there is no epidemiological information that will permit evaluation of the public health significance of many of the recognized air contaminants after they have been discharged into the atmosphere, their importance from the standpoint of the comfort and general welfare of the public and the individual involved cannot be overlooked.

The pollution of the atmosphere by dust, smoke, fumes, gases, vapors and mists as well as by pollen, should engage the attention of health departments at all levels of government, and qualified engineers should be called upon to meet health department responsibilities in this field of environmental sanitation.

The organization of the necessary administrative and technical activities in a health department will be governed to some extent by the facilities that can be made available. Trained professional personnel and technical facilities are required if air pollution is to be abated.

Since other departments of government too are concerned, directly or indirectly, with this problem, a coordinated program of activities is indicated.

There is an obvious need for research on many technical phases of atmospheric

control, especially on the meteorological factors affecting atmospheric pollution, methods for the instrumental measurement of odors, methods for the collection of dusts and fumes from industries, and methods for the control of air-borne pollen.

H. A. WHITTAKER, *Chairman*
JOHN BUXELL
G. M. FAIR
B. H. JENNINGS
SOL PINCUS, C.E.

Advisers:

C. P. YAGLOU, *Industrial Hygiene Section*
A. D. LANGMUIR, *Epidemiological Section*
STUART MUDD, *Laboratory Section*

REFERENCES

1. Ives, James E., et al. Atmospheric Pollution of American Cities for the Years 1931 to 1933. U. S. Public Health Service, *Pub. Health Bull. No. 224*. Washington, D. C., Gov. Ptg. Office, 1936.
2. Ely, S. B. Dust and Its Relation to Smoke. *Proceedings, Smoke Prevention Association of America, Inc.*, 1946. pp. 7-11.
3. Stead, F. M. Study and Control of Industrial Atmospheric Pollution Nuisances. *A.J.P.H.*, 35:491-498 (May), 1945.
4. Stern, A. C. Atmospheric Pollution Through Odor. *Heat & Vent.*, 41, 11:53-57 (Nov.), 1944.
5. Dean, R. S., and Swain, R. E. Report Submitted to the Trail Smelter Arbitral Tribunal. U. S. Bureau of Mines, *Bull. 453*. Washington, D. C.: Gov. Ptg. Office, 1944.
6. Monnett, Osborn. Smoke Abatement. U. S. Bureau of Mines, *Technical Paper 273*. Washington, D. C.: Gov. Ptg. Office, 1923.
7. Sinatt, F. S. The Formation and Structure of Cenospheres. *J. Soc. Chem. Ind.*, 47:151-155, 1928.
8. Drinker, Philip. Atmospheric Pollution. *Indust. & Engin. Chem.*, 31:1316-1320 (Nov.), 1939.
9. Bale, W. F. Health Protection in the Production and Use of Atomic Energy. *Occup. Med.*, 2:1-7 (July), 1946.
10. Dahl, A. O., and Ellis, R. V. The Pollen Concentration of the Atmosphere. *Pub. Health Rep.*, 57:369-376 (Mar. 13), 1942.
11. Thomas, M. D., et al. Automatic Apparatus for Determination of Small Quantities of SO₂ in Air. *Indust. & Engin. Chem., Anal. Ed.*, 15:287-290 (Apr. 15), 1943.
12. Tribus, Louis L. Odors and Their Travel Habits. *Tr. Am. Soc. Civ. Eng.*, 85:378-427, 1922. Discussion by George C. Whipple, p. 392.
13. Katz, S. H., and Talbert, E. J. Intensities of Odors and Irritating Effects of Warning Agents for Inflammable and Poisonous Gases. U. S. Bureau of Mines, *Technical Paper 480*. Washington, D. C.: Gov. Ptg. Office, 1930.
14. Fair, G. M. On the Determination of Odors and Tastes in Water. *J. New England Water Works A.*, 47:248-272 (Sept.), 1933.
15. Fair, G. M., and Wells, W. F. The Air Dilution Method of Odor Determination in Water Analysis. *J. Am. Water Works A.*, 26:1670-1677 (Nov.), 1934.
16. DallaValle, J. M. Evaluation of Odor Nuisance in the Manufacture of Kraft Paper. *Pub. Health Rep.*, 54:35-43 (Jan. 13), 1939.
17. Hemeon, H. C., and Hatch, T. F. Atmospheric Pollution. *Indust. & Engin. Chem.*, 39:568-571 (May), 1947.
18. Dyson, G. M. The Scientific Basis of Odour. *Chem. & Ind.*, 57:647-651 (July 9), 1938.
19. McElroy, G. E., et al. Dilution of Stack Effluents. U. S. Bureau of Mines, *Technical Paper 657*. Washington, D. C.: Gov. Ptg. Office, 1944.
20. Phelps, E. B., et al. The Role of the Engineer in Air Sanitation. A symposium. *Tr. Am. Soc. Civ. Eng.*, 106:9 134, 1941.

Course on Financial Problems in the Nursing Field

A short course on Financial Problems in Schools of Nursing, Hospital Nursing Services and Public Health Nursing Agencies, 2 semester hours, will be given July 12 through 23, 1948, in the Division of Nursing Education, Indiana University, Bloomington, Ind.

This course is especially designed for directors of basic nursing curricula, directors of hospital nursing services, and directors of public health nursing

agencies. It should also be of interest to board members of public health nursing agencies, hospital administrators, and college and university administrative officers who are concerned with basic nursing curricula.

Information and application forms may be secured by writing Mrs. Eugenia K. Spalding, Director, Division of Nursing Education, Indiana University, Bloomington, Ind.

The Sanitary Engineer in Hospital Construction and Maintenance*

A. H. WIETERS, F.A.P.H.A.

Director, Division of Public Health Engineering and Industrial Hygiene, State Department of Health, Des Moines, Iowa

THE greatest hospital construction program in the history of this country was launched with the passage (by the 79th Congress) of the Hospital Survey and Construction Act (P.L. 725). This act authorizes an annual appropriation of \$75,000,000 for each of five years for grants-in-aid for the construction of hospital facilities. The program is to be administered largely by the states under the general supervision of the U. S. Public Health Service. One of the provisions in the act requires the states participating in the program to regulate the operation and maintenance of the hospitals built with federal aid.

Only a few states previously regulated construction and operation of hospitals, but now, for the first time, the construction, maintenance, and operation of most hospitals will be under state regulation. In about three-fourths of the states, the health department will be the administering agency.

A comprehensive nation-wide inventory of existing hospitals and survey of needs for hospitals in the United States in 1945 revealed not only a great shortage of adequate hospital facilities, but also a serious maldistribution of existing facilities. Thus, a large segment of the total population finds itself with no hospital facilities readily available. Furthermore, the inventory revealed that many of the existing services failed to

provide acceptable hospital care by any reasonable modern standard because of grossly inadequate physical plants and staffs. Consequently another large segment of our population lacks satisfactory hospital facilities.

Time will not permit, nor is it within the scope of this paper, to discuss these needs. Suffice it to say that the objective of the present program is to assist the several states to survey their needs for hospitals, to develop plans for construction of facilities for furnishing adequate hospital services for all the people, and to construct such hospitals.

Many professional skills must be combined in the development of construction plans for a modern hospital. The hospital is more than a building. It is a workshop and, as such, the building layout and the type and arrangement of equipment must be carefully planned so that the entire facility will function effectively and economically. The hospital and its equipment are the tools used by the physicians, the nurses, and allied technical hospital personnel in caring for the sick.

Obviously, those responsible for operating the hospital must have a voice in the functional planning. Equally important are the engineers and architects who translate the functional plan into a working drawing and a finished facility. The final plan must be the result of close teamwork of those representing the various and highly technical skills involved.

* Presented before the Engineering Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 9, 1947.

In the operation and maintenance of a hospital, again teamwork is essential for successful and economical service. All of the engineering problems encountered in ordinary building operation, plus many additional ones, must be solved. These are made the more difficult in that even short lapses in operation of any of the equipment or appurtenances cannot be tolerated and much maintenance must be carried out while the plant is in full operation.

The sanitary engineer should be a member of such a team. While sanitary engineering principles have long been applied in hospital construction and maintenance, the sanitary engineer has not been closely identified with hospitals to any great extent in the past. A few large architectural firms specializing in hospital design have formerly employed sanitary engineers; however, most architects do not have sanitary engineers on their staffs. In only a few of the states have architectural plans been subject to review by sanitary engineers. Likewise, in but few of the states and larger cities has the sanitary engineer been called upon to contribute his services in the operation and maintenance of hospitals.

Most of the principles of hospital sanitation are the same as are applied to other types of buildings; however, the hospital is unique in that many of the occupants are potential, if not known, active carriers of disease. Therefore, faulty design, breakdown, or lapse in proper use and operation of equipment is fraught with greater danger of spread of disease than would be the case in other buildings. Also the occupants are, for the most part, in a weakened condition and thus are more susceptible to ill-effects from faulty environment than are occupants of other buildings.

As previously stated, in both the design and operation of a hospital, the functional as well as the architectural and engineering phases must be coördi-

nated for efficiency and economy. The sanitary engineer is in a unique position by training and experience to serve in a liaison capacity between those doctors, nurses, hospital administrators, and others responsible, on the one hand, for operating the hospital, and the engineers and architects responsible for design, construction, and equipping of the hospital on the other.

What is the extent of the sanitation problems in hospitals? Complete morbidity statistics would be the best criterion for the evaluation of sanitation problems. Unfortunately such data are very incomplete. It is known that there are numerous recurring outbreaks of diarrhea and skin infections among infants in hospitals, of food poisoning, and of cases of cross-infections which are never reported to health authorities. It is also known that many of these cases of disease result from faulty environment. That potential hazards, readily recognized by sanitary engineers, are commonly found in hospitals is indicated by many surveys that have been made. In existing buildings, serious defects in plumbing have been very common. According to a recently published report, food sanitation in the hospitals in one of our largest cities was rated lower than in the public restaurants in the same city, and in the latter was far from satisfactory. Crowding, lack of sufficient good equipment, and unsatisfactory working spaces and equipment are known in many cases to be more responsible for breaks in technique which result in spread of disease than incompetence of employees.

The sanitary engineer is largely concerned with the sanitary features of structures and equipment and their maintenance and operation. However, these are so closely related to functional and other features of design that a distinct line of demarcation cannot be drawn. The layman, and even other professional engineers, too often do not

seem to realize that the sanitary engineer is basically trained in fundamental engineering principles in common with other professional engineers in addition to his training in public health.

Many phases of professional engineering are involved in hospital design, construction, maintenance, and operation, and more than one specialty is frequently required in the design of a piece of equipment. For example, a dishwashing machine may be designed by a mechanical engineer. However, there are important sanitary implications in the design, the installation, and the operation of such a machine which must be considered in the interest of public health.

The services of the sanitary engineer in hospitals should be utilized in two ways: (1) in design, maintenance, and operation of facilities and equipment which comes more or less within the scope of his usual activities, many of which, however, have special significance in the hospital; (2) in cooperating with the medical and allied professions, in further study of potential health hazards in the environment of the patient about which little is known.

In the first category, the following items may be enumerated:

Site—Many future sanitary problems of maintenance and operation can be avoided by proper site selection. Availability of an adequate, safe water supply, proper drainage, and means of safe and economical disposal of sewage and wastes are very important factors in site selection. Insect breeding areas, sources of noise, smoke, and dust in the immediate area must be given careful consideration.

Sewage disposal—Where no sewer system is available, sewage disposal may be a particularly troublesome problem. Because of the potentially infectious nature of the sewage from a hospital, a high degree of treatment and special precautions are necessary. Large volumes of laundry and cleaning wastes may complicate the treatment problem. Operation and maintenance of these facilities likewise require special knowledge, usually not possessed by hospital operating personnel.

Plumbing—Because of a relatively large quan-

tity of infectious material which is introduced into the drain system, plumbing is of special importance. Many special fixtures used in hospitals, and which are not in common use elsewhere, are inherently dangerous unless adequately protected. These factors make precautions against backflow doubly important. Relatively large amounts of water are used in hospitals and peak demands are high. To assure adequate and uninterrupted pressures in all parts of the building under all operating conditions requires very careful design. For the same reason, drains must be carefully planned.

Food Handling—While general sanitary principles in the storage, preparation, and handling of food and the cleansing and disinfection of utensils apply, opportunity for contamination is so great and effects may be so disastrous that unusual precautions are necessary.

Garbage and Waste Disposal—The hospital has the usual problem of the proper disposal of ordinary kitchen garbage and rubbish. Also the handling and sanitary disposal of contaminated and infectious material, which is peculiar to hospitals, presents a problem.

Lighting—In addition to the hygienic and safety aspects of general lighting, special lighting in certain areas, such as surgery, dispensary, formula room, etc., is imperative. Uninterrupted lighting in certain areas is a must item.

Heating and Ventilation—In addition to general heating and ventilation, several areas within a hospital require special consideration.

Laundry—Although commercial laundering practices are quite well standardized, and in modern practice effective germicidal action is incidental to thorough cleansing, the handling of soiled laundry requires special attention.

Sterilization Equipment—Possibility of contamination of the water supply or of the contents of sterilizers is extremely important and the very nature of this equipment makes it difficult to construct sterilizing equipment which is fully protected. Also unless the equipment is meticulously operated and maintained, complete sterilization results will not be uniformly obtained.

General Sanitation—There are many other considerations which will facilitate general cleanliness and good housekeeping, such as floor and wall construction of durable, easily cleaned material, and adequate and conveniently located hand washing and toilet facilities for employees. Insects and rodents often constitute serious problems in hospitals, and control measures, both as to construction and operation, are of great importance.

In a second category, of first importance is the study of the spread of disease from patient to patient, from patient to employee, or the reverse, within the hospital. While this is primarily the function of a trained epidemiologist, the services of a sanitary engineer should be used to a greater extent. In the past, to the writer's best knowledge, sanitary engineers have had little opportunity to assist in such investigations, although it has been common practice for many years to utilize the services of the sanitary engineer in other epidemiological studies where environmental factors were involved.

There are other items on which further information is needed. While perhaps some of these studies should primarily be conducted by professional personnel other than sanitary engineers, it is believed that sanitary engineers could render valuable assistance. No attempt is made to enumerate all such items, but the following will illustrate some of the needs:

Is general ventilation (including temperatures, humidity, and air movement control) indicated in the hospital? Is it permissible to recirculate air in the surgery, the nursery, the labor and delivery rooms, and contagious wards? Is it ever permissible to recirculate air from any one patient area to another?

In view of the limited studies that have been reported, and of the lack of conclusive evidence of substantial benefit, what policy should be adopted on use of ultra-violet ray air sterilization in surgery, nursery, contagious wards, formula room, etc.? On use of aerosols?

Should completely separate dishwashing facilities be required for a contagious section or tuberculosis section? If so, is it permissible to return clean dishes from this section to the general kitchen for serving?

Should linens from the contagious section, tuberculosis section, etc., be laundered separately from the general

laundry? Should linens receive germicidal treatment before being removed from these sections to the hospital or a commercial laundry? If given no such treatment, what special precautions should be taken by personnel who handle such linen in the laundry?

Should feces and urine from known or suspected cases of intestinal infection or other infectious material be germicidally treated before discharge into a public sewer? Or into a private sewer?

What special precautions should be taken in handling and storage of patients' clothing?

Should mattresses in the contagious section be sterilized after discharge of each patient? Does laundering at low temperatures (wool 120° F.), particularly from the contagious section, provide ample protection?

Is it permissible to include food left on plates from the contagious or the tuberculosis section in garbage which is fed to hogs?

Adequate information is not available on peak water usages on which to base intelligent design of water piping and drain systems.

No public laboratory now exists where hospital plumbing fixtures and appurtenances can be tested.

These and many other questions remain to be answered.

One of the requirements for federal aid under the Hospital Survey and Construction Act is that states must regulate the operation and maintenance of hospitals receiving such aid. Under this stimulus, many of the states already have, and most of the others probably will make, provisions for licensing of all hospitals. Sanitation should play a prominent part in any such regulation and thus for the first time in many states the sanitary engineer will have an opportunity to participate in hospital planning, operation, and maintenance.

In most hospitals, various individuals

have responsibility for some phase of sanitation with little correlation or general direction. Probably very few hospitals are large enough to justify employment of a full-time sanitary engineer, yet sanitation problems are of sufficient importance in hospitals of all sizes to warrant more attention than has been accorded them in the past.

It would be desirable, wherever feasible, to have one person on the hospital staff, preferably with sanitation training, who is responsible for all phases of sanitation, with such assistance and guidance of local or state health department sanitation personnel as may be needed.

The state and local health department sanitary engineers should be available to review plans and specifica-

tions, from a sanitation standpoint, for new construction and for revamping existing structures; to make sanitary surveys of existing hospitals and advise as to physical changes and operation procedures which would improve sanitary conditions; to advise and guide personnel who are responsible for operation and maintenance of equipment; to participate in inservice training of employees; and to study means of improving hospital sanitation.

With the advent of a huge hospital construction program, coupled with the control of operation and maintenance of most hospitals by the state, the sanitary engineer is presented an opportunity to extend his services into a field with which he has not been closely identified in the past.

Best Sellers in the Book Service for May

An Appraisal Method for Measuring the Quality of Housing: A Yardstick for Health Officers, Housing Officials and Planners.

Part I. Nature and Uses of the Method, 1945.....	\$1.00
Part II. Appraisal of Dwelling Conditions. 3 Vols. 1947.....	5.00
Approved Laboratory Technic. Kolmer & Boerner. 4th ed. 1945.....	10.00
The Control of Communicable Diseases. 6th ed. 1945.....	.35
Diagnostic Procedures and Reagents. 2nd ed. 1945.....	4.00
Fundamentals of Immunology. Boyd. 2nd ed. 1947.....	6.00
Milk and Food Sanitation Practice. Adams. 1947.....	3.25
Public Health Administration in the United States. Smillie. 3rd ed. 1947.....	6.50
Sexual Behavior in the Human Male. Kinsey. 1948.....	6.50
Standard Methods for the Examination of Water and Sewage. 9th ed. 1946.....	4.00

Order from the Book Service

AMERICAN PUBLIC HEALTH ASSOCIATION

1790 Broadway

New York 19, N. Y.

Sanitary Ventilation*

W. F. WELLS, F.A.P.H.A.

*Associate Professor of Research in Airborne Infection, University of Pennsylvania
School of Medicine, Philadelphia, Pa.*

FIFTEEN years ago we demonstrated before a joint meeting of these sections an apparatus for the study of the bacterial behavior of air¹; at the meeting ten years ago we described a method for the measurement of sanitary ventilation²; five years ago we discussed air disinfection in day schools³; this paper considers the sanitary significance of ventilation. Paradoxically, the hygienic interest in ventilation waned with rise of sanitation. Before the patterns of spread of ingested infection and inhaled contagion were clearly differentiated, the sanitary disproof of the miasmatic origin of enteric infection discouraged further belief in air-borne respiratory contagion; transfer of contagious disease then was ascribed to personal contact.

Even in the most congested districts of our largest cities, contact infection was of secondary consideration in the environmental control of typhoid fever. The gradual decline in residual typhoid resulting from elimination of carriers created by water-borne infection came as a minor and unpredicted bonus, compared to the reduced rates immediately following an investment in pure water.⁴ In the control of contagious epidemics on the other hand, such as measles, for instance, or influenza, where a single case can initiate a contagious chain of

growing generations of infection, quarantine has until recently been the only environmental means available. Whereas the relatively static dissemination of infection in space dominates spread of typhoid fever and other water-borne intestinal infections, the propagation of air-borne respiratory contagion in time is intrinsically dynamic.

DYNAMICS OF CONTAGION

The autocatalytic nature of contagion has been expressed mathematically for theoretical epidemics in homogeneous aggregations homogeneously exposed. "Almost all workers in the analytical theory of epidemics assume that the rate at which an infection passes in a population is proportional jointly to the product of the number of persons I who are infectious and the number of persons S who are susceptible to the infection. This is called the law of mass action. Thus, if the rate of new infections be C the law is written as $C = rIS$, where r is a constant,"⁵ r then being the effective contact rate. This elementary equation approximately describes the dynamic pattern of intra-aggregational spread of contagion.

EFFECTIVE CONTACT RATE

In the study of contact infection, measles has played a leading role and is suggested as a natural index for study of the dynamics of droplet nuclei contagion. The value of S in the above formula is directly indicated; persons

* Presented at a Joint Session of the Engineering and Industrial Hygiene Sections of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 7, 1947.

The work reported in this communication was supported by grants from the Commonwealth Fund.

are assumed to be susceptible before, and immune after, having measles. Also, the value of I is generally ascertainable; direct exposure to a previous case the second week before symptoms appear can usually be detected; younger children normally contract the disease when exposed in the home.

In a quantitative study of effective contact the suburban primary school offers decided advantages: children ordinarily enter school before having measles but contract this disease before graduation; in school they are homogeneously exposed within standard classrooms; both exposure and effective contact can be established through attendance records.

By such means the effective contact rate r of measles in classrooms of three suburban primary schools during the past four years has been evaluated.⁶ Among approximately 791 susceptible

classmates of pupils who became ill with measles while attending classes (a unit of exposure), 87 contracted the disease after a normal incubation period. An effective contact rate of 11.0 per cent is consistent with unproductive exposures observed in schools⁷ and should theoretically yield in the formula some indication of productive exposures in classrooms meeting with Pennsylvania code requirements of ventilation.

INTRAGROUP CONTAGION

As compared with 80 or 90 per cent secondary attack rate among primary school children in families reported by Chapin,⁸ an effective contact rate of 10 per cent in classes may seem unimpressive, but this represents merely the static infection in a single generation. Most of the infected pupils attend class until symptoms appear, and by re-exposing their class become the infectors

THRESHOLD SANITARY VENTILATION

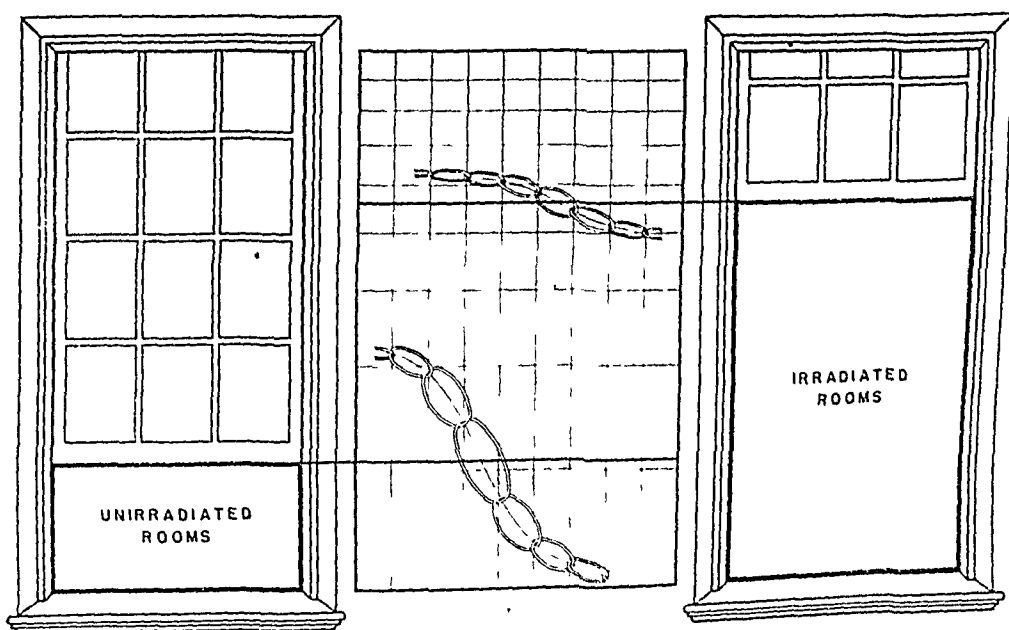


CHART I—Diagram Relating Sanitary Ventilation to Air-borne Contagion

Area inside each link of chains of generations of infection in irradiated and unirradiated schools during 1941 epidemic corresponds to percentage of susceptible pupils infected in that generation period, i.e., week and half. Center of largest link indicates number of susceptible pupils sharing ventilation at peak of epidemic when generations begin to decline, thus locating threshold sanitary ventilation per susceptible pupil. Chart on which chains are constructed described in Dynamics of Air-Borne Infection, *Am. J. M. Sc.*, 206:11-17 (July), 1943.

of a second generation. This linkage of cases in one generation to infectors of the next forges the chains of successive generations illustrated on Chart 1.

Obviously while cases exceed infectors rS is greater than unity and generations are growing, reach a "steady state" at the peak of the epidemic when $rS_T = 1$, and decline when infectors exceed cases, or rS falls below unity. The "density" of susceptible persons, S_T , at the epidemic peak, or the reciprocal of the effective contact rate, is called the "threshold," because if this "density" is not maintained by accession of persons susceptible to the disease, as when contagion becomes endemic, cases are sporadic and the disease dies out. During an epidemic the "density" theoretically falls as far below as it started above the "threshold," though our school results seem to indicate a proportional rather than an absolute relationship.⁹

To one accustomed to the erratic behavior of measles in classes such an orderly array may seem unrealistic, yet the diagonal on Chart 2, approximating the computed total infections for classes of differing susceptibility, portrays diagrammatically the pregnant fact that the percentage of susceptible pupils who contract the disease when introduced into classes increases with the number of susceptible children in the classrooms. The reality of this fact is indicated by the percentage of susceptible pupils in different grades of a large centralized school near Syracuse who contracted measles during a recent epidemic.¹⁰ With enrolled classes of 33 pupils (an approximate average) the numbers plotted on the chart correspond with percentages of susceptible children in the grades. Since the cases contracted outside the classroom are included in these data, the plotted number of cases per 100 susceptible children exceeds somewhat the number resulting only from dynamic spread of measles

within the classroom. Nevertheless it becomes evident that "crowding" is a major factor in the contagiousness of measles.

SANITARY VENTILATION

Now in terms of droplet nuclei infection, S is proportional to the amount of infected air breathed by susceptible persons; I to the amount of infection contributed to the air by the previous generation of cases; and r to the dilution of infection afforded by ventilation, or to the reciprocal of V/S , where V represents ventilation per susceptible occupant (Chart 1). The substitution of these factors has proved the basic equation of the law of mass action to apply in quantitative experimental air-

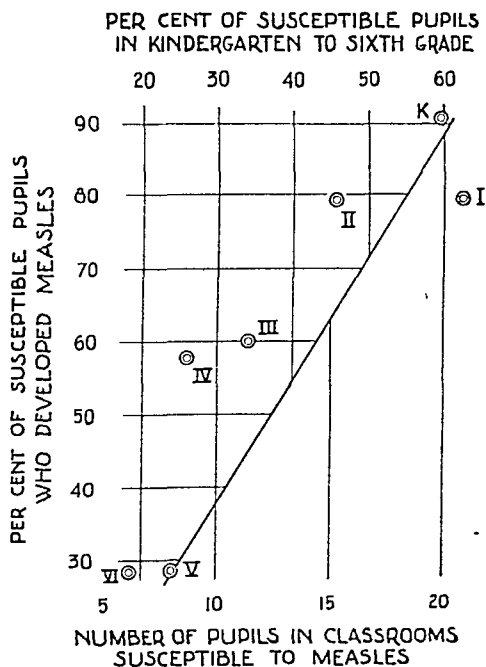


CHART 2—Increasing Percentage of Susceptible Pupils Who Develop Measles as Number of Susceptible Pupils per Classroom Increases

Diagonal approximates percentage computed with 10 per cent effective contact rate per generation. Marked circles indicate percentage of susceptible pupils in primary grades of Mexico School who developed measles in 1946 epidemic (10). Percentage of susceptible pupils corresponds to 33 pupils per class (approximate average).

borne tuberculosis in rabbits.¹¹ Since rS_T becomes unity at "threshold density of susceptibles," ventilation per susceptible occupant at this "density," V_T , becomes the natural sanitary unit of ventilation and the law of mass action, as applied to air-borne contagion, then becomes $CV = IV_T$. Only below threshold ventilation, or when V is less than V_T , can droplet nuclei contagion become epidemic; cases are sporadic when V exceeds V_T , and the infection dies out.

Ventilation is usually expressed as cubic feet of fresh air replacement, or cubic feet per occupant—per susceptible occupant in sanitary ventilation. Sometimes it is more convenient to express ventilation in air changes of confined atmospheres, and if a *lethe* of disinfection is defined as the bactericidal equivalent of bacterial removal by dilution with one air change (one volume pure air replacement with continuous mixing), sanitary ventilation by air disinfection can be expressed in cubic foot-lethes.¹² By principles underlying these transformations elaborated elsewhere,² sanitary ventilation can be measured bacteriologically by the equilibrium concentration of standard test organisms, atomized at a constant rate into an enclosed atmosphere at representative locations, determined at another representative location with and without air disinfection. Multiplying the die-away rate without disinfection by the ratio of equilibrium concentrations gives *lethes*, or equivalent air changes.

Radiant disinfection of air in primary schools has played a dominant role in the experimental study of sanitary ventilation. The number of air-suspended bacteria killed by irradiation of a dry confined atmosphere can theoretically be deduced from a generalized hypothesis combining three accepted laws: the inverse square law of radiant intensity; the Roscoe-Bunsen law of

reciprocity of time and identity of exposure; and the quantum (logarithmic) law of disinfection.¹³ By this hypothesis the number killed becomes proportional to the number of photons, or to ergs of radiant energy intercepted by living bacteria. If a ray be regarded as a constant stream of photons, then the number of photons in a confined atmosphere is proportional to the total lengths of the rays between the points of entrance and disappearance from the enclosed space. Dividing the volume of the room into this total length, or the sum of the products of the rays into their length, gives average intensity. Thus, radiation in watts multiplied by average ray length in feet gives total irradiation in foot-watts which, divided by room volume in cubic feet gives average intensity in watts per square foot.

This reciprocal relationship between radiant flux and distance traversed through an enclosed space is obvious with uniform light intensity. Thus, one watt of uniform parallel light, such as sunlight, traversing 10 feet of a transparent column 10 feet long and of 1 square foot cross-section, will irradiate 10 cubic feet to 10 foot-watts, or 1 foot-watt per cubic foot, giving an intensity of 1 watt per square foot. In like manner, 10 watts falling perpendicularly upon 10 square feet of a side, passing through 1 foot of this column, will also irradiate 10 cubic feet of air to 10 foot-watts, giving average intensity of 1 watt per square foot. In any position or in any form, 10 cubic feet would be irradiated by 10 foot-watts, the product of the flux into mean ray length. Regardless of the form of the space or the direction of the rays, irradiation is given by radiant flux multiplied by mean ray length.¹⁴

It follows from the generalized law of radiant disinfection that the greatest number of organisms suspended in a given volume of air are killed when uni-

formly exposed to a given amount of irradiation, the lethal efficiency of uniform irradiation therefore being a maximum. We were unable to irradiate large spaces uniformly but were able to devise a chamber providing uniform exposure to a point source at the center, toward which air flowed with a velocity inversely proportional to the square of the distance from the source. The product of time and intensity of exposure of air-borne organisms to the source was therefore constant at any point, and the determined foot-lethes divided by computed foot-watt minutes of exposure, or the product of average intensity by time of exposure, gave the lethal equivalent of irradiation. Against standard bacterial suspension in dry air 0.002 foot-watt minutes of irradiation in the 2537Å wave band was equivalent to a cubic foot-lethe, less than a tenth of the irradiation required in humid air, on moist agar surfaces, or in aqueous suspension.¹⁵ If radiation in this wave band be adopted as standard lethal radiation, then a foot-watt minute of standard uniform lethal irradiation is equivalent to 500 cubic foot-lethes of standard air disinfection, or cubic feet of sanitary ventilation.

But it is not feasible to irradiate the occupied zone of a room to the desired average intensity; and, so, irradiation efficiency in practice depends upon design. Generally the amount of irradiation realized from a radiant source in an enclosed space depends directly upon mean ray length; the uniformity of irradiation of the space normally increases with mean ray length, the uniformity of exposure depending upon air circulation usually increases as rays are lengthened; and the disinfection of organisms en route from occupant to occupant approaches average disinfection as rays are lengthened. The hygienic rating of disinfection thus increases *inter alia* with mean ray length.¹³

The role of air circulation in equal-

izing exposure of air-borne organisms to differing intensity in ventilated spaces is little appreciated by those who have not measured radiant disinfection by bacteriologic procedures. With good design, air circulation between the occupied and upper irradiated zone, expressed in terms of the amount of recirculation of the air through a chamber uniformly irradiated with the given number of foot-watts exceeded three air changes per minute. Thus, by radiant disinfection with 6 foot-watts per pupil, more than twenty times the sanitary equivalent of standard school ventilation—exceeding threshold sanitary ventilation (Chart 1)—has been attained in experimental schools.¹⁶

DYNAMIC EXPERIMENT

Measles epidemics would not propagate in these schools according to the dynamic hypothesis discussed above. Records^{17,16, 4, 6 *} of nine years' experience in the irradiated Primary Department of the Germantown Friends School and six in the two Swarthmore Primary Schools, as compared with four years' experience in the unirradiated Primary Department of the William Penn Charter School and the two Nether Providence Primary Schools, indicate that:

1. The effective contact rate of measles in classrooms was reduced; per hundred susceptible classmates of a pupil becoming ill with measles while attending class (unit of exposure) 11.0 contracted the disease in unirradiated schools, during the second following week, as against 3.1 in irradiated schools.

2. The dynamic spread of the measles in the school was checked; per hundred susceptible pupils of unirradiated schools more than twice, and in classrooms more than five times, as many were infected.

3. The community threshold for primary school children was raised; per hundred pupils in unirradiated primary schools, half again as many had had measles.

* Note: presented on slides at the meeting but omitted on editorial grounds.

Q Fever in Los Angeles County

Description of Some of Its Epidemiological Features

CHARLES C. SHEPARD, M.D., AND
ROBERT J. HUEBNER, M.D.

Division of Infectious Diseases, National Institute of Health, Bethesda, Md.

Q FEVER has been found to occur in Los Angeles County, California, in an apparently endemic fashion, and this paper describes certain characteristics of the disease in that area.

Two naturally occurring outbreaks of Q fever are known to have taken place in the United States. The first appeared in Amarillo, Tex., in March, 1946,¹ and the second in Chicago, Ill., in August, 1946.² These two epidemics were alike in many respects; both were sharp outbreaks arising from occupational exposure of susceptible persons to stock being slaughtered or moving to slaughter. The attack rates were high in both instances, being over 50 per cent in the most heavily exposed groups, and the dates of onset of the cases were distributed over a 2 to 3 week period, the variation being chiefly accounted for by the spread in incubation period of the human disease.

It seemed clear from studies of the two outbreaks that infected cattle in Amarillo and infected calves or sheep in Chicago had been the source of human infection, and that transmission to slaughter-house workers had come from infected tissues and body fluids either by direct contact or by means of droplets of splattered fluids. Ticks had been very rarely seen on animals in either of these locations, and, in Chicago, cases did not tend to develop in persons associated with operations on hides, but instead were concentrated in personnel handling viscera.

Although the means by which the human beings had become infected was somewhat clarified by these studies, the manner of infection of the animals was not obvious, and it was not possible to gain a clear picture of the natural reservoirs of the disease in this country. For one reason the infectious source had long since been removed when the outbreaks occurred, and the epidemiological investigations were necessarily retrospective. The endemic area now found in Los Angeles County appears to provide suitable material for investigation of the natural reservoir problem.

The apparent lack of an insect vector in the two American outbreaks and their explosive and isolated nature seems to be different from the picture in Australia.³

THE OUTBREAK IN LOS ANGELES COUNTY *General Description of Area—*

The cases which have been found have developed in the milk shed area of Los Angeles County. This zone is in flat land 10–30 miles southeast of the center of the city of Los Angeles. The climate is warm and dry and moderated considerably by the Pacific Ocean.*

This dairy area is one of the most concentrated in the world. There is

* Weather bureau records show that in Los Angeles since 1877 the average yearly rainfall has totaled 15.55 inches with 14.22 inches of this falling in the months from November through March. The average temperature for the same period has been 63.0° F. with monthly means varying from 55.6° in January to 71.4° in August. In 1946 the highest temperature was 95° and the lowest 38°.

TABLE 1
Human Cases of Q Fever

No.	Age	Sex	Pneumonitis	Days of Fever	Date of Onset	Complement-Fixation titer	Date Sample taken	Remarks
1	62	F	By x-ray	?	11-20	128	5-25	No definite exposure to dairies recalled.
2	51	M	By x-ray	11	11-25	128	6-7	Had visited small farms.
3	31	M	By x-ray	21	12-28	128	5-27	Visited dairy occasionally.
4	35	M	By x-ray	10	2-6	128	4-28	Visited dairies frequently.
5	29	M	By x-ray	9	2-11	256	5-26	Visited dairy about 3 weeks before onset.
6	15	M	Physical findings and bloody sputum	21	2-23	512	4-28	Frequently played around dairy.
7	45	M	Physical findings	6	4-6	64	5-21	Had visited dairies.
8	32	F	Physical findings and bloody sputum	10	4-13	512	4-28	Home 100 yards from several dairies.
9	27	F	By x-ray	12	4-20	512	6-4	Home 100 yards from dairy.
10	30	M	By x-ray	12	4-24	128	5-22	Two dairies across street.
11	28	M	By x-ray	11	4-26	0	4-30	Visited dairy 127 days before onset.
12	50	M	By x-ray	12	5-1	128	5-21	Cows kept in field beside house.
13	35	F	Physical findings	6	5-10	64	5-17	Home 200 yards from dairy.
14	36	M	Physical findings	7	5-14	128	5-21	
15	26	F	No x-ray. No physical findings of pneumonitis	10	5-15	0	5-16	No definite exposure to dairies recalled.
						512	6-5	
						4	5-23	Wife of Case No. 10.
						512	6-4	
16-	30	M	By x-ray	3	5-20	0	5-26	Home 100 yards from several dairies.
17	39	M	By x-ray	10	5-22	512	6-5	
						0	5-28	Home surrounded by dairy pens.
						128	6-2	
						128	6-9	

as has been described by others. The onset was acute with fever, headache, chills or chilly sensations, and body aches and pains. Cough was frequently complained of but was not a prominent symptom. The sputum which was sometimes produced was at times blood-tinged. Chest pain was common and was usually of a lateral distribution, although a feeling of substernal congestion was frequent. Physical examination of the chest often revealed little of note except perhaps suggestive findings. Respirations were elevated when pneumonic involvement was extensive. Roentgenography revealed a pneumonic process which was usually diagnosed as "atypical" pneumonia when patchy, and "early lobar" pneumonia when diffuse. The leucocyte count tended to be normal or slightly elevated. The illness ran a course of 1 to 3 weeks' fever with

prolonged convalescence especially in older patients. No deaths were found which could be attributed to Q fever.

Many of the patients had recovered when first visited and the criteria of diagnosis had then to be a typical clinical history and the presence of specific complement-fixing antibodies. When patients were seen in the acute stage, blood was obtained, so that a rise in antibody titer could be shown with a later specimen. In addition the clot from the acute stage blood was inoculated into guinea pigs in an attempt to isolate *R. burneti*. It is felt that the diagnosis was firmly established by the demonstration of a marked rise in antibody during the illness or by the isolation of the etiologic agents.

Isolation of *R. Burneti* into guinea pigs was successful in cases No. 8, 11, 14, and 16. The strains were also es-

their antibodies in the course of their work, the results indicate the rate of exposure, since some of them had developed antibodies in less than one year's experience. The dairy workers with negative sera could have become so after having been positive at an earlier date, so that it is possible that more of them had been positive at one time or another. We have observed that after laboratory-acquired Q fever in human beings the sera revert to negative in the course of several years.

Table 3 shows the complement-fixation results with sera gathered from persons who had been ill with diseases which were presumably not Q fever. Although they gave histories of upper respiratory infections, blood samples were obtained and their sera were examined for Q fever antibodies. Though the number is small, the results show that sera of people living near the dairies, but not in actual contact with the cows may also show Q fever antibodies. Some of those with positive serology said they had never visited the dairy near which they lived.

In Table 4 are shown the results on sera obtained from the Los Angeles County and the District of Columbia laboratories. They were in both cases routine sera found negative in serologic tests for syphilis. Those from Los Angeles County were selected because the donor's residence had been given in the general milk shed area. Actually most people living in this area do not

live close to the dairies, since the human population is concentrated in towns, and the dairies are for the most part distributed about the countryside. Of the 166 specimens examined, 5 were found positive in low dilution. The 96 sera from the District of Columbia were all negative. The incidence of positive sera from the Los Angeles County milk shed is low, 3.0 per cent, but none were expected from previous experience.

The results of Tables 2, 3, and 4, when considered together, show that positive complement-fixations for Q fever can be expected in this area on sera of persons not undergoing obvious attacks of Q fever. Although some of the persons with positive sera were not questioned about previous illness, many were questioned at some length, and no definite history of Q fever could be obtained.

Serologic Studies on Sera of Cows—

We have previously examined, by the complement-fixation test for Q fever, bovine sera from two general areas. Nearly sixty sera of beef cattle from Texas and states adjacent to the Texas Panhandle were found negative last year, and more than sixty sera from Maryland milk cows were found negative at the same time.

It was possible to sample the cows at 9 different dairies in the Los Angeles milk shed area and to study the blood sera for complement-fixing antibodies for Q fever. The dairies were distributed across the milk shed area. Table 5

TABLE 5

Complement-fixation Results on Sera of Cows from Several Dairies in Area

Dairy No.	Number of sera	Number Negative	Number Positive	End Titers						
				4	8	16	32	64	128	256 512
A	9	9	0	0	0	0	0	0	0	0
B	13	11	2	0	1	0	0	1	0	0
C	12	11	1	0	0	0	1	0	0	0
D	20	18	2	0	2	0	0	0	0	0
E	16	10	6	0	0	2	2	1	1	0
F	15	12	3	0	0	0	0	0	1	1
G	15	14	1	0	0	0	1	0	0	0
H	15	14	1	0	0	0	0	1	0	0
I	15	10	5	0	1	1	0	1	1	0
Total	130	109	21	0	4	3	4	4	3	2 1

gives the results. In all, 130 sera were examined and 21 were found positive, 10 of them in dilutions of 1:64 or higher. The incidence of positives, 16.2 per cent, found in this survey varied from one dairy to another and was highest in dairy E and lowest in dairy A. The significance of the difference in the rates is probably not great, and there was some evidence that Q fever infection was present in all of them. For example, in dairy A several of the dairy workers were found to have positive sera. Other dairy workers of Table 2 were employed at dairies E, F, G, H, and I, and the patient in Case 11 visited dairy I 27 days before he became ill.

DISCUSSION

Although only 17 cases are listed in Table 1, it is likely that many more cases have occurred in the Los Angeles area. The complete reporting of Q fever must depend upon increased awareness of its presence by the physicians of the area, and the adequate use of laboratory diagnostic facilities. Most of the persons listed in Table 1 were patients of a few physicians who were especially interested in discovering cases.

The patients listed in Table 1 as having undergone clinical illness with Q fever did not have intimate contact with cows, and this point merits comment since it tends to cause confusion. Many people deny contact with cows except when they have touched them. As has been stated the "contact" of the persons in Table 1 arose from their living near dairies or having visited them within the incubation period of the disease.

None of the clinical cases found developed in dairy workers, yet evidence for the frequent infection of dairy workers was obtained by serological studies. Half of the 20 dairy workers sampled showed complement-fixing antibodies for Q fever rickettsiae, and it seems likely that others of them had been in-

fectured at one time or another, since positive to negative conversion may take place within a few years. Many of those having antibodies for Q fever did not give histories of illness particularly suggestive of Q fever. It thus appears that the dairy workers had undergone mild or inapparent attacks of Q fever. Mild attacks are known to occur.^{2, 6, 7, 8}

An apparent inconsistency arises from these considerations, that is, the persons with what was apparently the greatest exposure seemed to escape clinical illness. This situation could have arisen from sampling methods, since if mild Q fever were common and severe Q fever rare in this area, and if exposure to the disease were not too greatly concentrated in the dairy workers, the severe cases could have been found in non-dairy workers simply because of their numerical superiority. An alternative explanation also appears possible, namely, that the exposure of the dairy workers is such that it tends to result in the mild disease rather than the severe form.

The complement-fixation results in Tables 2, 3, and 4 indicate that there has been considerable past exposure to Q fever in certain groups of persons in this area. This has apparently resulted in immunity in many cases. In addition it gives rise to difficulties in making a definite diagnosis of Q fever in a particular illness, since the demonstration of complement-fixing antibodies for Q fever rickettsiae in a single specimen taken in the course of a febrile illness is not sufficient to establish the etiology of the fever as being *R. burneti*. In this study, in order to investigate illness which had taken place in the near past we made the diagnosis of Q fever on a single positive serum when the patient had undergone an attack of "atypical" pneumonia. However, whenever the patient could be seen in the acute stage, a sample of blood was taken then, thus making it possible to establish the diagnosis of Q fever with considerable cer-

tainty by demonstrating a rise in antibody in the course of the disease, or by isolating *R. burneti* from the patient's blood, or by both means.

Q fever in the cows of this area appears to be common as judged by the results of the complement-fixation test. It does not appear possible to state definitely that the cows are the source of human Q fever infection since the possibility remains that the same source infected both cows and human beings.

The origin of most of the cattle in other regions suggests the possibility that the infection giving rise to the positive complement-fixations might have been acquired outside the Los Angeles area. However, 3 of the cows positive by complement-fixation were born and raised in the area; their titers were all low (1:8), but such titers seem to be significant, since the cow sera studied heretofore have been completely negative.

The negative results with bovine sera from the Texas Panhandle and adjacent areas and from Maryland were obtained in the course of investigations of an agglutination test using *R. burneti* suspensions as test antigen. Derrick, Smith, and Brown have reported 13 of 879 Australian dairy cows showing agglutinins for Q fever.⁹ However, the agglutination test as we performed it appeared unreliable and of 500-600 bovine sera studied about 60 per cent gave positive agglutination tests. We concluded that the agglutination results we saw were most likely nonspecific and not related to past infection with *R. burneti*.

It would be of interest to know when Q fever infection appeared in Los Angeles County, but it seems that we have little evidence on this point. The first case of Q fever in Table 1 was in a patient whose illness started November, 1946. It is quite possible that cases have been occurring for some time, and it is doubtful if the presence of infection would have become known now had it not been for the recent interest in Q

fever because of outbreaks elsewhere in the country.

It should be noted that few if any ticks are present on the cows in the Los Angeles milk shed, and that the fly population is kept low by DDT spraying of barns and the frequent removal of manure.

SUMMARY

1. Q fever has been found occurring in an apparently endemic manner in the milk shed area of Los Angeles County. Most of the cases lived near or visited dairies.

2. Serological studies revealed that many people who did not give histories of clinical attacks of Q fever showed complement-fixing antibodies for Q fever. Half of the dairy workers and people living near dairies showed specific antibodies.

3. Of 130 sera of cows in the area 21 showed antibodies for Q fever, some in high titer.

REFERENCES

1. Topping, N. H., Shepard, C. C., and Irons, J. V. Q Fever in the United States. I. Epidemiologic Studies of an Outbreak Among Stock Handlers and Slaughterhouse Workers. *J.A.M.A.* 113:813-815, 1947.
2. Shepard, C. C. An Outbreak of Q Fever in a Chicago Packing House. *Am. J. Hyg.* 46:185-192, 1947.
3. Derrick, E. H. The Epidemiology of Q Fever. *J. Hyg.* 43:357-361, 1944.
4. Bengtson, I. A. Complement Fixation in the Rickettsial Diseases—Technique of the Test. *Pub. Health Rep.* 59:402-405, 1944.
5. Topping, N. H., and Shepard, C. C. The Preparation of Antigens from Yolk Sacs Infected with Rickettsiae. *Pub. Health Rep.* 61:701-707, 1946.
6. Burnet, F. M., and Freeman, M. Note on a Series of Laboratory Infections with the Rickettsiae of Q Fever. *M. J. Australia* 1:11-12, 1939.
7. Irons, J. V., Murphy, J. V., and Wolfe, D. M. Q Fever in the United States. III. Serological Observations in an Outbreak among Stock Handlers and Slaughter House Workers. *J.A.M.A.* 133:819-820, 1947.
8. Spicknall, C. J., Huebner, R. J., Finger, J. G., and Blocker, W. P. Report of an Outbreak of Q Fever at the National Institute of Health. I. Clinical Features. *Ann. Int. Med.* 27:28-40, 1947.
9. Derrick, E. H., Smith, D. J. W., and Brown, H. E. Studies in the Epidemiology of Q Fever. 9. The Role of the Cow in the Transmission of Human Infection. *Australian J. Exper. Biol. & M. Sc.* 20:105-110, 1942.

ACKNOWLEDGMENT—Acknowledgment must be made of our indebtedness to many people in the course of this work. Frank W. Young, M.D., of Artesia, Calif., suspected Q fever on a clinical basis and sent us a number of sera, many of which were positive by complement-fixation, and it was in this way that the

presence of Q fever in the area was discovered.

Much help was freely given by the personnel of the Los Angeles County Health Department. The coöperation of the local physicians is greatly appreciated, as is the assistance of the dairy owners.

ADDENDUM

Since this paper was submitted for publication, Huebner, Jellison, Beck, Parker, and Shepard have published the results of further

investigations at Los Angeles. *Pub Health Rep.*, 63:201 (Feb. 13), 1948.

They report the finding of *R. burneti*, the causative agent of Q Fever, in the raw milk of 4 dairies in Southern California. Pasteurization results under field conditions, while incomplete, apparently rendered naturally infected milk non-infectious for guinea pigs. Available epidemiological evidence does not indicate that the drinking of milk was the cause of a majority of the cases thus far studied.

Silver Nitrate Still the Preferred Drug in Ophthalmia Neonatorum

In the April issue of the *Woman's Home Companion*, Miriam Zeller Gross, in an article entitled, "Can Present Laws Blind Your Baby?" proposed that the use of silver nitrate be discarded as a method of preventing the infection of eyes of the new-born. She proposes that penicillin be substituted because of its proved value and proved harmlessness.

Among the protests of the scientific accuracy of the article is a report released by the New York Academy of Medicine, on request for an opinion by the Commissioner of Health of New York City. He had some months ago asked the opinion of the Academy about the wisdom of amending the New York City Sanitary Code requirements for silver nitrate.

A digest of Academy opinion follows:

In preventing infection of the baby at birth, both penicillin and silver

nitrate are safe to use when the solutions are prepared carefully and applied properly, a committee of specialists reported. There is no evidence that 1 per cent or even 2 per cent solutions of silver nitrate, which are those used in the prophylaxis of ophthalmia neonatorum, have ever damaged vision.

Bacteria that cause gonorrhea and pneumonia are most likely to cause blindness in the baby, and the concentration of penicillin most effective to halt the growth of these bacteria is not yet known.

In view of the present available evidence of the relative effectiveness of silver nitrate, silver acetate, and penicillin in the control of ophthalmia neonatorum, it would seem that existing laws requiring the use of silver nitrate should not at the present time be revised by the substitution of penicillin for silver nitrate.

Relative Efficiency of the Open and the Confidential Method of Reporting Causes of Death*

PAUL H. JACOBSON

Vital Statistics Analyst, Statistical Bureau, Metropolitan Life Insurance Company, New York, N. Y.

SINCE January 1, 1947, the confidential method of reporting deaths from natural causes has been in use in all five boroughs of New York City. The system had been tried on an experimental basis in the borough of Manhattan during the preceding eight years. The legal and ethical bases for the use of the confidential certificate have been previously reported.¹

Primarily on these bases but also because of its approval by the Committee on Public Health Relations of the New York Academy of Medicine and the five county medical societies of the city, the method was extended to all boroughs. During the first few years of its use in Manhattan, there appeared to be some indications of its statistical superiority,

but no scientific study had been made by means of which its relative efficiency could be impartially evaluated. Accordingly, in November, 1942, Dr. Ernest L. Stebbins, then Commissioner of Health, secured a grant from the New York Foundation for the purpose of making such a study.

HISTORY OF DEATH CERTIFICATION

The registration of causes of death originated with a view to controlling the spread of pestilences, and from the start the statistics of death, by cause, have served as a basis for public health activities. Because of this fact, the registration of vital events in the United States has generally been made a function of state and local health departments.

The ethical aspects of medical certification have been the subject of controversy to a much greater extent in Europe than in the United States. In some countries of Europe, this controversy resulted in the refusal of the attending physician to participate in the reporting of a death or the cause thereof. Switzerland has been a notable exception. More than a half century ago, the Swiss developed a confidential method of reporting causes of death which gave the public authorities information essential to the protection of the public health and at the same time guaranteed the preservation of professional secrets.

In the United States, little if any con-

* This paper presents the findings of the study made by the New York City Department of Health in 1943-1944. The study was carried on under the direction of the late Thomas J. Duffield and the author, with the assistance of Marjorie T. Bellows, Louis Weiner, and their staffs in the Bureau of Records and Statistics. A Statistical Advisory Committee guided the department in the conduct of the study and in the appraisal of the results. The committee consisted of the following members:

Ernest L. Stebbins, M.D., Commissioner of Health, Chairman

Alfred Angrist, M.D., Pathologist, Jewish Memorial and Queens General Hospitals

E. H. L. Corwin, Ph.D., Executive Secretary, Committee on Public Health Relations, New York Academy of Medicine

Godias J. Drolet, Statistician and Assistant Director, New York Tuberculosis and Health Association

Haven Emerson, M.D., Emeritus Professor of Public Health Practice, Columbia University, and Member, Board of Health

John W. Fertig, Ph.D., Professor of Biostatistics, Columbia University

Hugo Muench, M.D., Fellowship Adviser. of The Rockefeller Foundation

sideration was given to the question of the confidential nature of medical diagnoses until recent years. A start toward evaluating the problem in this country was made in 1933-1934 when Nicoll and Bellows² showed that syphilis and alcoholism were understated in the Westchester County, New York, mortality statistics. A voluntary system of confidential reporting, which they instituted, was discontinued after several months when found unsatisfactory.³

METHODS OF REPORTING CAUSES OF DEATH

There are two fundamental methods by which causes of death may be reported: (a) the open method, and (b) the confidential method.

(a) *The Open Method*—In the United States, it is the general practice to report deaths on a certificate which requires the following: (i) the name of the deceased, (ii) personal particulars identifying the deceased, (iii) the medical certificate of death, and (iv) information regarding the date and place of burial or cremation. In the medical certificate of death, the physician is expected to state the period of his attendance upon the deceased, the medical diagnoses of the principal and contributory causes of death, the duration of those conditions, autopsy findings, and operations performed.

(b) *The Confidential Method*—In an effort to improve the method of reporting, and at the same time to preserve the essential features of the American procedures, the late Thomas J. Duffield, then Registrar of Records in New York City, in 1936 proposed a confidential system of death certification. After considerable discussion, the Board of Health approved the introduction of the Physician's Confidential Medical Report as an experiment in the borough of Manhattan, commencing January 1, 1939.* Previously, in the entire city, the open form was used, and this form or a similar

one was used in the other four boroughs through December 31, 1946.

Objections to the open form, which are overcome by the confidential certificate, arise from the fact that it has become the practice of custodians of vital records in the United States, as elsewhere, to issue copies of official records of death to relatives for use in the settlement of the affairs of the deceased.

In New York City, for more than a quarter of a century, the certified copies of death certificates issued by the Department of Health have been negative photostatic reproductions of the face of the certificate. Under such circumstances, it is possible that physicians, in keeping with their feelings regarding the ethics of their profession and the law governing professional secrecy, have not always recorded the complete diagnosis of the cause of death to the best of their knowledge and belief. The primary reason for withholding information appears to be the fact that the family physician may not wish to record a diagnosis which offends survivors because it reflects unfavorably upon the memory of the deceased.^{2,3} The fact that a death certificate is of access on legal order and that a copy may be required for the settlement of the estate of the deceased are not thought to be nearly so important in promoting incomplete reporting.† Regardless of the reasons, in stating anything less than the full truth, physicians withhold information that may be im-

* The confidential method, at that time, was also used by Switzerland, and by the cities of Nürnberg, the Hague, and Amsterdam, and to a certain extent in England and Wales⁴; it has since been put into use by the Province of Quebec, Canada.^{5,6}

† The experience of one large insurance company has consistently shown that physicians have no intent to withhold information which can be used for scientific or statistical purposes. A comprehensive published report for their 1911-1914 experience revealed that through supplementary inquiries to physicians the number of deaths attributed to such significant titles as alcoholism, syphilis, and gonococcus infection were increased by 21, 78, and 130 per cent, respectively.⁷ Similar results are evident from unpublished data for recent years.

portant in the planning and administration of public health and related programs.

With the confidential form of reporting, a copy of a death record includes only the following: (i) the name of the deceased; (ii) personal particulars identifying the deceased; (iii) certification that the death occurred on a given date and was due to natural causes, and (iv) information regarding the date and place of burial or cremation. No part of the Physician's Confidential Medical Report, including the causes of death, duration of diseases, and related information appears on the copy of the death record issued to relatives of the deceased. Thus the contents of the confidential medical report are not divulged.

PLAN OF THE SURVEY

In 1943 the Department of Health initiated a study, jointly sponsored by the Department of Hospitals, to evaluate the comparative statistical efficiency of the two methods of reporting causes of death in New York City. A pilot study of 955 deaths which occurred in municipal hospitals in 1941 was completed in the early months of 1943. On the basis of these preliminary statistics, the final plan for the study was formulated, and collection of data started on July 1, 1943.

Objective—The objective of the study was to ascertain whether the confidential method of reporting causes of death resulted in statements of cause of death more nearly in agreement with the physician's knowledge and belief at the time the certificate was filled in than did the open method. It should be noted that the study was not concerned with the accuracy of a physician's knowledge. No method of reporting is able to eliminate diagnostic errors which result from limited clinical examination or medical knowledge; for example, cases in which no operation, biopsy, or other special laboratory tests are performed.*

Criterion—Not all discrepancies between what the physician knows and what he actually records on the death certificate are due to wilful alteration of the known facts. Carelessness, lack of uniformity of definition of terms, and personal interpretation of their meaning are important factors contributing to such differences.¹⁰⁻¹³ To some extent, these differences may be minimized by education and by proper formulation of the questions on death certificates.^{14, 15} Some of these errors were eliminated from the study, by classifying the various individual titles of the 1938 revision of the *International List* into 17 diagnostic groups. Thus only changes from one group to another were considered significant.

In consideration of the above factors, the basic criterion of the study was established as the *correlation between the primary cause of death selected from the statement of cause of death reported to the Department of Health and the primary cause selected from the diagnoses abstracted from the medical case history* (selected and coded according to the *Manual of the International List of Causes of Death*, Fifth Revision, and *Joint Causes of Death*, Fourth Edition, 1939).

The secondary criterion consists of comparison of the relative frequency with which the following seven conditions (existing or preëxisting) were mentioned anywhere in the case history and on the death certificate: (a) alcoholism, (b) cancer, (c) diabetes mellitus, (d) mental disease, (e) puerperal sepsis, (f) syphilis, and (g) tuberculosis.

The latter criterion was adopted since it appeared desirable to ascertain the relative completeness with which statements are made on the two certifi-

* Because of the deficiencies in clinical diagnoses as revealed by comparisons with autopsy findings,^{8, 9} since June 1, 1947, all autopsy findings for deaths which occur in New York City are reported to the Department of Health on a supplementary confidential medical report.

cates. For example, mental disease is rarely the primary cause of death, but is it more accurately reported as a contributory or associated cause on the confidential death certificate than on the open? Moreover, a sub-sample of 89 cases, independently abstracted by four medical workers, indicated that any method of analysis must assume an indeterminate difference in the primary cause of death due solely to the process of abstraction (individual differences of opinion, etc.). Personal variations are practically eliminated from the data obtained for the conditions specified above (check list). However, if any findings in favor of the confidential certificate are disclosed by these data and not from those on the primary cause of death, they cannot be conclusively attributed to the method of certification. This arises from the fact that the Physician's Confidential Medical Report provides more space for recording the statement of cause of death than does the open certificate.

Selection of Sample—Approximately 28 per cent of the deaths in New York City occur among persons who receive medical attention prior to death and who die at home. These cases afford the best example of the physician-family relationship and might be expected to provide fruitful information for evaluating the efficiency of the confidential certificate. However, no objective method is available for analyzing these cause-of-death statements. The difficulty arises primarily from the fact that case histories in the private practitioner's office are highly incomplete, lack uniformity, or are nonexistent.* As a result, the proprietary hospitals were selected for study, since the role of the physician in these hospitals most closely approximates that of the private practitioner. In contrast, physicians in municipal hospitals do not have such close personal relationship with their patients. It was expected, therefore, that

differences due to wilful alteration of the known facts would not be as great for municipal as for proprietary hospitals. Thus the municipal hospitals were included in the study to serve as a means of interpreting the findings for the proprietary hospitals.†

All proprietary hospitals licensed by the General Inspector's Office of the Department of Hospitals on July 1, 1943, which had been in operation during 1937-1939 and 1941, the period covered by the study, were included in the sample. Nine hospitals — Bellevue, Harlem, City, New York Cancer, and Goldwater Memorial in the borough of Manhattan, and Coney Island, Kings County, Queens General, and Lincoln in other boroughs—were selected for study of municipal hospitals; restricted, however, to deaths reported during January and February of the study years. Because of the small number of deaths involved, the borough of Richmond was not included in the study.

Each borough office of the Department of Health maintains a cross-index file by place of death for all deaths which are reported within the borough. The deaths which occurred in the hospitals selected for study were easily identified from these files. Cases certified by the medical examiner's office were then eliminated by inspection of the death certificates.

Procedure—The Department of Hospitals, which by law is authorized to license and to control the practices of proprietary hospitals, was most helpful in securing access to the hospital records. Dr. Edward M. Bernecker, Commissioner of Hospitals, wrote to the

* The completeness with which syphilis and pulmonary tuberculosis are mentioned on these death certificates could be evaluated by checking the certificates for residents of the city against the department's rosters of known cases. Of much greater value for this and similar purposes, however, it would be desirable to add to the death certificate an item requesting the date and place of latest hospitalization (for deaths not occurring in institutions).

† Voluntary hospitals, which operate under approval of the State Department of Welfare, were not included in the study.

superintendent or proprietor of each hospital requesting his coöperation and explaining the purpose of the study. Each hospital was then contacted by the Department of Health, supplied with a list identifying the deceased included in the study, and appointments scheduled for the abstraction of the case histories.

A simple form was used to collect information; one copy was filled in for each death certificate and another for the corresponding hospital case history. The information was copied from the death certificate exactly as it was originally reported. Supplementary information in regard to causes of death, operations, special laboratory tests obtained through inquiries by burial desk clerks, nosologists, or from special autopsy reports, which is added to the back of the certificate, was not included as a part of the death certificate abstract. All of this work was carefully checked to detect clerical errors.

In preparing the abstracts of hospital case histories, the medical field worker was instructed to "assume that he is the physician called upon to fill out a death certificate and that his knowledge of the deceased is limited to the information found in the hospital case history." Only information available at the time the certificate was filled in was considered in recording the principal and contributory causes of death and using the check list. This information generally consisted of the final discharge diagnoses (excluding autopsy findings made available after the death certificate was executed*), results of laboratory tests, operations, observations during illness, and previous history. Since it was possible that knowledge of the

death certificate information might influence the abstractor in spite of all efforts to use unbiased judgment, the information from the hospital case history was abstracted onto a blank form, which was not collated with the death certificate abstract until each form had been individually processed and coded.

It was not practical or possible to verify the accuracy of all hospital case history abstracts. Moreover, it was recognized in planning the study that the abstractor's personal interpretation of the meaning and importance of conditions would have a significant bearing on his selection of the causes of death. Nevertheless, it was felt desirable to evaluate the completeness of the cause-of-death statements, including the check list data, and the frequency with which non-medical errors (use of incorrect chart, etc.) were committed. Accordingly, a sub-sample of cases from proprietary hospitals was checked by a Department of Health physician. Additional cases from both proprietary and municipal hospitals in which errors appeared possible were checked against the department's rosters of known syphilis and tuberculosis cases, or with responsible physicians in the hospitals in which the deaths occurred. Finally, all cases were reviewed by a physician of the department and questionable cases passed on by a physician of the Statistical Advisory Committee. Among the 7,330 abstracts of hospital case histories, several were adjusted by these methods. While not all errors may have been detected, it was evident that the data were sufficiently accurate for the purposes of the study.

COMPLETENESS AND REPRESENTATIVENESS OF THE DATA

A total of 15,000 cases was selected for study, 6,492 in proprietary hospitals, and 8,508 in municipal hospitals. Preference was given to completion of the work in proprietary hospitals, and

* It is recognized that it may not always have been possible to ascertain whether or not preliminary findings from autopsy were known to the physician at the time he signed the death certificate, especially in municipal hospitals. Analysis of the data, however, reveals no evidence of significant differences in the findings between autopsied and not autopsied cases.

TABLE 1
Primary Cause of Death,* Death Cause Histories Compared, All Proprietary and Municipal Hospital Deaths Included in Study
Number of deaths assigned according to cause-of-death statements on death certificates

Cause and International List Number	Total Hospital Case History	Diag- nostic Group	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	Diag- nostic Group
All Causes	7330	A	230	77	57	1236	129	340	27	1954	641	354	37	71	787	221	1	2	1166	A
Tuberculosis, 13-22	226	B	204	1	...	...	...	3	...	8	6	1	...	...	2	1	...	...	...	B
Syphilis, 30	141		13	66	2	2	...	3	...	35	8	...	...	...	7	1	...	...	...
Other infectious and parasitic diseases, 1-12, 23-29, 31, 32, 33b, 34-44	...	C	...	...	44	1	...	...	...	3	2	...	...	...	...	...	...	...	...
Cancer, 45-55	1229	D	2	...	...	1176	9	1	...	14	7	1	...	...	15	3	...	...	...	C
Non-malignant tumors, 56, 57	115	E	...	1	...	11	84	...	...	4	1	2	...	...	1	9	...	...	...	D
Diabetes, 61	394	F	...	...	...	3	1	318	...	54	10	1	...	...	4	1	...	...	...	E
Alcoholism, 77, 124a	54	G	1	...	...	1	...	...	23	3	7	...	...	...	16	...	...	...	...	F
Cardiovascular-renal diseases, 58, 83, 90-103, 130-132	1883	H	3	7	6	14	2	8	1	1691	86	2	...	2	21	11	...	1	28	G
Respiratory diseases, 33a, 104-114	565	I	3	...	1	2	1	4	1	57	479	...	...	...	7	1	...	...	...	H
Appendicitis, 121	406	J	...	...	...	...	12	...	...	3	1	344	...	...	44	1	...	...	9	I
Puerperal infection, 140, 142a, 145a, 147	50	K	1	...	...	...	...	...	...	2	...	2	32	11	1	...	...	...	1	J
Other puerperal causes, 141, 142b, 143, 144, 145b, 146, 148-150	72	L	...	...	...	...	...	...	...	8	1	...	5	57	...	...	...	...	1	K
Other diseases of the digestive system, 115-120, 122, 123, 124b, 125-129	742	M	1	1	...	19	6	2	1	38	7	1	...	...	650	6	...	1	9	L
Other diseases of the genito-urinary system, 133-139	219	N	1	1	1	4	10	...	...	7	2	...	...	1	6	186	...	...	...	M
Chronic poisoning and violent or accidental deaths, 78, 79, 163-198	13	O	...	...	...	...	1	1	1	6	2	...	...	...	1	...	1	...	...	N
Ill-defined and unknown, 199, 200	9	P	...	...	...	2	1	...	...	5	...	...	...	...	...	...	...	...	...	O
All others, 59, 60, 62-76, 80-82, 84-89, 151-162	1154	Q	1	...	3	1	2	...	...	16	22	...	...	...	9	...	...	...	...	P
Diagnostic Group			A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	

* Coded according to the Manual of the International List of Causes of Death (Fifth Revision) and Joint Causes of Death (Fourth Edition), 1939.

TABLE 2

Per cent Ratio of (A) Number of Deaths Assigned to Primary Cause from Cause-of-Death Statements on Death Certificates to (B) Number Assigned from Diagnoses in Hospital Case Histories *

Cause and International List Number	All White Decedents										Certifying Physician Manhattan Proprietary and Bellevue Hospital White Decedents—1939 and 1941 Excluding Deaths due to Accidental Causes						
	Municipal Hospitals					Proprietary Hospitals					Attending Physician						
	Non-White		White		Total	Sex		Age			Total (14)	Resident (15)	Intern (16)	Other (18)			
	Total (1)	(3)	(4)	(5)		Male (7)	Female (8)	0-14 (9)	15-44 (10)	45-64 (11)							
Tuberculosis, 13-22	101	101	97	104	100	98	103	†	104	104	78	†	108	†	119	108	90
Syphilis, 30	55	53	55	52	57	54	58	40	†	38	56	90	59	†	25	60	82
Other infectious and parasitic diseases, 1-12, 23-29, 31, 32, 33b, 34-44	98	80	†	67	102	93	94	91	80	90	100	†	115	†	†	†	†
Cancer, 45-55	101	100	97	100	101	101	101	100	†	97	102	99	103	108	95	96	100
Non-malignant tumors, 56, 57	112	73	†	92	119	115	95	120	†	127	104	80	†	127	†	171	133
Diabetes, 61	86	95	100	95	84	86	85	87	†	78	88	80	89	67	100	87	100
Alcoholism, 77, 124a	50	46	†	50	54	52	52	52	...	43	50	†	47	†	†	45	†
Cardiovascular-renal diseases, 58, 83, 90-103, 130-132	104	104	113	102	104	103	101	106	83	110	102	106	102	99	105	102	99
Respiratory diseases, 33a, 104-114	113	119	102	126	110	115	116	114	116	106	120	107	115	92	112	120	114
Appendicitis, 121	87	†	...	†	87	87	89	84	96	92	78	87	88	†	90	79	92
Puerperal infection, 140, 142a, 145a, 147	74	†	†	†	73	74	...	74	...	...	...	...	†	†	†	†	...
Other puerperal causes, 141, 142b, 143, 144, 145b, 146, 148-150	99	†	†	†	94	96	...	96	...	...	...	...	†	†	†	†	†
Other diseases of the digestive system, 115-120, 122, 123, 124b, 125-129	106	111	107	112	106	106	110	102	129	105	102	102	120	114	106	131	117
Other diseases of the genito-urinary system, 133-139	101	126	100	131	98	101	102	96	†	84	100	106	106	110	100	114	†
Chronic poisoning and violent or accidental deaths, 78, 79, 163-198	8	†	...	†	0	8	†	†	...	...	†	†	...	...	...	...	...
Ill-defined and unknown, 199, 200	22	†	...	†	33	22	†	†	†	†	†	...	†	†	†	†	†
All others, 59, 60, 62-76, 80-82, 84-89, 151-162	101	103	111	106	100	101	100	102	98	129	118	89	104	106	94	112	100
Total Number of Decedents	7,330	1,678	329	1,349	5,606	6,955	3,617	3,338	1,163	1,123	2,612	1,378	1,707	204	362	845	296

* Coded according to the Manual of the International List of Causes of Death (Fifth Revision) and Joint Causes of Death (Fourth Edition), 1939. † Less than 10 cases.

as soon as the preliminary findings for these data were available, it was decided not to complete the abstraction of case histories in municipal hospitals. As a result, data for 1,678 deaths, or only one-fifth of the cases in municipal hospitals, were obtained for study. The great majority of these completed cases were Manhattan deaths which had been reported on the confidential certificate. The data from municipal hospitals, therefore, can be given little weight in this study. They are included in this report, however, since they appear to be consistent with the findings from proprietary hospitals.*

Of the 6,492 cases which were selected for study in proprietary hospitals, complete data were obtained for 5,652, the hospital charts could not be located for 715, and the charts for the remaining 125 could not be used because they contained insufficient information. According to their distribution by age, sex, color, and cause of death reported on the death certificate, the cases obtained for study from each borough and year comprise a representative sample of the cases originally selected.

MAJOR FINDINGS

The correlation between the primary causes of death as determined from diagnoses in hospital case histories and those determined from statements on death certificates for all 7,330 cases is shown in Table 1. These data indicate the causes to which deaths from selected conditions are generally attributed in New York City vital statistics. They also provide an approximate index of the extent to which these significant diseases are overstated or understated. These indices for the 17 cause-of-death

groups are given in Table 2; column 1 is computed from the data in Table 1, and the other columns from similar tabulations which could not be included in the space allotted for this paper.

The great concentration of cases in the diagonal cells in Table 1 means that there is a very substantial agreement between the diagnoses in hospital case histories and the statements of cause of death on death certificates, and that, judged by these broad cause-of-death groups, disagreement is the exception rather than the rule.

Of the 17 cause-of-death groups studied, only the *respiratory diseases* (33a, 104-114) appear to be significantly overstated in official mortality statistics. They were charged with an excess of 13 per cent in this sample (Table 2). The overreporting of these diseases, primarily the pneumonias, was especially marked among white persons whose deaths were certified by internes in municipal hospitals.

As may be seen from Table 1, many deaths due to respiratory diseases are charged to the cardiovascular-renal diseases and an even greater number due to the latter are incorrectly attributed to the former. The difficulty appears to arise both because of disagreement as to whether the condition is lobar or bronchopneumonia and equally as often from carelessness in stating "lobar" when "lobular" is meant, or vice versa. Since cardiovascular-renal diseases are frequently associated with pneumonia, under the *Joint Cause Manual*, the *International List* assignments for the former conditions are also affected by the proper determining factor as to the form of pneumonia. For example, a cardiovascular-renal condition associated with pneumonia is assigned to the former if lobular, but to the latter if lobar.

In contrast, five conditions (alcoholism, syphilis, puerperal infection, diabetes, and appendicitis) appear to be understated on death records. These

* Contrary to expectation, the data from municipal hospitals reveal greater variations than those from proprietary hospitals. This may result from the fact that quite frequently in municipal hospitals several physicians may attend the same patient, and often the physician who certifies the death may not have been previously connected with the case.

TABLE 3

White Decedents with Alcoholism (77,124a)

Place of Death	Number from Case Histories (A)		Number from Death Certificates (B)		Per cent Ratio * B to A	
	1937-1938	1939, 1941	1937-1938	1939, 1941	1937-1938	1939, 1941
	<i>Primary Cause of Death</i>					
Proprietary Hospitals						
Manhattan	5	7	3	3	60	43
Other Boroughs	5	9	3	5	60	56
Municipal Hospitals						
Manhattan †	..	15	..	8	..	53
	<i>Primary or Contributory Cause of Death</i>					
	1937-1938	1939, 1941	1937-1938	1939, 1941	1937-1938	1939, 1941
	<i>Condition Existing at or Prior to Death</i>					
Proprietary Hospitals						
Manhattan	17	13	8	7	47	70
Other Boroughs	17	17	11	6	65	35
Municipal Hospitals						
Manhattan	3	70	0	30	..	43
Proprietary Hospitals						
Manhattan	19	12	8	7	42	58
Other Boroughs	19	17	11	6	58	35
Municipal Hospitals						
Manhattan	3	50	0	30	..	38

* These ratios are based on a small number of cases and may, therefore, be influenced by chance fluctuations.

† Excludes decedents under 15 years of age and those for which an autopsy was performed.

conditions will now be discussed.

Alcoholism (77,124a)—Of all conditions selected for study, alcoholism was most affected by differences between diagnoses in hospital case histories and causes of death stated on death certificates. Of the 54 deaths from alcoholism or alcoholic cirrhosis of the liver, only 23 (43 per cent) were so reported. Sixteen deaths were charged to other diseases of the digestive system, primarily cirrhosis of the liver without mention of alcoholism,* 7 to respiratory diseases, and the other 8 to various other causes. At the same time, 4 deaths supposedly due to other conditions were charged to alcoholism. In this sample, therefore, the official statistics accounted for only one-half of the mortality from alcoholism. This finding is in apparent agreement with the results

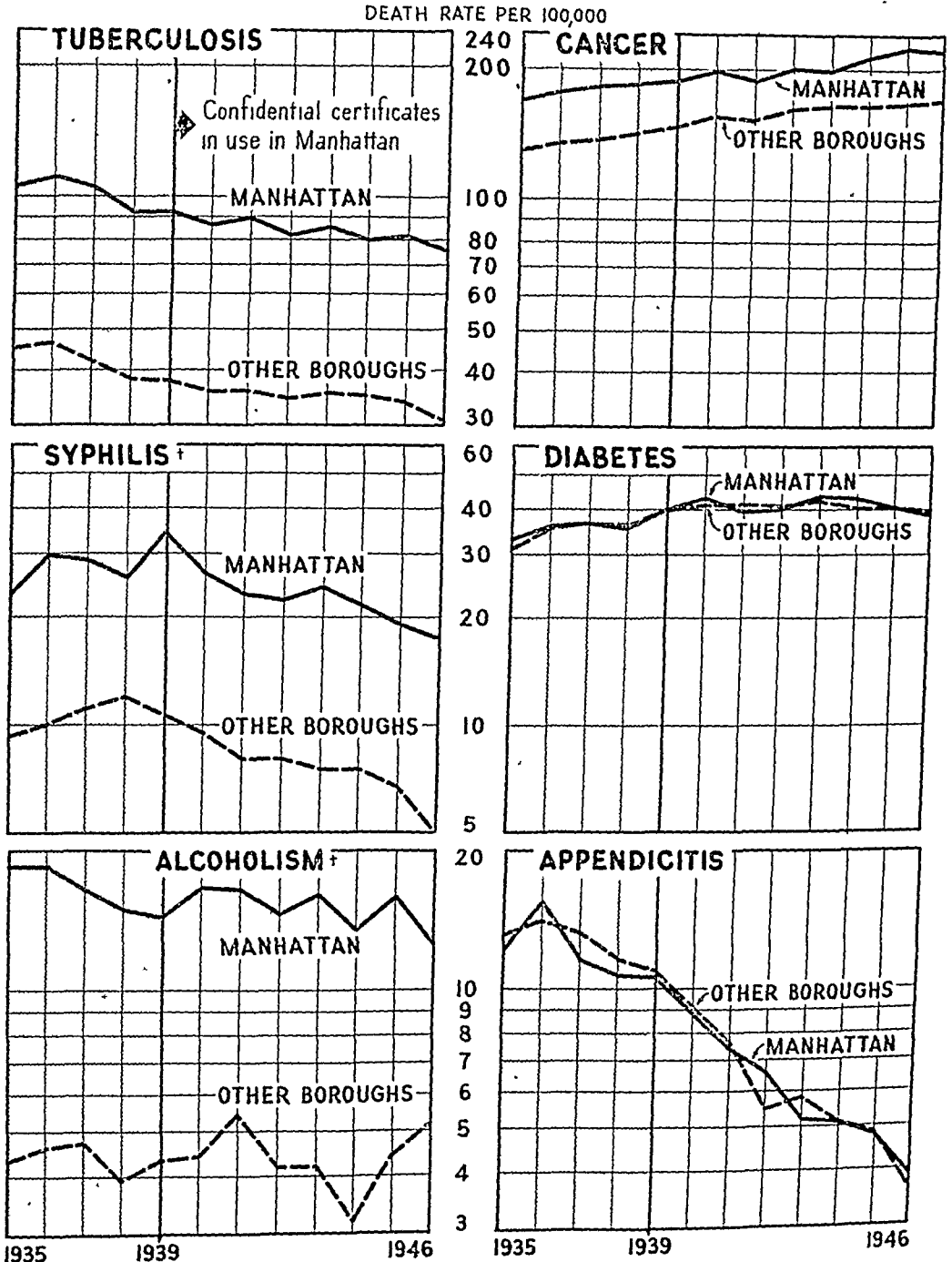
of the confidential inquiry in Westchester County, New York, which revealed that approximately three-fifths of the deaths from alcoholism in 1931-1933 were correctly charged.²

Did the confidential method of death certification, introduced in Manhattan in 1939, more accurately depict the mortality from alcoholism than the open method? The pertinent data are shown in Table 3. Since alcoholism is a relatively infrequent cause of death, only a small number of cases fell into the sample and the findings may be influenced by chance fluctuations. However, several facts are worthy of note. Approximately one-half of the deaths attributed to alcoholism were "improperly" reported from proprietary hospitals whether the open or confidential certificate was used. Even municipal hospitals in Manhattan understated this cause of death by one-half in 1939 and 1941. And, as may be seen from Table 2, this was also true for deaths certified by internes. Finally, it should be

* Today many physicians and pathologists question the role of alcohol in the causation of cirrhosis, as such. Thus, even though a patient with cirrhosis had a history of alcohol ingestion, they would prefer to place the etiology in the role of some dietary deficiency.

FIGURE 1

MORTALITY FROM SELECTED CAUSES MANHATTAN COMPARED WITH OTHER BOROUGHES OF NEW YORK CITY*



* By residence; non-residents included in borough of death.
 † To maintain comparability between the 1929 and 1938 revisions of the *International List*, deaths prior to 1940 are increased by 9.2 per cent for alcoholism and by 9.1 per cent for syphilis.

noted that, if alcoholism accounted for twice the number of deaths charged to it in official statistics, the recorded number of these deaths should increase significantly when the confidential certificate is used, if the method is more efficient than the open form of certification. Actually, as Figure 1 shows, the trend in Manhattan since 1938 has approximately paralleled the trend in the other boroughs.

Syphilis (30)—About the same extent of agreement between the hospital case history and the death certificate was found for syphilis as for alcoholism. Of the 141 deaths assigned to syphilis according to hospital records, only 66 (47 per cent) were so reported on death certificates. An additional 35 of these deaths were attributed to cardiovascular diseases, 13 to tuberculosis, and 27 to other causes (Table 1). In contrast, syphilis was selected as the primary

cause of death from 11 certificates for which the hospital charts charged the deaths to other conditions. Failure to note on the death certificate that syphilis was successfully treated accounted for some of these differences. Thus, only 55 per cent of the mortality from syphilis was reflected by the official statistics (Table 2). For syphilis as for alcoholism, the data confirm findings previously reported for Westchester County where the figure for syphilis was found to be 51 per cent.² Similar to the findings from that study, syphilis was more accurately reported as the primary cause of death for men than for women; in this study the ratio was 0.58 among white males and only 0.40 among white females.

Syphilis appears to have been more completely reported from proprietary hospitals in Manhattan during 1939 and 1941 than during 1937–1938 (Table 4):

TABLE 4

White Decedents with Syphilis (30)

<i>Place of Death</i>	<i>Number from Case Histories (A)</i>		<i>Number from Death Certificates (B)</i>		<i>Per cent Ratio * B to A</i>	
	<i>1937–1938</i>	<i>1939, 1941</i>	<i>1937–1938</i>	<i>1939, 1941</i>	<i>1937–1938</i>	<i>1939, 1941</i>
<i>Primary Cause of Death</i>						
Proprietary Hospitals						
Manhattan	8	12	4	8	50	67
Other Boroughs	7	8	2	6	29	75
Municipal Hospitals						
Manhattan †	3	33	1	21	33	64
<i>Primary or Contributory Cause of Death</i>						
Proprietary Hospitals						
Manhattan	10	12	5	8	50	67
Other Boroughs	9	11	2	7	22	64
Municipal Hospitals						
Manhattan	6	59	2	33	33	56
Brooklyn	..	8	..	5	..	63
<i>Condition Existing at or Prior to Death</i>						
Proprietary Hospitals						
Manhattan	10	12	5	8	50	67
Other Boroughs	11	11	2	7	18	64
Municipal Hospitals						
Manhattan	7	67	2	33	29	49
Brooklyn	..	9	..	5	..	56

* These ratios are based on a small number of cases and may, therefore, be influenced by chance fluctuations.

† Excludes decedents under 15 years of age and those for which an autopsy was performed.

TABLE 5

White Female Decedents with Puerperal Infection (140, 142a, 145a, 147)

Place of Death	Number from Case Histories(A)		Number from Death Certificates(B)		Per cent Ratio B to A	
	1937- 1938	1939, 1941	1937- 1938	1939, 1941	1937- 1938	1939, 1941
	<i>Primary Cause of Death</i>					
Proprietary Hospitals						
Manhattan	6	3	6	1	100	33
Other Boroughs	14	22	9	17	64	77
	<i>Primary or Contributory Cause of Death</i>					
Proprietary Hospitals						
Manhattan	7	6	7	5	100	83
Other Boroughs	14	22	9	17	64	77

* These ratios are based on a small number of cases and may, therefore, be influenced by chance fluctuations.

charged to various other conditions. In contrast, the deaths of 22 persons were allocated to diabetes in disagreement with the facts recorded in their hospital case histories (Table 1). For the cases included in this study, therefore, only 86 per cent of the mortality from diabetes was stated in the official statistics (Table 2).

In view of the fact that diabetes was

less completely reported from proprietary than from municipal hospitals, and that deaths certified by attending physicians were least accurately recorded, one might expect an improvement with the use of the confidential certificate. No such evidence, however, is disclosed by the available data. As may be seen from Table 6, 78 per cent of the deaths due to diabetes in Manhattan proprie-

TABLE 6

White Decedents with Diabetes (61)

Place of Death	Number from Case Histories(A)		Number from Death Certificates(B)		Per cent Ratio B to A	
	1937- 1938	1939, 1941	1937- 1938	1939, 1941	1937- 1938	1939, 1941
	<i>Primary Cause of Death</i>					
Proprietary Hospitals						
Manhattan	54	55	42	43	78	78
Other Boroughs	94	103	81	90	86	87
Municipal Hospitals						
Manhattan †	6	43	5	41	83 *	95
	<i>Primary or Contributory Cause of Death</i>					
Proprietary Hospitals						
Manhattan	76	74	51	53	67	72
Other Boroughs	122	133	102	114	84	86
Municipal Hospitals						
Manhattan	10	64	8	61	80 *	95
Brooklyn	..	19	..	17	..	89
	<i>Condition Existing at or Prior to Death</i>					
Proprietary Hospitals						
Manhattan	82	77	51	53	62	69
Other Boroughs	127	135	102	114	80	84
Municipal Hospitals						
Manhattan	10	64	8	61	80 *	95
Brooklyn	..	19	..	17	..	89

* These ratios are based on a small number of cases and may, therefore, be influenced by chance fluctuations.

† Excludes decedents under 15 years of age and those for which an autopsy was performed.

OTHER FINDINGS

Tuberculosis (13-22)—It does not appear probable from the data collected for this study that tuberculosis has been understated in the New York City mortality statistics for recent years. For every 100 deaths from tuberculosis according to hospital case histories, there were 101 assigned to the condition in the official death records (Tables 1 and 2). These findings are in apparent agreement with those obtained in the study in Williamson County, Tennessee.¹⁶

Although tuberculosis was not understated as the primary cause of death for the cases studied, its occurrence as a contributory cause was not completely recorded. This fact may be noted from a vertical comparison of the data in Table 8. For example, in Manhattan proprietary hospitals during 1937-1938, the extent of agreement was 100 per cent for tuberculosis as the primary cause of death, but only 90 per cent

for the condition as the primary or contributory cause. Regardless of the criterion used, however, there are no indications that tuberculosis was more efficiently recorded on the confidential than on the open certificate. The mortality statistics for New York City confirm this fact (Figure 1).

Cancer (45-55)—Of the seven conditions considered likely to be affected by confidential certification, cancer is both the most important and apparently the most completely reported. A study of deaths which occurred in Massachusetts in 1932¹⁷ revealed that approximately 6 per cent of the mortality from cancer was underreported on death certificates; 11 per cent of the cases were "missed" at the same time that 5 per cent were "overdiagnosed." More recently, from a survey of ten urban areas in 1937-1939, the U. S. Public Health Service reported that possibly only 5 per cent of the mortality from cancer was assigned to non-

TABLE 8

White Decedents with Tuberculosis (13-22)

Place of Death	Number from Case Histories(A)		Number from Death Certificates(B)		Per cent Ratio B to A	
	1937- 1938	1939, 1941	1937- 1938	1939, 1941	1937- 1938	1939, 1941
	<i>Primary Cause of Death</i>					
Proprietary Hospitals						
Manhattan	28	11	28	12	100	109
Other Boroughs	23	16	21	20	91	125
Municipal Hospitals						
Manhattan †	6	55	5	57	83 *	104
<i>Primary or Contributory Cause of Death</i>						
Proprietary Hospitals						
Manhattan	31	17	28	15	90	88
Other Boroughs	27	20	21	22	78	110
Municipal Hospitals						
Manhattan	14	99	7	86	50	87
Brooklyn	..	16	..	15	..	94
<i>Condition Existing at or Prior to Death</i>						
Proprietary Hospitals						
Manhattan	34	17	28	15	82	88
Other Boroughs	32	22	21	22	66	100
Municipal Hospitals						
Manhattan	15	106	7	86	47	81
Brooklyn	..	17	..	15	..	88

* This ratio is based on a small number of cases and may, therefore, be influenced by chance fluctuations.

† Excludes decedents under 15 years of age and those for which an autopsy was performed.

quency of operations declined from 41.3 per cent in 1937 to 34.8 per cent in 1941, there was a slight improvement in reporting, from 96.6 per cent in 1937 to 98.2 per cent in 1941. This improvement, however, occurred in proprietary hospitals in boroughs other than Manhattan. Judged by proprietary hospital deaths, therefore, the confidential method did not result in more accurate reporting of operations.

DISCUSSION

When, about the year 1891, the confidential system of reporting was put into use in certain cantons of Switzerland, the number of reported deaths from syphilis was nearly doubled. Accordingly, the system was adopted and has been used throughout that country since January 1, 1901.¹⁹ On the basis of this experience, it was expected that there would be a marked increase in the reported mortality from syphilis, as well as from several other diseases, following the introduction of the confidential system to New York City. In the first year of its trial in Manhattan, the confidential report apparently had increased the accuracy with which the mortality from syphilis was reported. Since that time, however, the parallel trends in the mortality from the disease,

both in Manhattan and in the other boroughs of the city (Figure 1), have made it appear more probable that the rise, which was recorded in Manhattan from 1938 to 1939, was chiefly if not entirely a normal fluctuation.

The use of the confidential report was extended to the other four boroughs of the city on January 1, 1947. If the system proved effective, we should expect an increase in the mortality from alcoholism, syphilis, etc.; in these boroughs, but not in Manhattan, where no change in method of reporting occurred. The recorded mortality data for the first 11 months of 1947 compared with the same period of 1946, for seven conditions considered significant to confidential certification, are shown in Table 10. There is no evidence from those data of any changes which may be attributed to the system of reporting. Therefore, it may be concluded that, to date, the confidential report has had no significant effect on the accuracy of mortality statistics in New York City.

No method of reporting, of itself, can be expected to eliminate all of the factors which affect the accuracy of mortality statistics. In 1938, Dr. Halbert L. Dunn stated that "the errors in cause of death due to carelessness on the part of the physician in filling out the

TABLE 10

Mortality from Seven Selected Conditions in New York City, by Borough of Residence (non-residents included in borough of death), First Eleven Months of 1947 and 1946 compared

Cause and International List Number	Number of Deaths				Death Rate *			
	Manhattan		All Other Boroughs		Manhattan		All Other Boroughs	
	1947	1946	1947	1946	1947	1946	1947	1946
Alcoholism (77)	109	137	64	132	6.2	7.8	1.2	2.4
Syphilis (30)	301	307	276	260	17.2	17.6	5.1	4.8
Puerperal infection (140,147)	22	19	33	36	56.4	59.5	25.1	31.6
Diabetes (61)	743	664	2,404	2,085	42.5	38.0	44.2	38.7
Tuberculosis (13-22)	1,268	1,320	1,572	1,665	72.6	75.6	28.9	30.9
Cancer (45-55)	4,007	3,851	9,364	9,036	229.3	220.6	172.3	167.7
Appendicitis (121)	66	71	196	209	3.8	4.1	3.6	3.9

* Deaths from puerperal infection per 100,000 total births; all other causes per 100,000 total estimated population, adjusted to annual basis.

death certificate are probably fully as numerous as those arising from his desire for a confidential record. . . ."¹¹ From this study, one might add that simple ignorance of the rules of certification and lack of understanding of the mechanisms of death also have a greater bearing on the information that is recorded than does the method of reporting. Moreover, there are no indications that better statistics have resulted from the use of the confidential method.

How then may we effectively and efficiently improve the accuracy of mortality statistics? This is a problem of major importance which confronts the consumer of vital statistics. Together with the instructor in the medical school, he must devise a means of impressing the attending physician with the importance of his responsibility in reporting causes of death. This should involve careful perusal of the patient's history chart to determine the factors which caused and contributed to death, and entry of the cause-of-death statement on the certificate with sufficient accuracy and care so as to reflect his conclusions.* Some improvement could also be effected by a change in policy, in local health departments, from paper check-up by death certification clerks to a consultative service which the physician could call *before* he certifies the cause of death. This would enable the physician, who has had few deaths in

his own practice, to obtain the advice of one who has had practical experience with a great many cases as to the terminology and definition of causal mechanisms involved in a particular case.

The physician's unwillingness to record the causes of death to the best of his knowledge and belief is apparently of secondary importance to other factors which affect the accuracy of mortality statistics. Judged by the findings from this study, the confidential report does not improve the accuracy of diagnoses which reflect on the memory of the deceased. Apparently such improvement can be effected only through intensive educational campaigns which impress both the medical profession and the public with the fact that the development of medical knowledge, and the ability to combat disease, are dependent upon complete and accurate statistics. The campaigns against tuberculosis and cancer have removed many of the barriers of fear and superstition concerning these conditions and have thus been a factor in the present state of completeness with which they are recorded on death certificates. The current campaign against the venereal diseases has already effected a reduction in the inaccuracy of these mortality statistics. In the near future, as the campaign becomes more successful, the public will be completely impressed with the fact that the disease can be conquered. At that time, it may be expected that the true extent of the mortality from syphilis will be reflected by official statistics. Undoubtedly, most persons in this country prefer to face the facts openly and squarely, and will not intentionally withhold significant information once they are made cognizant of its value and importance.

SUMMARY

1. A confidential method of reporting causes of death, for deaths due to natural causes, has been used in the borough of Manhattan since

*The importance of the above cannot be over-emphasized. In New York City, for example, more than one-half of the deaths are certified from institutions where more than one practitioner is in attendance. Frequently, these institutions find it necessary to execute a death certificate at a time when no physician who attended the patient is available. Even when one of the physicians is available, it is not possible for him to be able to fill out the death certificate without reference to the case history.

The situation is quite similar for an additional one-fifth of the deaths in New York City, which are certified by the medical examiner's office. In addition to the information obtained from the hospital or private physician, the completed history for these cases may contain extensive notes resulting from the examiner's investigation. All of this information must be carefully considered both from the medical examiner's and the vital statistician's point of view when the death certificate is prepared.

January 1, 1939, and in all five boroughs of New York City since January 1, 1947.

2. In 1943-1944, a study was made of 5,652 deaths which were certified from proprietary hospitals in 1937-1939 and 1941, and of 1,678 deaths which were certified from selected municipal hospitals in January and February of those years.

3. Judged by diagnoses abstracted from hospital case histories, five conditions were found to be understated on death certificates. The official statistics for these 7,330 persons accounted for only 50 per cent of the mortality from alcoholism, 55 per cent for syphilis, 74 per cent for puerperal infection, 86 per cent for diabetes, and 87 per cent for appendicitis. Tuberculosis and cancer were found not to be understated.

4. There are no indications from the data that better statistics have resulted from the use of the confidential death certificate.

5. The trends in the recorded mortality in Manhattan, while the confidential report was used, closely paralleled those for the boroughs which used the open certificate. Comparative mortality data for the first 11 months of 1946 and 1947 also reveal no changes which might be attributed to the use of the confidential report in all boroughs of the city since January 1, 1947.

REFERENCES

1. Duffield, Thomas J. The Physician's Confidential Medical Report of Cause of Death, *A.J.P.H.*, 34:271-274, 1944.
2. Nicoll, Mathias, Jr., and Bellows, Marjorie T. Effect of a Confidential Inquiry on the Recorded Mortality from Syphilis and Alcoholism. *A.J.P.H.*, 24: 813-820, 1934.
3. American Public Health Association. Confidential Inquiry in Cause of Death, *Year Book*, 1935-1936, pp. 252-254.
4. Defries, R. D., and Sellers, A. H. Second Annual Report of the Committee on Certification of Causes of Death (Part III), *Canad. Pub. Health J.*, 26: 398-405, 1935.
5. Parrot, Paul. A Trial of the Confidential Death Certificate in the Province of Quebec, *Canad. Pub. Health J.*, 30:335-342, 1939.
6. ———. The Use of the Confidential Death Certificate in the Province of Quebec, *Canad. Pub. Health J.*, 33:114-121, 1942.
7. Dublin, Louis I., and Kopf, Edwin W. The Improvement of Statistics of Cause of Death Through Supplementary Inquiries to Physicians, *Quart. Am. Stat. A.*, June, 1916, pp. 175-191.
8. Swartout, H. O., and Webster, R. G. To What Degree Are Mortality Statistics Dependable? *A.J.P.H.*, 30:811-815, 1940.
9. Pohlen, Kurt, and Emerson, Haven. Errors in Clinical Statements of Causes of Death, *A.J.P.H.*, 32:251-260, 1942; 33:505-516, 1943.
10. Defries, R. D., and Sellers, A. H. The Physician and the New Canadian Death Certificate, *Canad. M. A. J.*, 32:431-435, 1935.
11. Dunn, Halbert L. Adaptation of the International List of Causes of Death to Changing Needs of the Medical Profession and Public Health Groups, Bureau of the Census, Vital Statistics—*Special Reports*, 5 (No. 24), 1938.
12. Janssen, Theodore A. Comparability of Mortality Statistics, *J. Am. Stat. A.*, 33:399-403, 1938.
13. Sellers, A. H. The Physician's Statement of Cause of Death, *A.J.P.H.*, 28:430-444, 1938.
14. ———. Common Errors in Certifying the Cause of Death on the Medical Certificate. *Canad. M. A. J.*, 39:468-473, 1938.
15. DePorte, J. V. Mortality Statistics and the Physician, *A.J.P.H.*, 31:1051-1056, 1941.
16. Puffer, Ruth R., et al. Accuracy of Tuberculosis Death Rates in Williamson County, Tenn., *A.J.P.H.*, 43:370-378, 1943.
17. MacDonald, Eleanor J. Accuracy of the Cancer Death Records, *A.J.P.H.*, 28:818, 1938.
18. Dorn, Harold F., and Horn, Joseph F. The Reliability of Certificates of Deaths from Cancer, *Am. J. Hyg.*, 34:12-23, 1941.
19. Whipple, George C. *Vital Statistics*, (2nd ed.), New York: Wiley, 1923, p. 135.

NOTE: Special acknowledgment is made to Kurt Pohlen, Ph.D., employed under a grant from the New York Foundation, for his technical assistance, especially for his painstaking and diligent efforts in abstracting the diagnoses and related information from the original hospital records.

Acknowledgment is also made to Drs. Allan Hurst, Alfred Koerner, and Oma H. Price of the Department of Health, and to the hospital superintendents, proprietors, record librarians, and many other persons whose assistance and coöperation helped to make the study possible.

The author is grateful for helpful suggestions in the preparation of this paper to Dr. Louis I. Dublin, Second Vice-President and Statistician, and Herbert H. Marks, Manager, Insurance Medical Statistics, both of the Metropolitan Life Insurance Company, and to many of the persons already mentioned.

The opinions expressed herein are those of the author and do not necessarily reflect the views of the New York City Department of Health, the members of the Statistical Advisory Committee, nor of the other persons to whom acknowledgment has been made.

Selecting Public Health Personnel Through Examining Processes

Gleanings from the Conference of Health Officers and
Merit System Supervisors *

DOROTHY DEMING, R.N., F.A.P.H.A.

Merit System Service, American Public Health Association, New York, N. Y.

THIS conference, which consisted of an interchange of experiences in the use of various examining processes for the selection of public health personnel, was attended by health department and merit system representatives. Discussion, led by Dan S. Moore, State Director of Personnel, Louisiana Civil Service Commission, was informal, and focused for the most part on the three currently employed methods of selecting personnel under merit system regulations: the rating of training and experience, the written test, and the oral interview, with brief consideration of the weights given each in relation to the level of position under scrutiny.

While there were no formal recommendations arrived at during this conference—such was not its purpose—some of the comments and conclusions of the group are of such timely interest to administrators as to warrant recording.

THE ORAL INTERVIEW

There are two major purposes for which oral interviews are used: to sample the candidate's knowledge of the field, and to evaluate such factors as his personality, appearance, and ability to think and speak logically and clearly. It was suggested that a written examination properly constructed to test a can-

didate's knowledge, yields a far more precise measure than does the oral interview. The group agreed, however, that an oral interview to evaluate appearance and personality is especially important in selecting public health personnel because so many of the staff must meet and deal daily with the public. No administrator present was willing to appoint a public health physician, nurse, or engineer without a personal interview, and a board of oral interview serves as a preliminary screening of candidates for such interviews.

The objections to oral tests that were mentioned included: (1) a misconception, occasionally held by candidates, to the effect that interviews are "fixed" in advance; (2) the difficulty in scoring objectively and weighting appropriately the factors to be measured by the interview; (3) the frequent lack of a verbatim record of the interview which makes it difficult to prove the basis on which the individual interviewers made their judgments. Even with these drawbacks, however, the majority seemed to feel that the oral interview is a very necessary step in selection, and eliminates those obviously unsuited from a personality standpoint. No one would give it up.

THE RATING OF TRAINING AND EXPERIENCE

While no one present could offer a truly valid and workable method of eval-

* Presented at the Seventy-fifth Annual Meeting of the American Public Health Association in Atlantic City, N. J., October 6, 1947.

uating experience and training of professional public health personnel, all agreed that such rating is very essential. It was pointed out that its value, and therefore the weight assigned to this rating, increases with the importance of the position. For example: a public health nursing supervisor's training and experience bear a more direct relation to her potential ability to do the job well than the training and experience of a graduate nurse who will serve as an assistant to a public health nurse in a clinic. In fact, several health officers present thought that the rating of training and experience, plus the oral interview were the only tools needed or wanted in their states in selecting public health physicians.

THE WRITTEN EXAMINATION

The group devoted considerable time to discussing the pros and cons of requiring written examinations of professional personnel.

Those in favor of making the written examination an intrinsic part of the selective procedure offered in support of their opinion their belief that the written test presents:

1. Clearcut, indisputable evidence with regard to a candidate's knowledge of facts, and, if the right type of questions are used, provides an excellent measure of his capacity for exercising sound judgment.

2. The most reliable means we have to date for *ranking* candidates objectively. Several merit system supervisors and health officers remarked on the success with which the examinations prepared by the Merit System Service differentiated between the well prepared and less well prepared candidates in their states.

Many of those present indicated that they would like to use the objective type of written tests for all positions, but stressed their inability to persuade some of the professional groups to take examinations, because these groups:

1. Resent taking still another examination when they are already graduates of medical and nursing schools and licensed to practise.

2. Dislike—and this is easily understandable—finding that in spite of years of experience, they occasionally make scores lower than candidates with far less experience.

3. Feel that an objective test measures theoretical knowledge only.

It was also pointed out that one very bad factor in requiring a written test is the hardship worked on the candidate who is ill on the day of examination and who must then wait until another examination is held before being placed on the register.

A few persons present went so far as to say that professional people who have passed licensing examinations should be exempt from written tests and be judged on a rating of their training and experience, and by an oral interview. Merit system supervisors immediately pointed out that while this procedure may work when only 3 or 4 candidates are applying, a finer, more objective screening must be devised when 30 or 40 candidates are being ranked. With the best of efforts, the rating of training which has taken place in 30 or 40 different institutions all using different grading methods is difficult, while an evaluation of experiences which have occurred under as many as 100 employers each of whom offers a subjective opinion of the candidate's performance, leaves the scorer hopelessly at sea.

All were agreed, however, that reluctance to take written tests will probably be overcome when the candidates find the examinations are professionally acceptable and appropriate to the level of duties of the job. Such an examination can be compiled only if the specifications are good—that is, give complete descriptions of the requirements for, and of, the job. There is much room for improvement in many of the present job specifications.

WEIGHTING THE SELECTIVE PROCESSES

The discussion then turned to weighting the three selective processes: the oral interview, rating of training and expe-

Beginnings of a Mental Health Program in a State and Local Department of Health*

KENT A. ZIMMERMAN, M.D.

Consultant for Mental Health, State Department of Public Health, San Francisco, Calif.

HEALTH officers in general recognize that a pressing need in their communities is the rapid development and expansion of mental health programs. Most feel that the community pressure is for the development of treatment clinics, and many people in health departments assume that that is the only kind of a program they can justifiably sponsor. Child guidance clinics and psychiatric clinics would probably be established by the thousands, almost overnight, if it were not for two very frustrating considerations, the lack of funds to operate a clinic and, even more serious, the inadequacy of well trained personnel. Many individuals, therefore, feel bewildered, and some discouraged when they find themselves blocked by these frustrations. In general, few people seem to see the work that is being done daily in the well baby, prenatal, tuberculosis, and venereal disease clinics, and in home visiting and family health counseling as being a very important opportunity for the promotion of mental health.

The reasons for such an attitude are perfectly justifiable. The usual well trained physician and nurse today do not think of themselves as capable of handling even simple emotional prob-

lems. Their professional education often did not give them this concept, and psychiatry itself has until very recently remained isolated from the rest of medicine. Consequently the general attitude in the majority of medical and nursing schools which seemed to be conveyed to the students, was that when there were problems of medical practice which related to feelings and attitudes, it was important to be aware of these, but, if possible, they should be left alone. This is one important reason why most doctors and nurses feel insecure when confronted with the emotions that accompany illness and convalescence. In many professional individuals there is also a lack of awareness of the importance of the emotional relationships that exist between doctor and nurse and patient, and their influence on both doctor and patient in everyday medical practice.

A growing number of people interested in mental health problems are coming to feel that a practical approach to the problem of meeting the mental health needs of communities could be made through professional workers already giving service to the communities. One of the most important of these groups is that of the health workers, who in company with school teachers, social workers, probation officers, and physicians in private practice, are concerned with helping people handle their problems and educating them toward

* Presented before the Maternal and Child Health Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 6, 1947.

the self-responsibility of keeping happy and well.

WHAT ARE THE PROBLEMS?

In coöperation with the Commonwealth Fund, the California State Department of Public Health undertook a project to ascertain what kind of program might be necessary to promote incorporation of mental health principles as part of public health practice. In late 1946, two physicians, with training in pediatrics and psychiatry and some experience in public health, joined the staff of the State Department of Public Health. These physicians were myself and Dr. Martha MacDonald. Dr. MacDonald worked with us for three months and then, unfortunately for us, resigned to do purely clinical psychiatric work. The first thing we did was to make a study of the State Department of Public Health and three local departments of health in the San Francisco Bay area. We needed to learn something about the following:

1. Attitudes of staffs about psychiatry and mental hygiene
2. How the staffs felt mental hygiene and psychiatry might help with their work
3. What did the staffs feel capable of doing
4. What did staff members lack which prevented them from becoming more effective in promoting the emotional well-being of their patients
5. How this could be supplied to them within the limitations of time for training and the tremendous work load which each department and staff member faced

A brief description of our findings and impressions pertinent to this discussion give some of the answers to the above questions. A large number of public health workers are eager for staff training in mental health concepts. However, any training program has to take into consideration the fact that because of the extremely heavy work load

and the shortage of personnel, administrators are reluctant to give long periods of time to such training. At the same time, administrators feel the desire of their staffs for training in this field. They are beginning to understand that a high turnover of personnel is often the result of the blocking of professional individuals in their growth by overwork and the lack of opportunity for instruction. Highly trained personnel for education of local staffs cannot in general be attracted to local staffs because of the low salary scales. Local departments of health, therefore, are turning more and more to state departments of health for consultation, planning and financing of training programs.

Concepts about the training of local personnel are limited. Many health officers and nursing supervisors feel that a course of lectures on mental hygiene will meet the needs, and their thinking about education often stops here. Too infrequently do they see that a program needs to be planned so as to follow up in local public health practice what was covered in the lectures. One reason for this is that they feel that they need the mental hygiene expert to perform this task and rarely think of using people in their own communities who could supply another viewpoint and the discipline of another training such as school teachers, probation officers, social workers, etc.

In the majority of local health departments, where there are often only one or two full-time physicians, the backbone of clinical service is the public health nursing staff. The physicians who usually attend the clinics come for, perhaps, one afternoon a week and perform their duties and leave the health department alone the rest of the time. In the main, the physician performs the mechanical part of medical practice and when there is an important and emotionally-laden decision about the course of activities of an individual and his fam-

ily in relation to illness, this task is usually given to the nurse to handle. Even with the patient who has no major problem at the moment, it is the nurse in the clinic who often takes the history, explains the doctor's orders, or sees the patient functioning as part of the family. It should be no surprise, therefore, that the nurse is avidly seeking for information and guidance on normal emotional growth of individuals and their families. The nurses are the ones who have to support the insecure mother of the new baby, help the adult with tuberculosis to accept sanatorium care, get the patient with venereal disease to see responsibility in coming for treatment, etc. Yet the nurse is all the more insecure because her professional training and background have often been of an authoritarian nature, and she finds that this approach to the emotional problems such as she handles is rarely successful. Furthermore, as is also the case with physicians, she has often had no training whatever in the science and art of interviewing which both professions find again and again in their practice is the very thing they need most.

Another striking thing about many health departments is their utter lack of awareness of what other community agencies in their community are doing. Again, the person who interrelated these activities in the community was generally the public health nurse who, in her health work with families, needed to work with the social worker and the school teacher and sometimes the probation officer. However, the problem was mainly that the health department was so overwhelmed with work, as are the other community agencies, that its staff could rarely lift its eyes beyond its own confines and see itself as an important element in a total community picture of community services. This increased, therefore, the frustration of many sincere and conscientious individ-

uals who felt discouraged that there was so little they could do in meeting the emotional needs of their patients and families. This seemed to be because they thought in terms mostly of their own services, and, because of their lack of knowledge of the total community facilities, failed often to see the real importance of their own contribution to the patient.

Practically all the physicians who worked in the clinics felt a need for more knowledge of the normal individual, especially as to his growth and development, his reactions to illness, and his role in the doctor-patient relationship. Many physicians thought that this would help them in their practice as well as in their dealings with people everywhere. But also, it must be confessed, many physicians saw no particular reason for this since they were functioning quite successfully in their practices; and many felt that most simple emotional problems should be referred immediately to the psychiatrist.

Nurses stated they wanted more instruction about the normal emotions in children and adults and instruction on the techniques of interviewing. Occasionally an intuitive individual recognized that her own emotions and attitudes seemed to interfere or help in the treatment of some of her patients and would ask if some teaching could not be offered on this subject.

In summary it might be said that health workers are:

1. Eager for what psychiatry can offer them.
2. Belittle the potentially important mental health role they could play; feel they need the expert before anything can be done.
3. Feel inadequate in knowledge about the normal emotional behavior of children and adults. This is practically like saying that they want more confidence in knowing what human behavior really is.
4. Need more understanding of the emotional structure of the doctor-patient and nurse-patient relationship.
5. Want some instruction in interviewing and counseling.

In this local health department I worked at first as pediatrician in a typical well baby clinic. Our plan was to have the nurses of the staff rotate through this clinic. In addition to observing, each nurse was to select two or three patients or families who represented a problem in management or were of especial interest to her. The nurse was to keep good notes on these patients, especially of the interviews. At the end of each clinic session these patients were discussed from the standpoint of emotional change in both patient and nurse, or what some psychiatrists and psychiatric social workers call "movement" in the emotional interrelationship as it developed and waned. The object here was to simulate an approach to the case work situation which the learning social worker goes through in her training. In this way it is felt that some attention can be given to the nurse and her feelings so that she begins to learn and accept certain approaches which she as a personality can use in dealing with patients which affect the patients either positively or negatively in relation to their medical care. This experience, going on concomitantly with the lecture material given during the weekly nurses' staff meetings, required the integration of much more of the material into the nurse's personality. Likewise it provided a method of controlled growth of the individual in understanding the emotions of others and also those of herself in relation to her patients. The practical difficulty with this scheme was that we could not reach all the nurses on the staff with such personalized teaching.

A new scheme is now being developed. The health officer and the supervisor of nurses arranged that I attend a special well baby clinic to which all the nurses could refer two or three families from her district. We could thus have at least two nurses attend with their families at each session, and in a matter

of two to three weeks each nurse on the staff would have the opportunity to talk about how she felt about her patients and how she thought her patients felt about her.

I visit also the tuberculosis, crippled children screening clinic, rheumatic fever, and venereal disease clinics. This is more a consultation service discussing with the physicians and nurses those patients who refuse treatment, refuse hospital or sanatorium care, who become hostile in attitude, and those whose anxieties produce further symptoms and the like. Our policy here is to support and guide the nurse and the physician so that they handle these patient problems themselves rather than label the patient uncoöperative or refer him to the law officer or psychiatrist, if any is available.

Under the leadership of the health officer and the director of maternal and child health of the Richmond Health Department, the pediatricians in practice who attend the well baby clinics for the health department are considering meeting for a weekly luncheon at which the progress of our program will be followed and some discussions will be held on the mental health implications of office practice.

Along with this demonstration in a local health department it is contemplated that in coöperation with the Child Development Center of the Children's Hospital of the East Bay, the State Department of Public Health should also set up an experimental experience to see whether we can in another way supply some of the needs that nurses and physicians in public health, and medicine in general, do not get in their professional training. One of the great lacks for all physicians and nurses in their training has been an opportunity to understand and be with the normal child and get acquainted with the fact that he has emotions of hostility and anger which he must learn to in-

Volunteer Participation in Community Health in Hawaii*

RAYMOND GEORGE NEBELUNG, DR.P.H.

*Executive Director, Public Health Committee
Chamber of Commerce, Honolulu, T. H.*

ANY health problem, no matter how complicated, can be handled effectively if it is broken down into its different aspects. These individual problems can then be dealt with independently; but an integrated overall plan is essential so that the various programs will strengthen each other and eventually lead to unified community action.

For the past two and one-half years we have been building an organization for this purpose in Honolulu. The program is still in its developmental stages but sufficient progress has been made to indicate that lay persons not only are interested but are eager to assume responsibility in health activities under professional direction. Volunteer workers are being utilized with good results. Our first step was to study and to evaluate existing health programs in terms of community needs. Then it was possible to work out policies and procedures on the basis of available data and the coöperative concern of community groups. The second step was to make the facts known and to keep them before the public through a sustained and constructive educational program that will bring about action in these matters. Both lay and professional groups have participated in all phases of the work. We are endeavoring to make community needs better understood; and to secure

services more broadly conceived, adequately financed and administered.

The most difficult part of the demonstration has been the educational phase because it requires a sustained effort in which both lay and professional persons must participate if public interest is to be maintained. Furthermore, it necessitates a high quality of leadership, individual initiative, and a lot of time on the part of both groups.

The instrument which we are using to advantage to achieve our objective is a health council. Current membership in this activity includes 56 organizations, of which 35 per cent are civic organizations, 25 per cent professional groups, 22 per cent voluntary agencies, and 18 per cent official health agencies. The governing board consists of the council chairman, vice chairman, secretary, the chairmen of the three standing committees, two members elected by the council, and the two delegates representing the Public Health Committee of the Chamber of Commerce of Honolulu. Council expenditures are borne by the latter organization as a part of its contribution in the interests of promoting better community health. The professional personnel of the Public Health Committee function as the technical staff for the council. Planning and co-ordination are brought about through the program, education, and legislative committees, headed by lay and professional volunteers. Committee members are selected by each chairman, giv-

* Presented before the Public Health Education Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 10, 1947.

The other phase of the project consisted of the preparation of a health exhibit which features fourteen photo murals mounted on a mechanical page turner. Hawaiian scenes form the background. The exhibit was prepared for display in the Scientific Exhibit Section of the 75th annual meeting of the American Public Health Association.

In the development of our program we have been motivated by the desire to obtain greater interest and more participation in community health work on the part of the general public. Satisfactory progress can be achieved only through dynamic leadership and the support and utilization of professional and lay volunteer personnel.

Cutter Recalls All Dextrose Solutions

Dr. R. K. Cutter, President of Cutter Laboratories, on May 6 telegraphed the following information for readers of the *Journal*:

"Contamination has been found in another and entirely different glucose solution, dextrose 10 per cent in Ringers. The company is coöperating with the Food and Drug Administration, and is requesting the assistance of health departments throughout the country, in immediately recalling from hospitals Cutter's entire line of dextrose and other solutions for mass intravenous injection. Company officials believe that discovery of this new contamination makes questionable the use of any product pro-

duced in their intravenous solutions department until this entire contamination difficulty is solved. The other products produced in this department are concentrated dextrose, distilled water, sodium citrate, normal saline solutions in 50 and 100 cc. bottles, as well as all flasks supplied by Cutter for community blood and plasma banks.

"The reason for this contamination is still unknown, and until they have the positive answer, Cutter feel that this is the only step that can be taken in the interest of public safety. In the meantime, arrangements are being made to supply hospitals with solutions of other manufacturers."

further observation and control are more certain. The school group, from 7 to 14 years of age inclusive, comprises 2,145,000 individuals, equally divided between the two sexes. As a group for investigation, it represents 21.4 per cent of the total Colombian population. Its distribution among the 14 departments of the Republic fluctuates between 22.1 per cent and 19.6 per cent according to information compiled by the Contraloría General de la República. From January, 1945, until July 31, 1947, there were examined a total of 140,163 school children throughout the 14 departments. The number of those children affected by simple goiter was 79,505 or an incidence of 56.5 per cent.*

The criteria for the diagnosis and classification of simple goiter in reference to form, size, and consistency, were established in a unified fashion from the initiation of the project. All examination of persons and the registration of the data were in charge of a special medical commission created for that purpose.

2. With the data obtained from the survey there was made a national map of the distribution of simple goiter by departments.

Mere observation of this map permits full appreciation of the high incidence of simple goiter (from 37 to 81 per cent) in the departments in the interior of the country. This is in marked contrast to the low incidence (less than 10 per cent) in the coastal areas along the Atlantic and Pacific.

The great difference between the two percentages is highly significant. It is apparently explained by the greater consumption of iodine by the inhabitants of the coastal regions. That iodine is obtained from the atmosphere itself and

from foods of marine origin (including sea salt).

3. Based on the available historical data and the partial results of the survey on the incidence and distribution of simple goiter in Colombia, two very important premises may be established:

First, in some localities, formerly similarly affected by goiter, this endemia has been gradually disappearing, apparently as a result of better nutrition and the hygienic water supply for drinking purposes established for its inhabitants.

Second, for the last thirty years the endemia of simple goiter has been invading areas formerly untouched by it, such as—the Departments of Caldas and Antioquia. This has been due to the fact that the regional consumption of salt from iodized sources, has gradually been almost completely replaced by the use of salt from the large mines near Bogotá. The salt from these mines is extremely low in iodine content but it is cheaper, since it is exploited on a large scale and it is easily distributed to various centers of consumption due to the development of means of transportation throughout the country.

4. a. Simple goiter and drinking water—

The popular belief predominates in Colombia that the drinking of "hard water" is the cause of simple goiter.

In conjunction with the census of simple goiter, an attempt has been made to establish an association or correlation between these two phenomena; 209 water samples having been taken from 293 places included in the census.

The conclusions have been the following:

First, in places with "soft water" (up to 75 p.p.m.) and "semi-hard water" (up to 150 p.p.m.) the incidence of simple goiter fluctuates between 7 and 90 per cent.

Second, in localities where there is "hard water" or "very hard water" (more than 150 p.p.m.) the incidence

* These data include all the sizes of goiter (+ to +++++). If there are excluded the cases of (+), considered as transitory or "physiological," the incidence is reduced from 56.5 per cent to 35 per cent.

of simple goiter is always high, i.e., more than 45 per cent.

b. Simple goiter and climate—

There exists no correlation between these two phenomena. Simple goiter is distributed in an equal manner between the various climatic areas. (Cold climate—more than 6,000 feet above the sea level in altitude; temperate—between 2,500 and 6,000 feet above the sea level; and hot climate—less than 2,500 feet.) There is, however, a higher frequency in climates where anquilostomiasis or hookworm predominates.

c. Simple goiter and cretinism—

In some regions of Colombia, where simple goiter endemia is of long duration, there may be noted defects in physical development (stature shorter than that of the average) and abnormalities in mental development on a scale varying from the mentally retarded and "slow" to the cretin and the idiot.

5. Prophylactic Measures—The historical antecedents of the simple goiter endemia in Colombia, the determining factors in its invasion and extension into some regions, the significant difference between the incidence of the endemia in the interior and the coastal regions of the country—all lead one to consider the relative scarcity of iodine as the principal etiological factor in the incidence of simple goiter in Colombia. This, of course, does not exclude the effects of other contributory elements.

On the basis of this etiological premise, the Department of Nutrition proceeded to search for an adequate manner of furnishing a supplementary source of iodine—as a prophylactic measure against simple goiter. It was proposed to incorporate this supplementary iodine into ordinary kitchen salt for use by the inhabitants of the interior of the country.

As the first step in this procedure, the average daily consumption of salt per

capita was determined. This is 15 gm. Then, the optimum iodine content of the salt was calculated to be 4 mg. per 100 gm.

Samples of the salt, with a natural iodine content, from the old mines were analyzed but though the original iodine content was acceptable, the production capacity for the desired consumption was inadequate.

Samples were also analyzed for iodine content of the marine salt and the salt from the mines near Bogotá. The iodine content was almost equal.

It was then planned to iodize and stabilize the marine salt, but the project was abandoned because of technical difficulties and administrative problems (collapse of the production of the mines, social problems with labor, cost of transportation, etc.).

6. Artificial iodization of salt—

It was finally decided to iodize artificially and stabilize the salt from the mines of Zipaquirá, Nemocón and Sesquilé, situated almost in the geographical center of Colombia.

The manufacture of salt in powdered form from these mines follows a process which consists essentially of the following: (1) extract the mineral from the mines, (2) dissolve it in sweet water, (3) let it be purified and concentrated in a solution called "salmuera" up to 28-30 per cent salt, (4) evaporate the salt solution in containers of iron at a temperature of 98-100° C., (5) separate into precipitated salt, (6) permit to dry and transport for wholesale distribution in burlap sacks (retail sales per pound in paper sacks or wrapped in vegetable leaves).

At the present time there is manufactured and consumed a quantity of 100,000 tons of land salt per annum, destined for human use and for that of animals.

The method of artificial iodization tried out and adopted consists in adding to the salt solution—before it is placed in the iron caldrons—the mixture of

iodine and chemical stabilizing substances. This method does not require special machinery, obtains a uniform distribution of iodine throughout the salt, and results in being both simple in procedure and economic in cost. The stability of the iodine in the iodized salt is checked by samples submitted to various temperature and humidity conditions in cold, temperate, and hot climates, and in containers of ordinary paper. The loss of iodine content fluctuates between 3 and 4.5 per cent of the original content, after from 8 to 14 months subsequent to the time of the manufacture of the salt.

There is already information to determine the most adequate composition of the iodine mixture necessary in order to obtain a stabilized artificially iodized salt which is both cheap and easy to prepare.

7. Financing—Once the experimental studies were terminated, the Nutrition Division of the S.C.I.S.P. submitted for the approval of the Minister of Health in June, 1947, a project designed for two specific purposes: first, the artificial iodization of the salt from all the mines, and second, simultaneously with the first objective, to provide for the creation and the maintenance of the National Nutrition Institute for the study of the food and nutritional problems in Colombia.

The project for the financing of the proposed program consists essentially in the following phases: (1) the increase by 1 cent (Colombian) of the selling price of iodized salt over that of the common salt (this increase produces approximately Ps. 2,000,000 each year), (2) from this annual income, to pay the iodization expenses and to assign the total funds in excess of that cost for the creation and maintenance of the aforementioned Institute.

The original project of the Division of Nutrition was approved by the Minister of Hygiene and presented by him

to the Consejo de Ministros (meeting of national cabinet members) which entity also gave its approval. At the present time the proposal is under discussion by the National Congress, which body must pass it as a Law of the Republic. In the event that the proposal becomes law, the Division of Nutrition will have achieved two fundamental objectives: the prevention of simple goiter and the financing of a vast plan for the benefit of Colombian Nutrition. All this is being accomplished without burdening the budget of the Minister of Health nor that of the Servicio Cooperativo Interamericano de Salud Pública and at the cost of only 12 cents (Colombian) per annum to each inhabitant of the interior areas of Colombia. This accomplishment will be doubtless one of the most effective contributions of the Servicio Cooperativo Interamericano de Salud Pública in Colombia.

NOTE: The work and projects on simple goiter have had the approval and the unqualified support of the Directors of the S.C.I.S.P. in Colombia and of the Ministers of Hygiene throughout the entire period of the campaign. The Banco de la República—the entity in charge of the income proceeding from the exploitation of the salt mines throughout Colombia, has given every facility for the experiments on artificial iodization of salt on an industrial scale. In these studies and experiments, Dr. D. M. Hegsted of the Nutrition Division of the Schools of Medicine and Public Health of Harvard University—Asesor Técnico of Nutrition under contract to the Ministry of Health, Dr. Jacinto Caycedo—Medical Director of the Simple Goiter Commission in Colombia, and Dr. Alfonso Parra—Chemist of the Nutrition Laboratory—have given valuable assistance.

SUMMARY

1. Simple goiter is an ancient and serious problem of pathology in Colombia.
2. Surveys carried out on 140,000 school children, from 7 to 14 years of age inclusive, show an incidence of 56.5 per cent, including all sizes of goiter (+ to +++++). If there are excluded those cases of (+) value, the incidence is reduced to 35 per cent.
3. The history of simple goiter in Colombia, the process of its propagation to certain re-

gions of the country previously immune, and the marked difference of the incidence of the endemia between the school children of the interior (more than 50 per cent) and those of the maritime or coastal regions (less than 10 per cent) lead to the conclusion that the relative scarcity of iodine is the principal etiological factor of simple goiter, without excluding other factors such as anquilostomiasis (hookworm) and the quality of the drinking water.

4. In those regions of the Country where simple goiter is of long duration as an endemia (more than 100 years) there are observed cases, in children and in adults, with chronic defects in physical development (stat-ure shorter than that of the average) and with evidences of mental retardment (mentally "dull" and cretins).

5. As a preventive measure against simple goiter in behalf of the entire population of Colombia there is proposed the artificial iodization of the salt from the land mines, in the proportion of 4 mg. of iodine per each 100 gm.

of salt. The average daily intake of salt per capita is 15 gm.

6. In order to finance the artificial iodization of the salt there is proposed an increase of one or two cents in the selling price per pound of salt. This increase will produce an annual fund of from 2 to 4 million pesos (approximately 1 to 2 million U. S. dollars).

7. From this annual income will be paid the iodization expenses and the remainder of the money will be destined to the creation and maintenance of the Instituto Nacional de Nutrición (National Nutrition Institute).

8. The project for the artificial iodization of salt and the creation and maintenance of the National Nutrition Institute is at the present time under discussion by the National Congress of Colombia and has already received the approval of the Special Commission of the Senate.

9. The approval and realization of this project will be one of the most efficacious contributions of the Servicio Cooperativo Interamericano de Salud Pública in the benefit of the Colombian people.

Budgets and Expenditures for Dentistry from Maternal and Child Health Funds*

A study of the dental programs of selected states, 1938-1946

JOHN T. FULTON, D.D.S.

Dental Services Adviser, U. S. Children's Bureau, Washington, D. C.

CONTINUOUS planning of programs is one of the essential elements of public administration. To plan effectively it is essential to review and appraise the nature and extent of past activities in a particular field. One of the continuing jobs of an administrator, therefore, is to "pull out the files" and to inform himself of the experience of others.

For the most part the development of dental programs in state health departments followed the passage of the Social Security Act in 1935 when grants in aid became available to the states to extend and improve health services to mothers and children. The Children's Bureau, in administering Title V, Part I, of the Social Security Act, makes grants-in-aid to states on the basis of an annual plan and budget which is submitted by each state for maternal and child health services. The Children's Bureau further requires that each state at the end of the fiscal year submit for audit a report of the expenditure of these funds.

An examination of these records for dental items helps us in appraising what has developed, and should establish

bench marks for the continued planning of public dental programs.

Such a study is now under way in the Children's Bureau, and this paper is in the nature of a preliminary report, covering the budgets and expenditures of eight selected states for a period of 9 fiscal years from 1938 through 1946. The material presented is limited to the items concerning dentistry which appeared in the budgets and audited expenditures of the states. Only those items were recorded that could be clearly identified as dental expenditures. Lump sum reporting of supplies, equipment, or educational materials may have included items for the dental programs, but it was not possible to extract such amounts. It should be pointed out also that the amounts reported to the Children's Bureau by the states cover only federal funds and the money used by the states for matching these funds. The reported amounts, therefore, do not necessarily represent the entire sum spent by the various states for dental services. It should be emphasized that findings in the study are preliminary and subject to review in the light of future analysis.

For purposes of administration, the Children's Bureau has established 8 regional offices. One state from each of these regional jurisdictions was selected for this preliminary report on the basis

* Presented before the Dental Health Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 3, 1947.

that the dental program of the state health department had been maintained continuously for the 9 years under study. No other criteria were applied in the selection of the states. Thus it cannot be assumed that these states constitute a representative example from a national or regional point of view. These findings are, however, descriptive of continuing programs in the states concerned.

While it is beyond the scope of this paper to discuss administrative or program content, it is interesting that 7 of the 8 states have always employed full-time dental directors. Four of the 7 have served for the entire 9 years. The 1 part-time director has also headed up his state's dental program since its inception. In 2 cases, the directorship has changed and in 1 of the states the dental program operated for 2 years without a dentist in charge.

It is interesting further that by 1942 all of these states had brought their dental personnel under state merit system classification plans.

Almost one and three-fourths million dollars were earmarked for dental programs by these state health departments, three-fourths of which were subsequently expended. The amounts budgeted range from \$68,000 to \$427,000 per state, with half the states budgeting in the neighborhood of \$150,000. The proportion of these budgets which was actually spent ranges from 55 to 93 per cent with half of the states well above 80 per cent and 1 other state closely approaching that figure.

The related weight of dental expenditures to the total sums spent for maternal and child health services varied from over 11 per cent in 1939 to 6.5 per cent in 1945, rising again to 10 per cent in 1946. In this computation the expenditures for this group of 8 states are combined for each of the study years. The percentage remains fairly constant for the first 3 years and then tends to decrease through 1945, but rises sharply

back to its former level in 1946. Trend for individual states was varied. In 1 of the states the trend was consistently downward through the entire 9 year period. In another of the states no trend was evident, while in the other 6 states there was a great amount of fluctuation during the 1940's. As the United States was engaged in war during 4 of these years, it is possible that these fluctuations were caused by man power shortages and scarcity of materials and supplies. At this point, however, such considerations are matters of conjecture. Detailed study of this trend was not possible with the present material and will be reserved for a later, more detailed analysis.

Concerning expenditures for dentistry in 1938 and 1946, the first and last years studied and also the proportion of the total maternal and child health expenditures used for dentistry in those years, our study shows that 6 of the 8 states increased the amount of their dental expenditures substantially. In the states where there was an increase in the amount of dental expenditures in 1946 as compared with 1938, the increase ranged from \$3,510 for state No. 2 to \$40,390 in state No. 1. In the case of state No. 7 the funds decreased by approximately \$5,000, and in state No. 8 the decrease amounted to nearly \$25,000.

A breakdown of the dental expenditures over the 9 year period according to object (salaries, travel, supplies, fees, training, and health education) shows that the bulk of the total dental expenditures was involved in salary items in all the states, with the exception of state No. 4, the overall proportion of the total for this item being 71 per cent. Items for travel demanded the next largest outlay (11.4), with fees (9.8), supplies (5.9), training (1.1), and health education (0.7 per cent).

The salary items cover a variety of personnel, in the main full-time em-

ployees. Part-time dentists on a salary basis were listed by 4 of the states, one of them as previously stated being a director of his state's dental program. A summary of the latest classification plans of the states illustrates the types of personnel which made up the bulk of these salary items. Although the titles vary somewhat in the different states, in general, the personnel fall into 6 classes:

- Director of Dental Health
- Senior Public Health Dentist
- Junior Public Health Dentist
- Senior Dental Hygienist
- Junior Dental Hygienist
- Clerks and Stenographers

Travel items were listed for all types of professional personnel and included out-of-state trips.

Supplies covered a wide range of equipment such as dental instruments, chairs, engines, cabinets, laboratory equipment and instruments, dental supplies, automobile and trailers, as well as general office materials.

As pointed out earlier, sometimes supplies were lumped together as one item in the reports of expenditures. It is possible, therefore, that the total given here may not represent the entire expenditures for such materials.

Fees included payments to practising dentists for correctional dentistry in clinics or private offices, and for inspection, diagnostic and preventive services.

It is interesting to note that state No. 4 reported a much higher total of expenditures for these fee items than for salaries. Expenditures for fees in this state made up 56 per cent of the

total dental expenditures. Fees represented 13 per cent and 9 per cent of total dental expenditures in 2 other states. In the remaining states the payment of fees to practising dentists for clinical service constituted a very small proportion of the dental expenditures in these state programs.

Training embraced both graduate education for full-time personnel and refresher courses for practising dentists. The former included stipends and tuition. The latter type of training included both lecturers and clinicians who visited local groups of dentists, and the sending of local dentists to dental schools for short refresher courses.

Health education items were expended for publications, printing of leaflets, exhibits, visual education materials and equipment, and for the organization and conduct of institutes for teachers and lay people. Here too, these materials may have been grouped in general supply item reports which would not show.

Material has been presented for 8 selected states on the budgets and expenditures of dental programs in state health departments. Recognizing the limitations created by the small number of the states included, and the incompleteness of some of the items, the study nevertheless illustrates a useful approach to the problem of studying growth and change in the size of dental programs. The procedure outlined also delineates the relative importance of different types of expenditures under dental programs.

condition of adults who had acquired fluorosis of the teeth during childhood.

The data in the tables which follow were collected in the City of Colorado Springs, Colo., during the past three years, and are intended in part to supply this important information.

The observations summarized in Table 1 are not from a selected group of people but were made from persons as they presented themselves from day to day. All are natives of continuous residence with continuous use of the city water supply which has fairly consistently maintained a level of 2.6 p.p.m. of fluoride, since the first determinations were made several years ago.

The purpose of this paper is to show the actual condition that exists in this community after about 70 years of use of this water supply.

This is set forth in Table 1.

In addition to showing the average decay experience rate (untreated and filled teeth) in the different age groups, the table shows that this rate for the entire group is 2.98 per person. It will be noted also that slightly more than one-third (35 per cent) of these persons had experienced no decay whatever. The average age of the group is about 25 years. The age groups 10-14 and 15-19 show the remarkably low decay experience rates of 1.09 and 1.51 respectively, the decayed areas being practically limited to the fissures and pits in the molar teeth. The low incidence of caries experience in fluorosed upper anterior teeth cited by Dean² is confirmed by the present study, in which it was found that of the 1,192 teeth showing caries experience only 45 were in the incisor and cuspid group.

From the above it is apparent that decay of the proximal surfaces of fluorosed incisors and cuspids is almost negligible. The "standardized rate" of tooth loss as it appears in Table 1, has been accepted as a measure of the prevailing tooth loss from all causes. Table

1 shows a slowly increasing average decay experience rate as the ages advance, for which no explanation is suggested, but it is important to note that at the highest average rate shown (the 40-44 year group) the rate is considerably less than the *tooth loss* rate in the "standardized rate" table. The significance of these rates of decay experience and tooth loss can be best comprehended by comparison with a non-fluoride community such as the City of Madison, Wis. * This comparison is shown in Table 2 which was compiled by Dr. John G. Frisch of Madison.

The observations summarized in Table 3 were made in Colorado Springs and Montrose, Colo.,³ the persons examined having acquired fluorosis of the teeth in other widely scattered communities and districts through the use of domestic waters containing fluoride. These districts were generally in the middle and southwestern states and in other parts of Colorado.

Tables 1 and 3 bear a close similarity. Perhaps the most important comment pertaining to Table 3 is that the inhibitory effect of fluorine, once acquired, is permanent and is not diminished by later migrations. It is not necessary that the use of fluorinated water be continued. It is indicated also that the average rates of decay experience and tooth loss shown in Colorado Springs are by no means peculiar to that city alone. Examinations made in other communities using fluorinated water supplies, in various parts of the country, have shown that the average decay rate remains consistently at about 3 and that about one-third of the native persons are caries-free.⁴

It seems, therefore, that a pattern has been established which indicates what may be expected in any community that uses a fluorinated water supply. Bearing

* Madison is one of the cities that have recently undertaken a project for fluorination of its water supply.

TABLE 3
(Observed in Colorado Springs and Montrose, Colo.)
Summary of observations on 218 migratory persons having dental fluorosis

Age Groups	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45 and above
Number of persons examined	51	80	32	20	13	8	7	7
Number of persons showing no dental caries experience	25	35	8	5	3	1	0	1
Number of teeth showing dental caries or fillings	76	155	93	66	43	28	36	33
Number of teeth lost because of dental caries *	8	7	3	1	0	..	..	..
Number of teeth lost (all causes)	8	7	3	8	0	4	4	4
Number of decayed or filled teeth per person	1.49	1.93	2.90	3.30	3.30	3.50	5.14	4.71

* In the older groups it is not possible to determine accurately whether teeth were lost by caries or by other causes.

Total number of persons	218	Average decayed and filled teeth per person	2.43
Number of persons showing no decay experience	78	Total number of teeth lost (all causes)	38
Per cent of persons showing no decay experience	35.7	Total number of incisor and cuspid teeth showing decay experience	16
Total number of teeth showing decay experience	530		

Comparison of Tooth Loss in this Migratory Group with "Standardized Rate"

"Standardized Rate" * tooth loss per person	..	1.2	2.3	3.8	5.3	7.9	10.2	..
Tooth loss (all causes) per person in this migratory group	0.15	0.08	0.09	0.40	0.0	0.5	0.5	0.5

* From, Klein, H. *J.A.D.A.* 30:80-96 (Jan.), 1943 (table 4); data represent 45,500 white U. S. Adults, all socio-economic groups.

on the relation between the degree of fluorosis of the teeth and the caries experience rate, a significant observation made on the Colorado Springs group was that in 137 of the first 300 persons examined the degree of fluorosis was classified as "mild." Their average caries experience rate was 2.46 and 55 (40 per cent) of this group were caries-free.

It has not been maintained that any benefit will accrue to teeth formed prior to the use of fluorinated water, and yet it cannot be said that this will not be the case. Reliable evidence bearing upon this point would be difficult to obtain, but there is a feeling that such teeth may experience some benefit.

Primarily this is a long-range influence directed toward the reduction of tooth decay in children and at the same time endowing the teeth with a resistance against decay that extends, as the tables show, well into adult life.

The chief research project in dentistry has been and still is to determine the

cause of decay and to devise means for its elimination. No caries reduction program encountered thus far has succeeded in delivering any considerable segment of a mass population into adult life with an average caries experience rate of about 3 and a complete absence of decay in approximately one-third of a native population, as has the use of a domestic water supply in which fluorine is a natural constituent. Some twenty-five communities in this country have accepted the evidence as sufficiently conclusive to warrant the addition of fluoride in a proper proportion to their domestic water supplies as a means of reducing the decay rate. If in the future some method of further reducing the decay rate should be available, it need not necessarily be in conflict with the action exerted by fluorine.

REFERENCES

1. Editorial, *J. Am. Dent. A.* 34, 12:831 (June 15), 1947.
2. Dean, H. T. *Epidemiological Studies in the*

United States. Amer. Assoc. Adv. Science II. *Dental Caries and Fluorine*, 1946.

Dean, H. T., et al. *Pub. Health Rep.*, 54, 21:862-888 (May 26), 1939.

Dean, H. T., et al. Domestic Water and Dental Caries. *V. Pub. Health Rep.* 57, 32:1155-1179 (Aug. 7), 1942.

Dean, H. T., et al. *Pub. Health Rep.* 56, 15:761-792 (Apr. 11), 1941.

3. Downs, R. A., and McKay, Frederick S. A Reverse Approach to the Fluorine-Dental Caries Hypothesis. *A.J.P.H.*, 36, 11:1307-1308 (Nov.), 1946.

4. Dean, H. T. Fluorine and Dental Caries. *Am. J. Orth. & Oral Surg.*, 33, 2:49-67 (Feb.), 1947.

Dean, H. T. Fluorine, Mottled Enamel and Dental Caries. *J. Pediat.*, 16, 6:782-794 (June), 1940.

Dean, H. T. Domestic Water and Dental Caries.

V. Pub. Health Rep., 57, 32:1155-1179 (Aug. 7), 1942.

Dean, H. T. Domestic Water and Dental Caries. *II. Pub. Health Rep.*, 56, 15:761-792 (Apr. 11), 1941.

Hoffman, O. E. Examinations in Certain Counties in Iowa, 1947. Unpublished.

Frisch, J. G., et al. Summary of Comparative Dental Survey Union Grove—Madison, Wis. Private Correspondence, 1946.

Downs, R. A., McKay, Frederick S., and Frisch, J. G. Survey of Public School Children in Salda, Colo., 1947. Unpublished.

NOTE: Grateful acknowledgement is made to Mark F. Bryant, D.D.S., of Colorado Springs for his assistance in collecting data.

Sixth Annual Meeting United States-Mexico Border Public Health Association

The Sixth Annual Meeting of the United States-Mexico Border Public Health Association was held in Laredo, Tex., and Nuevo Laredo, Mexico, March 20-22. Nearly 300 persons were in attendance with almost as many from the South of the Border as from the North.

Sessions were held on international coöperation in health, on Border sanitation, on tuberculosis and its control, with special reference to BCG, on meningitis and other communicable diseases, and on the problems confronting the mother and child. Excellent exhibits were shown from the Section on Public Health Education of the Ministry of Health and Welfare of Mexico. Coöperating agencies beside the Ministry of Health were the U. S. Public Health Service, the Ministry of Hydraulics in Mexico, the Ministry of Agriculture in Mexico, the Institute of

Inter-American Affairs, the U. S. Children's Bureau, the International Boundary and Water Commission, the Rockefeller Foundation, the University of Vera Cruz, the Texas Tuberculosis Association, the Crippled Children's Foundation, and the Pan American Sanitary Bureau.

It was decided to hold the meeting in 1949 at Nogales, Ariz., and Nogales Sonora, Mexico.

The new officers for the Border Public Health Association were elected as follows.

President: Dr. Victor Ocampo Alonzo, Hermosillo, Sonora

President-Elect: Dr. George W. Cox, Austin, Tex.

Vice-Presidents: Dr. Jose Angulo Araico, Mexicali, Baja, Calif.; Dr. J. P. Ward, Phoenix, Ariz.

Secretary: Dr. M. F. Haralson, El Paso, Tex.
Pro-Secretary: Dr. Gustavo A. Rovirosa, El Paso, Tex.

Role of the State Health Department in the School Dental Program*

J. M. WISAN, D.D.S., M.S.P.H., F.A.P.H.A.

Dental Director, State Department of Health, Trenton, N. J.†

STATE departments of health are accepting six responsibilities¹ in the conduct of school dental programs. Briefly, these responsibilities are:

1. Studying and planning for the solution of dental health problems
2. Coördinating and advising local agencies
3. Subsidizing local programs
4. Establishing standards for dental programs
5. Disseminating authentic dental health information
6. Coöperating with other state agencies

While the listed functions indicate that state departments of health are exhibiting characteristics of leadership, the actual performance in conducting school dental programs does and should rest with local personnel.² The state department of health within this concept functions as an interagency. How indispensable local participation is for meeting dental health needs will be discussed under each of the listed functions.

1. *Studying and planning for the solution of dental health problems*—A local board of education or a local board of health conducts surveys to determine the prevalence of dental defects among school children. It is desirable that local personnel be aware of the dental needs of their children. However, the value of the findings will be enhanced if local

authorities are able to compare conditions found in their community with conditions found in other situations.³ By utilizing comparable data obtained under similar or nearly similar conditions, the effectiveness of program technics can be evaluated. Not only can results of programs be reliably measured, but also costs can be accurately estimated by uniform reports.⁴

State departments of health should designate inspection charts and recommend techniques for dental surveys, so that uniform procedures may be utilized throughout the state. After dental conditions found in local areas are carefully analyzed, the state department will be able to make recommendations for dental programs, not by theoretical armchair thinking but by accurate estimates.

A number of state departments of health are conducting demonstration and research projects. Among the phases being studied are the fluorination of communal water supplies, the topical application of 2 per cent sodium fluoride, incremental dental care procedures for children, dental care time estimates, and evaluation of health education devices.

2. *Coördinating and advising local agencies*—When local dental programs are supported by health, welfare, and educational agencies, maximum results may be expected; but competent leadership is required to develop such coördination. When requested to do so, a state dental administrator usually finds it less difficult to accomplish rapport of local personnel than does a home-town

* Presented before a Joint Session of the American School Health Association and the Dental Health Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 9, 1947.

† Present address: Director, Division of Dental Health Education, American Dental Association, Chicago, Ill.

official. Moreover, because of his objective viewpoint, a state administrator is better able to recommend desirable changes or improvements.

In New Jersey the dental health division of the State Department of Health has found it profitable to help organize dental health committees representing local schools, health departments, nurses, dental hygienists, parents and teachers, and other groups interested in child health. In some instances, these dental committees operate solely to promote the dental program; in other places, they operate as subcommittees of health councils or committees.⁶

3. *Subsidizing local programs*—Many rural and suburban communities have neither facilities nor funds to maintain effective dental programs. Particularly is this true of dental treatment programs. State departments, being the agents for distributing federal and state health funds, are able to subsidize dental care programs in the sparsely populated areas.

However, contributing money does not warrant the establishment of authoritarian policies by a state department. Such details as designating children entitled to treatment, scheduling treatment hours, appointing dentists, might well be the responsibilities of local agencies. Also, local personnel might profitably be permitted to decide whether clinics, private offices, or mobile clinics are to be utilized. Moreover, the local dental society should be invited to recommend policies for the program.

Subsidies provided by state departments of health may take several forms. The state may pay all or part of the salaries of dentists; dental equipment and supplies may be provided. In rural areas, many state departments are providing trailers, automobile clinics, station wagons, or portable dental equipment.

Some communities will find it necessary to have the state dental adminis-

trator help in supervising dentists participating in the local dental program. When requested, and only when requested, such supervision should be provided because competent professional supervision of a dental care program will improve standards of treatment.

4. *Establishing standards for dental programs*—Under the heading "Subsidizing Local Programs," the need of assigning responsibilities to local agencies was stressed. However, local school administrators should seek the advice of state dental directors before instituting dental programs. Most state dental directors are following the recommendations of the U. S. Public Health Service, the Children's Bureau, the Council on Dental Health of the American Dental Association, the American Association of Public Health Dentists, and the National Committee on School Health Policies. The following are a few of the basic policies recommended:

a. Simplified and uniform examination procedures should be used.⁴

b. Record forms approved by the American Association of Public Health Dentists should be utilized.⁷

c. Dental treatment programs should begin with younger children with subsequent incremental care provided.⁸

d. Topical applications of 2 per cent sodium fluoride should be provided four times a year for children.⁹

e. All necessary fillings and extractions should be provided for children included in the community treatment programs.¹⁰

f. Authentic dental health information should be used as content material in the health education programs.

g. Desirable motivating devices should be used in the health education programs.

If the state department of health is to fulfil this role of establishing standards for dental programs, recommendations should be presented in printed or mimeographed leaflets.¹¹ To obtain uniform data, the state department should print forms and charts in large numbers so that they can be either distributed free to local agencies or sold at cost.

5. *Disseminating authentic dental health information*—Physical education personnel and classroom teachers require guidance in selecting dental health education material. The dental bureau of the state department of health should be prepared to offer this guidance by means of field visits or by printed or mimeographed material. Informative leaflets, source units, and manuals, have been printed by state departments of health. Also, nearly all state departments purchase material published by the American Dental Association for distribution among local personnel.

State departments of health should organize state and local committees to prepare dental health education material.^{12, 13} This collaboration is highly recommended because it results in broader concepts and avoids the disadvantages of specialized thinking. State departments of education, state departments of health, state dental societies, state departments of welfare, state agricultural colleges, state teachers colleges, dental schools, state nursing organizations, state organizations for physical education, may collaborate in preparing authentic dental health education material.

The distribution of visual aids, such as movies, slides, posters, models, and charts, has been found worth while, particularly if directions for their proper use accompany the material. Health educators have informed us that visual aids as well as printed materials are to be used only as tools; that the chief objective of health education is not mere information but desirable changes of dental health practices.

6. *Coöperating with other state agencies*—Equally as important as coördination of local agencies in the conduct of local dental programs is the collaboration of all state health, welfare, and educational agencies for dental objectives. In most states we find a number of state agencies, both official and non-

official, involved in local school health programs. Since their policies are usually set by their state administrators or state officers, it is imperative that the state dental bureau work closely with these state organizations. In the case of welfare agencies and such nonofficial groups as a state congress of parents and teachers, procedures in the local areas are directed by the state leaders. After the state dental director has cleared with the state office, it is much easier to function with the local representatives of these state groups.

SUMMARY

It has been shown that the state department of health may operate as an interagency encouraging effective dental health programs in local communities. If it accepts this responsibility by employing democratic techniques, maximum results will be obtained by providing expert guidance on the state level and encouraging active participation in the local communities.

REFERENCES

1. Mountin, J. W., and Flook, E. Distribution of Health Services in the Structures of State Government. *Pub. Health Rep.*, 57:1195-1274, 1943.
2. Gruebbel, A. O. Dental Services and Dental Personnel in State Health Departments. *J. Am. Dent. A.*, 32:2382.
3. Wisan, J. M. Appraising Dental Programs. *Pub. Health News*, 28:77-83 (June), 1946.
4. Wisan, J. M., Galagan, D. J., and Chilton, N. W. Studies in Dental Public Health Administration: I. Cost Analysis of the New Jersey Dental Treatment Program, 1944-1945. *J. Am. Dent. A.*, 34:322-29, 1947.
5. Nyswander, Dorothy B. New Jersey Citizens Know What They Want. *Dental Health*, 6:3 (Aug.), 1946.
6. Knutson, John W. Simplified Appraisal of Dental Health Programs. *Pub. Health Rep.*, 62:413-21 (Mar. 21), 1947.
7. American Association of Public Health Dentists: Report of Forms and Records Committee. *Am. A. Pub. Health Den. Bull.*, 3:32-33, 1943.
8. Council on Dental Health. *A Dental Care Plan for Low Income Groups*. American Dental Association, Chicago 11, Ill., Jan., 1945.
9. Report of the Council on Dental Therapeutics, American Dental Association. *J. Am. Dent. A.*, 34, 10:700 (May 15), 1947.
10. Council on Dental Health. *A Dental Care Plan for Low Income Groups*. American Dental Association, Chicago 11, Ill., 1945, p. 5.
11. Division of Dental Health, New Jersey State

Health Problems Resulting from Newer Technological Developments*

R. EMMET KELLY, M.D.

Medical Director, Monsanto Chemical Company, St. Louis, Mo.

THE health problems associated with the newer technology have been most prominent ever since the news of the atom bomb was released. Other wartime and post-war developments have contributed to our peacetime health hazards. Before discussing some of these, I wish to emphasize two related facts.

The first is that not all of the old problems of industrial medicine have been solved. On the contrary, new ones have arisen in the use of materials that well qualified observers had previously assumed were well controlled. For example, an innocuous substance such as talc, or at any rate one formerly believed to be innocuous, is now being investigated as a cause of pulmonary disability. Likewise, workers who have been employed in atmospheres well under the maximum allowable concentration of silica appear in some cases to be developing silicosis. Thus, as there is an advancing front of medical problems arising from the contact with newer products, a struggle in the rear areas with the old compounds continues.

The second point is that much of the newer information is still not generally available because of security restrictions. This includes important medical and industrial observations on microwaves, biological warfare, and radioactive materials.

The advance in industry has developed along several pathways. I will discuss only the five most prominent: radioactive materials, newer chemicals—both in substance and application—newer metals, microwaves, and ultrasonic waves.

Radioactive materials have been rightly considered by the lay and the professional public to be the key to the technology of the future. We are limiting ourselves in this discussion to health problems, and so the many actual and potential benefits which radioactive isotopes afford to medicine and industry will not be dwelt upon.

To evaluate the health hazards associated with this field, let us see what the exposure is, how widespread it will be, and what ill effects have been reported to date.

Radioactive materials emit a variety of radiations but they all exert effects that are roughly similar. The deleterious effect on human beings is produced by setting up destructive ionizing reactions in the tissue. The response varies with the type and amount of exposure. Damage to the germinal cells, the bone marrow, and the lymphatic tissue, and the occurrence of malignant changes comprise the conditions to be expected and guarded against. Experimentally, these results are easily demonstrated. Exposure to sufficient gamma radiation or the introduction of an alpha emitter in a sufficient quantity (and remember even a fantastically small amount may be a sufficient quantity) has produced sterility.

* Presented before the Industrial Hygiene Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 7, 1947.

Leukemia has resulted from bombardment from a neutron source, and a variety of malignancies have been produced by exposure to fission products. The work of Brues, Lisco, and Finkel,¹ as reported at the 1946 Gibson Island Research Conference on Cancer, is interesting in this connection. Using strontium (Sr^{90}), bone tumors and lymphoma were produced; yttrium 91 (Y^{91}) caused intestinal lesions with obstruction, and plutonium (Pu^{239}) caused splenic atrophy and gross liver damage. After the subcutaneous injection of one gamma of Pu^{239} localized fibrosarcomas appeared within one year, and localized ulcerative lesions and spontaneous amputations occurred.

Obviously, radioactive substances are inherently hazardous, but can they be handled and used safely? The answer is uncompromisingly yes. Before developing this statement, let us consider how widespread is their use.

On August 2, 1946, the first shipment of radioactive isotopes produced in the chain reacting pile at the Clinton Laboratories at Oak Ridge, Tenn., was made to the Barnard Free Skin and Cancer Hospital in St. Louis. During the following year over 1,000 shipments were made throughout the continental United States and the Territory of Hawaii. These shipments approximated 1,500,000 miles, and were sent to about 150 scientific and research institutions. These isotopes are being used in fundamental research, in medical research and treatment, in cancer study and treatment, in biological research, and in industrial research. Radioactive isotopes are used in oil well logging, in metallurgy, in aircraft engine development, and in structural analysis of heavy objects, such as castings and girders. In agriculture, tracer elements are used to study soil chemistry, plant hormones, photosynthesis, and the entomological aspect of farming.

To date no ill effects, apart from

accidental exposure, have been known as a result of the industrial use of radioactive isotopes. The reason for this is simple. It gives no grounds for complacency but rather an indication of what control measures must be exercised in the future. Effects from chronic radiation have not occurred because careful attention to details of protection has made the production, transportation, and use of these isotopes safe. For example, at Clinton Laboratories the budget of the health physics group amounts to more than \$250,000 annually. Their job is monitoring and supervising the radioactive material from the time it enters the pile until final disposal occurs. Shipping containers vary from less than a pound to a ton, averaging 150 lbs. In one case a 23 gm. unit (approximately the weight of a half dollar) containing radioactive cobalt (Co^{60}) was shipped in a container weighing 1,600 lbs. Other meticulous details are carried out, such as checking the radiation of truck wheels before trucks leave the laboratory to avoid radiation damage to the driver in the event of changing a tire.

It has been shown that radioactive materials can be manufactured, transported, and used safely. Maximum allowable concentrations have been established for all types of radiation. The methods of detection and the means of protection from radiation are so adequate and well tested that only the careless, the uninformed, or the foolhardy should suffer exposure. This is borne out by the record of the Manhattan District plants and the Atomic Energy Commission installations, as well as by the absence of injury to the 70,000 people taking part in the Bikini experiments.

For the future I see three health problems in this field. The first is accidents and their prevention. When working with fissionable products there can be spills, breaks, and other unfore-

Heal

...es that will produce
...cient to cause serious in-
th. This has occurred and,
, will continue, but the inci-
...as been and should be very
The second is unfamiliarity or in-
...cient knowledge of how to handle
...se materials. As the number of in-
...stitutions using these products swells
from 150 to the thousands, there will
be workers who will not abide by the
tolerances and safety rules laid down.
Then too, more detail work will be per-
formed by individuals lacking the
physicist's viewpoint.

The following example is typical of what might be expected: In a southern hospital a medical technician was carrying out analytical procedures with a radioactive substance (which parenthetically was not received from the Atomic Energy Commission) in a manner which was subjecting her to total radiation of many times tolerance. Her superior had failed to assure himself that everyone in the laboratory knew and practised the essentials of protection. As the actual work stems down farther and farther from the individual to whom the material is sent, this hazard grows. One need only couple the deformities and skin cancers of our early radiologists with the fact that present radiologists have a leukemia rate eight times that of males of a comparable age, to understand that progress in protection for scientific workers comes slowly. We then receive a view of what may be in store for workers in the future unless adequate supervision is maintained.

The third problem is that of chronic low level exposure. Most investigators and workers will be using negligible amounts of radioactivity in tracer experiments, and only simple precautions will be needed. However, when we calculate the sum total of all the radioactive isotopes used over the entire country, and as some (carbon 14 for

example) have a half life of over 5,000 years, the serious character of the disposal problem becomes evident. Simply diluting the material and letting it pass into our streams and rivers will not suffice. The radiation would continue and be built up with successive disposals. This problem is being investigated by everyone concerned, but the final answer has not been found.

The industrial chemical field is broadening too rapidly and too extensively for me to do more than select one company as an example of the methods of handling the problems associated with new products. In 1946 this company developed over 50 new products, and it is expected that in 1947 at least as many more will be produced.

The problem for a manufacturing concern is to make certain that no product is used in a manner in which systemic toxicity or skin irritation might result to its workers or consumers. It is impossible to obtain toxicological information on 50 or so compounds in a year, but those compounds that have an application where ingestion or skin contact is a factor must be examined.

For example, every new textile chemical, such as the melamine resins, is subjected to a laboratory study for systemic and skin reaction, culminating in patch testing on 200 human subjects. With plastics and plasticizers, animal experimentation, involving in some cases two year feeding tests, must be made before they can be marketed. Some substances, such as polystyrene and some plasticizers, are so innocuous that they can be used in any application, while the use of others must be more limited.

Certain new chemicals used as biocides, such as hexaethyl tetraphosphate or sodium fluoracetate, possess a high level of toxicity, and investigations must be carried out on their pharmacological activity to allow them to be used safely.

Simply stated, the problem for the

megacycles per second or higher. Their wave length varies from 30 cm. to 1 cm. These radiations had been generated prior to 1939 but their wartime use in radar vastly stimulated their use and development. These high frequency radiations are the basis of the electronic field and have wide industrial application. It is important that their effect on the workers be determined.

Microwaves have optical properties. They can be focused and may be selectively absorbed by various media such as water, oxygen, and, presumably, tissue. Up to now the only biological effect noted has been the production of heat similar to medical diathermy. There has been no ill effect discovered either clinically in workers or experimentally in animals.³⁻⁵ Studies have been carried out on animals exposed to continuous radiations 3 hours a day for 53 days. There were no gross or microscopic tissue changes, and no effects noted on growth or reproduction.

One group of 45 men who were exposed while operating radar for 2 months to 9 years, and another group of 124 men who were exposed for 2 months to 3 years, were examined. There were no abnormal clinical or laboratory findings and no effect on the blood forming or reproductive systems was found. It appears therefore to be fairly well established that the present high frequency radiations exert no ill effect on exposed workers. Future scientific developments in this field, however, must be accompanied by biological experimentation because we cannot assume that wave lengths of new frequencies will not cause damage.

Ultrasonic waves, sometimes called supersonic waves, are elastic vibrations in any solid, liquid, or gaseous medium of a frequency above the range of audible sound (16,000 cycles per second). Their application has varied from submarine detection to the soundless dog whistle, but while at present

it is limited, much future development may occur. Ultrasonic apparatus has been devised which transmits silent sound vibrations powerful enough to ignite paper, and has been considered for such applications as eliminating bacteria and molds, drying inks, and breaking up suspensions of solid particles.

Ultrasonic waves follow the physical laws of audible sound with the addition of some phenomena due to their high frequency. Biologically, they exert a very different effect. Since 1928 ultrasound has been shown to have destructive capabilities for biological tissue. The changes induced vary from simple heat generation to cell rupture. Sudden explosive liberation of dissolved gases in the target tissue has occurred. In one experiment, 37 animals were subjected for 5 to 15 minutes to focused ultrasound produced by expansion and contraction of a quartz crystal.⁶ Reversible and irreversible nerve tissue damage was produced, causing cortical blindness, paralysis, ataxia, or death.

In this experiment the sound traveled only a few millimeters to the animal but it is possible that future industrial exposure to ultrasonic waves may be dangerous. The indications are that the danger limits will turn out to be very high and probably will be encountered only under special conditions. There have been no studies on this phase of the problem in the literature as yet but obviously they are indicated.

The problems already discussed constitute an important but incomplete segment of our newer peacetime technology. I have not included the problems of the new developments in aviation, in industrial biology, in acceleration, or temperature changes. There has been no mention made of the new weapons of destruction—the radioactive cloud, the atom bomb and biological warfare, or the results associated with them. An attempt has been made to omit the purely theoretical advances

Proposed Report on the Educational Qualifications of Community Health Educators^{*†}

I. GENERAL SCOPE OF HEALTH EDUCATION

The health educator helps individuals and groups to recognize, understand, and share responsibility in solving personal, family, occupational, and community health problems. From facts secured with the aid of technical specialists, he interprets health needs, desirable health behavior, and the services of professional health agencies. He develops situations in which actual learning takes place on the basis of factual data provided by technical experts in medicine, dentistry, engineering, nursing, nutrition, and other sciences.

A successful total program of health education in a community requires more than publicity alone. It requires the development of satisfactory learning experiences within organized groups in school and community. It includes the training of other personnel, in the fields of health and of education, to make effective use of the educational opportunities presented by their contacts with individuals and groups. The health educator supplements, in an organized and continuous way, the work of other

educators and public health workers, but he replaces none of them.

The first program of study in health education ever offered in a school of public health was established in 1921. Since that time the emphasis upon health education and the demand for properly trained health educators has constantly increased. Health education is now an important field of service in the modern public health program, with recognized techniques and procedures.

The Committee on Planning in Health Education of the Public Health Education Section of this Association, in an unpublished report, estimates that about 460 health educators are now employed by health agencies, about 300 of whom have completed graduate courses in recognized schools of public health. A survey by the committee at the beginning of 1947 indicated that these health educators were distributed as follows:

Federal health organizations	14
State health departments	160
City and county health departments	126
Voluntary health agencies	160
Total	460

* The Committee on Professional Education of the American Public Health Association publishes this report before transmittal to the Governing Council, in order to permit the members and Fellows of the Association to review it and to offer criticisms and suggestions in the further consideration of the report.

This report, like all other statements of the committee on professional and technical qualifications in public health, is subject to periodic revision in order that it may be kept abreast of the best thought.

† This proposed report is a revision of the Report on the Educational Qualifications of Health Educators approved by the Governing Council on October 13, 1943 and is intended to supersede the earlier report.

No data are available concerning the number of health educators employed by schools and colleges.

The committee just mentioned has estimated the need for health educators on the basis of present population groups, health departments, school systems, and voluntary health agencies, to be as follows:

Local health departments	1,948
State health departments	219
Federal health agencies	40
Voluntary health agencies (all levels)	2,331
Local school systems (supervisors)	1,311 to 2,300
State school systems	48
Federal office of education	6
Teacher training institutions	310
	<hr/> 6,213

This estimate omits specialists like writers, editors, audio-visual specialists, research analysts, photographers, and librarians, of which health departments were estimated to need 335. It omits also the health teachers, employed or needed in the 29,000 public high schools and other secondary schools and the few hundred in colleges other than teacher training institutions.

These figures as well as the present acute shortage of adequately trained health educators give promise of employment and useful service for the young man or young woman entering the field. Increasing recognition is being given to the importance of the total, unified, community-wide program. Promotional progress may thus be anticipated by the beginning health educator both through the expansion of his program and through transfer to the service of larger population groups, as his ability is demonstrated.

The health educator in the health department works under the administrative leadership and direction of the health officer. The health educator working in the school system as a teacher, coördinator, supervisor, or consultant, is a member of the staff of the school and will, of course, meet whatever professional educational standards are set by the school for the type of work involved. The health educator in a voluntary health agency is employed as a staff member or as executive secretary. A health educator serving the total community may be jointly em-

ployed by health department, school system, and voluntary health agency, or by any combination of them. Joint planning is needed in any community-wide program.

The educational qualifications of the health educator, whether employed by a governmental or by a voluntary agency, should meet generally accepted standards. This report proposes *desirable areas of competence for the community health educator*, based upon the functions which he is expected to perform. The recommendations are made for the guidance both of officials responsible for the appointment of health educators and of individuals looking forward to careers in health education.

The professional standing of persons now performing creditable service as health educators has been established. Successful experience and demonstrated ability should be recognized at the present time as evidence of professional qualifications.

Educational qualifications for health educators working entirely within a school system although needed are not proposed in this report, as the preparation of such qualifications is not a function of this Association. Schools have their own planned and organized program of health education which should be a part of the total community program. Schools are broadening their concepts of their health education responsibilities to include a consideration of home and community, because they find that children cannot practise what they learn at school unless adult customs in the home permit it. At the same time health departments are recognizing that community programs of health education in which schools do not participate have lost much of their potential influence.

Other forces are moving us toward unified community programs. Other groups, like agricultural extension workers, are beginning to incorporate health education in their program.

Voluntary health agencies are finding that sporadic educational programs promoting a single goal may prove to be ill timed, competing, confusing, and ineffective. They are turning to community planning and coöperation.

The recognition that all health educators should concern themselves with the total community program has brought with it a realization of the breadth of training that all health educators need. Health authorities have realized that this public health worker is an educator by profession, that he works with schools and needs training in general education and school health education as well as in public health education.

School authorities have realized that health educators in school systems need instruction in public health and the work of public health agencies as well as in hygiene and the public school procedure. In suggesting the training of the community health educator the committee has in mind that in the absence of a school health educator, he will work with school administrators, supervisors, teachers, and curriculum committees, but that he will not ordinarily supervise classroom teaching. State laws, school authorities, and professional groups in education have set requirements and credentials for teachers and supervisors at various levels. Such standards are not a responsibility of this Association. The committee believes, however, that the health educator who meets such standards in general education and also the qualifications listed below, will have an excellent professional background for school health education.

II. THE FUNCTIONS TO BE CARRIED OUT IN THE TOTAL PROGRAM OF COMMUNITY HEALTH EDUCATION

The following functions are believed to be essential for carrying out complete community-wide programs in health

education. They are not the functions of any one health educator and it is not expected that any one health educator will have special skills in all the knowledge areas involved. Health educators in various positions, however, will be expected to undertake some or all of the following functions or activities which involve the formulation of plans and methods, the application of specific techniques and skills, the supervision of the work of others, and the maintenance of group relations.

The functions of health educators in community-wide programs of health education are:

In accordance with the administrative policy of the health department or other employing agency:

1. To assist in planning and organizing a program of health education of suitable scope and activities to meet adequately the needs of the community, state, or area to be served. This includes, at the outset and continuously thereafter, a study or survey of the needs and resources with the aid of technical experts and the determination of health problems by lay and professional groups.
2. To assist the area to organize for health education.
3. To assist in establishing and maintaining close, coöperative, working relationships between all agencies (official and nonofficial) which may contribute to health education.
4. To aid in stimulating, organizing, and guiding in-service training programs in the field of health, for employed personnel, in accordance with the policy of the agency or institution involved; including:
 - a. Health agency personnel
 - b. School personnel
 - c. Personnel of other agencies
5. To aid, in accordance with the policy of the institution concerned, in planning the health education aspects of pre-service training programs for professional personnel, including: (a) public health personnel, (b) school personnel, and (c) others.
6. To provide consultation and guidance to various individuals and groups (such as Parent-Teacher Associations, service clubs, and others) in developing and improving

the health education aspects of their programs.

7. To assist in promoting, organizing, and guiding study groups in the field of health for adult and group work agencies, such as divisions of adult education or young people's clubs.
8. To contribute to the improvement of the quality of the health education of pupils or students in accordance with the standards and policies of the school system or institution (in the absence of or in coöperation with a school health educator).
 - a. Through aid in planning school health programs and curricula of health instruction
 - b. Through conferences with teachers, supervisors, and school administrators
 - c. Through such other educationally sound activities as the school may desire
9. To assist in stimulating and establishing adequate public health and school health library facilities.
10. To assist in organizing and operating an informational service to provide answers to inquiries; and in answer to requests, to suggest source materials and source references.
11. To be responsible for the preparation, selection, assembly, and distribution of health education materials, using the services of special technicians and health experts whenever possible.

Such materials include:

 - a. Reports and other printed materials
 - b. Visual aids, such as motion pictures, film strips, photographs, graphic materials, exhibits, and posters
 - c. News releases and radio scripts
12. To organize and assist in conducting a speakers' bureau, conferences and meetings.
13. To assist in planning and, in accordance with the policy of the agency, in preparing the health education budget.
14. To encourage, and assist in the development of efficient records and reports of all health education activities in order to facilitate the quantitative analysis, evaluation, and interpretation of the health education program.
15. To assist in the establishment and employment of methods for continual appraisal, in order to evaluate the effectiveness of all phases of the total health education program.

A job analysis of existing positions reveals wide variations in their scope. In general the health educator employed

by a health agency is (1) a director of health education, or (2) a staff member with the title of health educator. Other specialists such as editors, audio-visual specialists, research analysts, photographers, and librarians are commonly employed in the larger agencies.

III. EDUCATIONAL BACKGROUND

The procedure used in determining the desirable educational qualifications here listed, was to analyze each of the above functions in terms of needed professional qualifications in basic sciences, social sciences, and public health, and to group these qualifications in suitable areas.

Certain facts should be borne in mind in approaching this discussion. Not all positions in health education, as indicated above, are of the same scope. The health officer or other appointing authority may not deem it necessary to require all the qualifications listed below for every position. *They are the qualifications believed desirable for the director of a large and complete program.* Nevertheless it is believed that the continuing improvement in the training of health educators will provide more and more workers who have this training, and that such a person will eventually prove most useful.

Experts in various techniques who are not health educators are commonly needed to assist in editorial work and in the development of films, exhibits, and other graphic materials. The health educator concerned with the production of such material will know the nature, limitations, and possibilities of the processes involved. He will know how to work effectively with printers, motion picture producers, and other specialists. This report does not consider the qualifications of these technical experts.

It is clear that the health educator will be helped by a broad cultural background and by a knowledge of (a) the structure, functions, and care of the

body, elements of the more common pathologic processes, and elements of epidemiology and public health procedures; (b) motivation and behavior in human life; (c) society as it is constituted, social forces and their control; (d) forces which affect living-environment and economics; (e) the scientific method in approaching the process of living, distinguishing science from pseudo-science; and (f) the processes of education—why we learn and how we learn.

There is also need for knowledge and skills which are more specifically professional in nature. The division between essentially basic preparation and strictly professional training cannot be readily drawn. It is not the purpose of this committee to indicate here a specific training program in terms of institutions to be attended, degree secured, years of study, or specific courses taken.

Some health educators have begun training for this field immediately upon reaching the university level. More will do so in the future with the increasing number of schools offering an undergraduate health education major.

At the same time it is recognized that several of the professional fields in the health and social sciences, including education, contain many of the elements of training which are desirable for the health educator. Many successful health educators have acquired their training through supplementing the training in one of these professional fields by study in those previously omitted areas of knowledge which are required for health education. It is not feasible to discuss here the entrance into health education from various professional fields. We shall not attempt to define optimal training. We shall attempt to state the essential qualifications.

Present requirements in the training of health educators should be sufficiently flexible to be adapted to the scope of

work required from the individual concerned. There follows a statement of desirable backgrounds and competencies for the health educator, organized under 7 major areas and based upon the duties to be performed in a complete program of health education. The major purpose of this statement is to help those who may wish guidance in preparing for a career in health education. It does not represent recommended minimum criteria for a graduate degree in public health or health education.

1. In the field of *Basic Cultural Education* involving the development of appreciations and skills in the use of the English language, it is assumed that all health educators will have had instruction in English literature, and English composition, and that most health educators will have had some background in general psychology, United States history, and world history.
2. In the *Basic Sciences* it is assumed that all students will have some knowledge of general chemistry, bacteriology, and the structure and function of the human body. Many students will also have had some training in organic chemistry, physics, and biology.
3. Training in *Education and Educational Psychology* is important to provide a knowledge of and functional experience with the learning process, principles and practices of education, methods and possibilities of adult education, the nature of the school health program, educational supervision and administration, and in-service training. It is assumed that all students will have some background in educational psychology and the principles, theory and social aspects of education, as well as professional training and field work in school health education and in public health education, including community organization. Many students will also have had an opportunity to study child growth and development, the elementary and secondary curriculum, and school administration. Some health educators will have had much more extensive study in this field.
4. In the *Social Sciences*, where we are concerned with the racial, social, and cultural characteristics of people and their mores, and the significance of the economic status of population groups, it is assumed that all health educators will have some background in general sociology and that most of them

have some knowledge of political economy and cultural anthropology. If the Health Educator should have come from the social work field, he may have given special attention to comparative religion, social dynamics, and special problems of race relations and of publicity.

5. No health educator can be expected adequately to understand and interpret scientific health facts or the work and program of technical experts and health agencies without sufficient *public health* training to give him a knowledge of basic principles in the organization and administration of public health, personal hygiene (including mental hygiene and nutrition), environmental sanitation, methods of communicable disease control (including the nature of causative organisms and methods of transmission), public health statistics and the principles of statistical reliability, and the nature (not necessarily the skills or technics) of public health laboratory procedures.
6. In *Public Administration*, where we are concerned with governmental and community organization, the nature and functions of community agencies, and principles of planning, all health educators may be expected to have some background in social work agencies and most of them will have had some instruction in the field of government.
7. There are many needed *Special Skills in Health Education*. These include public speaking; the use of methods and materials; evaluation of sources of material and information; the writing of informative and friendly letters; the compilation of bibliographies; filing and clipping methods; the writing and editing of material for publication; the use of the printing and duplicating processes; effective distribution of educational material; the nature, preparation, and use of visual aids; possibilities of community participation in the development of educational material; press relations and technics; the organization and conducting of meetings; technics for the interview and consultative conference; the discovery of leaders and the way to work with them; and the use of group work methods. It is expected that instruction in public health education and school health education supplemented by field work and practical experience added to the background of general education will have provided these special skills at least in some degree.

usually covered at the graduate level. This training furnishes the professional, factual background of the health educator, who will profit by having such instruction presented by specialists, by studying in some of these areas with other public health workers like those with whom he will be professionally associated, and by having his instruction in these rapidly developing sciences just before beginning his professional career.

If the Bachelor's degree is not taken in a teacher training institution, much of the work in education will usually need to be taken after the Bachelor's degree, but it is desirable that most of the work in general education be taken prior to the graduate training in public health and health education. The more highly specialized professional public health courses should not be pushed down into the undergraduate level.

Some colleges and universities are offering a four year undergraduate major leading to a Bachelor's degree in health education. Usually the program is organized through the school of education, and the emphasis is upon *school health education*. This training usually prepares one to become a member of a school staff in the capacity of health teacher or coördinator. Well planned programs of this type serve as a means of supplying more trained people in school health education, and as a valuable reservoir from which to select well qualified students for the graduate training in *community health education*.

At least three months of supervised field work should be required in the training of all health educators. There are advantages in having this field work prior to the completion of graduate training in public health. The prospective student learns the nature of the work and something of his aptitude for it. His professional courses will be more meaningful to him. However, the field work may properly be taken after the

IV. GRADUATE INSTRUCTION

The courses in public health are

completion of the formal courses, before the awarding of the degree.

V. PERSONAL QUALITIES

A candidate for a position as health educator should possess such personal characteristics as creative ability, leadership, good personal health, good judgment, pleasing personal appearance, common sense, and adaptability. Such important characteristics, along with the ability to size up and meet situations, and the ability to present pertinent facts simply and effectively, are not guaranteed by academic records in formal courses of instruction. The health practices of the health educator himself are also important. Study and improvement in methods of determining aptitude of the prospective students for this profession are needed.

VI. LENGTH OF THE TRAINING PERIOD

If one were to enter upon a program of planned study in the first year of university life, this essential training for public health education could not be secured in less than five years. Study beyond this point would be desirable, especially for those aiming for positions of larger responsibility. If such a five year program were followed, the essential basic preparation could be obtained by a four year course leading to a Bachelor's degree in health education or one with major emphasis upon: (1) the basic and health sciences, (2) education and educational psychology, and (3) the social sciences.

The content and extent of the graduate work required would vary according to the amount of undergraduate preparation, the interval between undergraduate and graduate study, and the quality and type of experience the individual has had. But, including the three months of supervised field training, the very minimum of time required for this training would be twelve months following the Bachelor's degree.

From the standpoint of the work to be done, a considerable degree of professional maturity is needed. Usually only one community health educator is employed in a health department or volunteer agency, so that he is responsible for the program rather than being a staff member in his first position. This demand for maturity explains in part why many mature persons have, through further study, transferred to health education from allied fields. If salaries in community health education can be made commensurate with the expanded opportunity for service we may expect to recruit many able students from among the best high school teachers of health or science who have demonstrated interest, aptitude, and ability in developing community activities. There is need for other positions or field opportunities leading toward community health education and from which we may recruit trainees.

In those institutions which offer a doctorate in this field the usual three years of study after the Bachelor's degree are required. Roughly there is one year of study in education, one year in public health, and one year in research.

VII. THE PLACE FOR GRADUATE TRAINING

Most of the accredited schools of public health offer training for community health educators. They offer to the student a staff of experts in public health and health education together with the opportunity to work with students who are entering other specialties in public health. They are the only institutions in which public health training has been standardized. At present these schools cannot accept enough students to meet the need for community health educators. There is urgent need for the expansion of these facilities or the accrediting of graduate courses elsewhere. Certainly they do

not now have room to train (in co-operation with the school of education in the same university) the needed school health educators. It is expected that, for the present at least, most school health educators will be trained in schools of education with special facilities and staff for a curriculum in school health education.

Programs of professional study in health education can best be offered in those institutions which are providing professional education in other fields of public health and which have instructional facilities in the other areas of knowledge required. Field training stations should be available for all students in health education.

COMMITTEE ON PROFESSIONAL EDUCATION

W. P. SHEPARD, M.D., *Chairman*
REGINALD M. ATWATER, M.D., *Secretary*
GAYLORD W. ANDERSON, M.D.
W. W. BAUER, M.D.
ROBERT D. DEFRIES, M.D.
ROY J. MORTON, M.S. (Eng.)
ELLA E. MCNEIL, R.N.
HUGO MUENCH, M.D.
WILSON G. SMILLIE, M.D.

ERNEST L. STEBBINS, M.D.
CLAIR E. TURNER, DR.P.H.
V. A. VAN VOLKENBURGH, M.D.
HUNTINGTON WILLIAMS, M.D.
EDWARD S. GODFREY, JR., M.D.
GEORGE H. RAMSEY, M.D., *Consultant*
LOWELL J. REED, PH.D., *Consultant*
C.-E. A. WINSLOW, DR.P.H., *Consultant*

The Subcommittee assisting with the preparation of this Report to whom the Committee on Professional Education expresses grateful appreciation consisted of:

CLAIR E. TURNER, DR.P.H., *Chairman-Referee*
MARY P. CONNOLLY
MAYHEW DERRYBERRY, PH.D.
RUTH E. GROUT, PH.D.
IRA V. HISCOCK, SC.D.

FRANCIS J. MOENCH, PH.D.
LUCY MORGAN, PH.D.
WARREN H. SOUTHWORTH, DR.P.H.
FELIX J. UNDERWOOD, M.D.

American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

June, 1948

Number 6

Editorial Board

REGINALD M. ATWATER, M.D.
Chairman, and Managing Editor

LEONARD GREENBURG, M.D.
PROFESSOR JOHN M. HENDERSON
RALPH S. MUCKENFUSS, M.D.

STUART MUDD, M.D.
RAYMOND S. PATTERSON, PH D.
GEORGE ROSEN, M.D.

C.-E. A. WINSLOW, DR.P.H., *Editor*

AUGUSTA JAY, *Editorial Associate*

THE NATIONAL HEALTH ASSEMBLY OF 1948

THE National Health Assembly, which met in Washington on May 1-4, under the chairmanship of Federal Security Administrator Oscar R. Ewing, faced two serious handicaps—shortness of time for preparation of the program and the danger of political repercussions in an election year. These two handicaps were overcome with remarkable success.

Some 850 persons attended the Assembly, representing a wide diversity of professional and public interests; and including the American Public Health Association, the American Medical Association, the American Dental Association, the nursing organizations, the farm groups, the labor unions, the women's clubs, and many more. The object of the Assembly was to outline a program for health advance during the next ten years. It worked through fourteen well organized and active sections covering the needs for professional personnel, for hospital and health center facilities, for medical care, for local health needs, and for research in the health field; and the preparation of programs for maternal and child health, rural health, dental health, mental health, nutrition, environmental sanitation, care of the chronic diseases, rehabilitation and general state and community planning for health.

The reports of the various sections were ably summarized at the closing session by Quincy Howe of CBS (see page 858)—an innovation which might well be followed at similar meetings; and the major resolutions will be made available for the public in printed form. No startling new facts were brought out and no ambitious trails were mapped out for the future. Goals accepted by intelligent public health experts were, however, clarified and buttressed by effectively marshalled evidence indicating the need for increased knowledge of basic facts, better machinery, ampler provision of personnel funds. A few controversial issues, particularly federal compulsory insurance, were recognized as not commanding unanimous support; but the really astonishing thing about the conference was the relatively large area of agreement. The panel on Medical Care, for instance, chaired with the greatest skill and wisdom by Dr. Hugh R. Leavell, unanimously adopted the following recommendations:

1. Adequate medical service for prevention of illness, care and relief of sickness, and promotion of a high level of physical, mental, and social health should be available to all without regard to race, color, creed, residence, or economic status.
2. The principle of contributory health insurance should be the basic method of financing medical

care for the large majority of the American people, in order to remove the burden of unpredictable sickness costs, abolish the economic barrier to adequate medical services and avoid the indignities of a "means test."

3. Health insurance should be accompanied by such use of tax resources as may be necessary to provide additional
 - a. Services to persons or groups for whom special public responsibility is acknowledged and
 - b. Services not available under prepayment or insurance.
4. Voluntary prepayment group health plans, embodying group practice and providing comprehensive service, offer to their members the best of modern medical care. Such plans, furthermore, are the best available means at this time of bringing about improved distribution of medical care, particularly in rural areas.
5. The people have the right to establish voluntary insurance plans on a coöperative basis and legal restrictions upon such right (other than those necessary to assure proper standards and qualifications), now existing in a number of states, should be removed.
6. High standards of service, efficient administration, and reasonable costs require:
 - a. Coördination of the services of physicians, hospitals, and other health agencies in all phases of prevention, diagnosis and treatment;
 - b. Effective coöperation between the providers and the consumers of such services.
7. A medical care program itself will not solve the health problems of the nation. It must be coördinated with all efforts directed toward providing the people with adequate housing, a living wage, continuous productive and creative employment under safe working conditions, satisfying recreation and such other measures as will correct conditions that adversely affect the physical, mental, and social health of the people.

These resolutions—with many adopted by other sections—represent a major step forward along the road to better health for the American people. The endorsement of the principles of group practice and group payment embodied in the resolutions quoted above are almost identical with the recommendations made by the Committee on the Costs of Medical Care in 1932. Their adoption by representatives of the A.M.A., of the Physicians Forum, the C.I.O., and the Cooperatives in 1948—that is something new and something of the first importance. The Health Assembly did not register any dramatic victory over the twin foes of poverty and ignorance; but it did close the ranks of the health army for definite progress in a unified advance toward immediate goals. The Health Assembly was described by one delegate as "Democracy in Action." This was an apt characterization. As a result of these four days the public health worker and his various professional allies have been brought into a closer and more intimate contact with the consumer groups than has ever been accomplished before. The team work developed in the Health Assembly has real promise for the future.

WHAT IS EPIDEMIOLOGY?

SIX years ago,¹ we asked in these columns the question "What and who is an epidemiologist?" The answers were fruitful; but they were necessarily related mainly to the type of practical service rendered by the physicians employed in a health department in tracking down specific epidemics of disease. At that time, W. L. Aycock² suggested that a more vital question would be "What is epidemiology?"

This problem seems specially pertinent today. There are two major lines of approach to the basic theoretical knowledge on which applied epidemiology must be based. One is experimental study in the laboratory—the other observational study in the field. The avenue of laboratory approach has yielded brilliant results, and in recent years has tended to dominate the field. It has distinct advantages. In the laboratory, we can—in large measure—hold all factors constant except the

one we are studying and this makes determination of its influence definite and precise. There is, however, an inevitable disadvantage. The controlled factors may actually be of vital significance in nature; and by their elimination we may reach conclusions which do not at all correspond with the complexity of actual phenomena in the field. Both approaches are essential.

The contributions of field epidemiology were outstanding in earlier days. Snow and Budd had no laboratories; but, long before Pasteur, they laid a firm basis for the epidemiology of cholera and typhoid fever; and they deduced from field observations almost all the properties of those causative factors in these diseases which were later to be observed under the microscope. Hirsch, in his *Handbook of Geographical and Historical Pathology*, understood clearly the relation of malaria, first to "a material and specific poison generated in warm climates and seasons," related to organic decomposition; and, second, to "the degree of atmospheric moisture or of the atmospheric precipitation that results therefrom." He even knew that "wherever malaria is endemic at more or less considerable elevations, the seat of the disease is always a valley with a small declivity or a basin-like depression in a plateau"; and that "we find malaria exceedingly common in small and often definitely circumscribed spots by the sides of lakes, small streams or brooks, pools, ponds and ditches." H. R. Carter, by his field observation of the fact that the vicinity in which a case of yellow fever had occurred became infective only after a period of 2-3 weeks, laid the basis for Reed's conclusive experimental approach at Havana.

Theobald Smith, himself a laboratory experimenter of supreme genius, pointed out that inference from field observation "looks at things in nature, describes and compares them, and deduces from such comparisons certain underlying concepts. The experimental method takes the same phenomenon and tries to check or limit all but one of the activities entering into it so that this one activity can be observed, recorded, measured, and weighed. . . . Both methods have their special advantages and disadvantages . . . the experimental method must not let too many machines get between it and the whole and must find some way of putting the fragment surgically removed for experimental purposes back into the whole"; and "the comparative method is frequently in position to restrain the generalizations deduced from experimental procedures and to keep the experimenter from steering away from the goal, which is an understanding of totality."³

A particular problem has reached the stage of experimental investigation only when field observation or prior experiment has indicated the exact question to be asked. Before each fruitful experiment, there must be a hypothesis; and the formulation of this hypothesis is perhaps the most important and exciting event in scientific thinking. It is courage and vision—checked for fundamental soundness—in developing pregnant hypotheses which seems a somewhat rare quality in present-day epidemiology. W. H. Frost, one of the greatest of all American pioneers in this field said: "Epidemiology is something more than the total of its established facts. It includes their orderly arrangement into chains of inference which extend more or less beyond the bonds of direct observation." To this sort of epidemiological thinking, Ayccock and his group at Harvard have made notable contributions during recent years.

The pitfalls in the path of sound epidemiological thinking are many. We must, first of all, face the fact—obvious but often forgotten—that the entities with which the epidemiologist deals are epidemiological and not clinical in nature. There is no more serious fault in our practical defenses against communicable

disease than our habit of dealing with scarlet fever and septic sore throat and otitis media as different clinical entities (as they are) but not as manifestations of one epidemiological entity, which is the important aspect of truth to the health officer. On the other hand, Aycock⁴ has pointed out that in one clinical disease, Landry's paralysis, the same pathological findings may be due to a wide diversity of causal factors. He suggests the bold hypothesis that—diverse as the so-called causative agents are in this case—they may perhaps operate upon the tissues through the same biochemical mechanism. He cites the extraordinary case of a strange epidemic at Durban, which was considered by various clinicians to be poliomyelitis, and ginger paralysis and tick paralysis and the Guillain-Barré syndrome. It proved on careful epidemiological study to be due to cooking oil contaminated with tri-ortho-cresyl phosphate.⁵ Certainly, where epidemiological phenomena can be reduced to terms of biochemistry (as has been the case with diphtheria and tetanus) the road to practical control will be opened in a startling fashion. Such studies as have recently been made⁶ on the histological reactions of embryonated eggs to influenza virus may perhaps open the way to understanding of the biochemical, as well as the histological, reactions involved.

Our problem is complicated by the splitting up of many so-called "species" of pathogens into serologic "types." Aycock⁷ is skeptical of the importance of such types in comprehending the basic principles involved, although, of course, recognizing their importance in studying a particular epidemic episode. He says that "with the exception of meningococcal meningitis, there is no instance of any degree of correlation between a single serological type and a single disease process."

Even if the chemical processes involved in pathological reactions to an invading germ were identified, it would still be important to realize the complexities involved in the answers given by the human body to the insults offered by foreign invaders. We must never be blinded by the over-simplified conception that we may discover the cause of any disease. The tuberculosis bacillus is not *the* cause of tuberculosis. It is *a* cause of that disease. You cannot have tuberculosis without the *Mycobacterium*; but half the people whose tissues have been invaded by the *Mycobacterium*, as shown by tuberculin tests, suffer from no disease in a clinical form, although they no doubt show minor pathological reactions to the invader.

Inherent "vital resistance" plays an important role in every departure from normality sufficiently marked to be labelled as "disease." We rarely know what this means; but we do know that it means different things in different diseases; and that it is a factor of major importance. Read the accounts of the attempts to climb Mt. Everest and note the different reactions of different individuals to extremes of cold and to fatigue. Study the records of accident-prone industrial employees and accident-prone automobile operators, and realize the important role of neuro-muscular balance in so apparently simple a phenomenon as a mechanical accident. In the clash between a human body and an invading germ, the differences between individuals in the field of biochemistry are equally significant.

Nutrition may be, in many instances, a vital factor in the defensive mechanisms of the body. In this regard, many students of the problem will not agree with Aycock. He concludes⁸ "that vitamin deficiency as a factor in susceptibility to infection is not a general epidemiological principle. The indications are that only deficiencies of certain vitamins affect susceptibility to certain types of infections and that these occur only in limited areas where these vitamin deficiencies reach a sufficiently severe degree to produce tissue changes which are favorable sites for secondary infection." This may be true if the conclusion is limited to

vitamin deficiencies and to the actual process of invasion by pathogens. We doubt, however, whether prevalence of typhus fever in times of famine is due only to poverty and increased infestation with lice (as suggested by Sigerist⁹); and in tuberculosis, the relation of starvation to increased morbidity and mortality seems highly significant.

Perhaps Aycock's most impressive practical contribution to the science of epidemiology lies in his emphasis on the importance of the influence of climate and seasons on the prevalence of disease. It is strange how this relationship has been neglected since research in epidemiology has been limited to the laboratory and has ignored the area of field experience. The winter incidence of upper respiratory infections is the most outstanding challenge in the whole science of epidemiology.

In those diseases which are disseminated by a specific arthropod vector, the influence of season is obvious and clearly recognized. Aycock¹⁰ demonstrates a beautiful case of four widely different seasonal curves for tularemia (with peaks varying from April to November) depending on the particular vector involved. What is commonly ignored, however, is the peak of intestinal diseases in hot climates and seasons and of respiratory infections in cold climates and seasons. It seems clear that in these instances the phenomena cannot be explained by influence on the parasite but must be sought in the physiological status of the human host. The fact that Dick and Schick tests in warm climates show the same infection rate as in cold climates, with an insignificant rate of clinical disease, is proof-positive on this point. North, many years ago, suggested that one very simple factor of seasonal physiologic variation was the relative distribution of blood supply to the intestinal and nasopharyngeal mucosa at different seasons.¹¹ Aycock, in the paper cited above,¹⁰ gives striking examples of seasonal ebbs and flows of physiological status (iodine content of the thyroid gland, organ and gland weights, resistance to acetonitrile poisoning, etc.). In a later communication¹² he presents a striking study of the amplitudes of seasonal fluctuation in various epidemic diseases and reaches the following conclusions: "Three distinct patterns of amplitude of seasonal variation are found in a number of infectious diseases. In upper respiratory bacterial infections as a group, the amplitudes suggest the operation of a single arithmetic variable consistent with seasonal variation in susceptibility. In a second group, comprising diseases transmitted by intermediary means, the amplitudes are consistent with seasonal variation in the virus reservoir. In a third group comprising upper respiratory virus infections, the amplitudes lead to the inference that both seasonal fluctuations in susceptibility of the human being and in the virus reservoir are determinants."

It has been suggested¹³ that the formula for a case of clinical germ disease may be written as follows:

$$A (a_1 a_2 \dots a_x) - B (b_1 b_2 \dots b_x) = C$$

Letting A = the power of the germ to produce disease

$a_1 a_2 \dots a_x$ = various factors increasing the transmissibility (polluted water or milk, flies, mosquitoes, etc.) or the virulence of the germ

B = the power of the human host to resist disease

$b_1 b_2 \dots b_x$ = various factors increasing the resistance of the host (age, specific immunity, nutrition, etc.)

C = a clinical case of a germ disease (or the absence of such a case if the resultant of the factors in the opposite half of the equation falls below zero)

The task of the practical epidemiologist is to concentrate on the weakest links under A (elimination of mosquitoes, pasteurization of milk, purification of water, use of antibiotics, etc.), or on the factors under B which are most easily strengthened (through specific immunization, improved nutrition, personal hygiene and the like). The function of the theoretical epidemiologist is to study all the possible factors in such an equation and to evaluate their relative importance.

REFERENCES

1. Editorial. *A.J.P.H.*, 32:414, 1942.
2. Aycock, W. L., and Russell, F. F. *Am. J. M. Sc.*, 206:399, 1943.
3. Luth, T. *Parasitism and Disease*. Princeton Press, 1934.
4. Aycock, W. L., and Foley, G. E. *Am. J. M. Sc.*, 210:397, 1945.
5. Sampson, B. F. *South African M. J.*, 16:3, 1942.
6. Parodi, A. S., et al. *J. Immunol.*, 58:109, 1948.
7. Aycock, W. L., and Foley, G. E. *Am. J. M. Sc.*, 211:350, 1946.
8. Aycock, W. L., and Lutman, A. E. *Am. J. M. Sc.*, 208:389, 1944.
9. Sigerist, H. E. *Civilization and Disease*. Cornell University Press, 1943.
10. Aycock, W. L., Lutman, A. E., and Coley, G. E. *Am. J. M. Sc.*, 209:395, 1943.
11. North, C. E. *A.J.P.H.*, 3:222, 1913.
12. Aycock, W. L., Foley, G. E., and Hendrie, K. H. *Am. J. M. Sc.*, 211:709, 1946.
13. Winslow, C.-E. A. *The Conquest of Epidemic Disease*. Princeton University Press. 1943.

THE COBBLER'S CHILDREN

ONE may logically ask why the question of routine chest x-rays for all admissions to general hospitals should be a subject for discussion at this time. The public health significance of a procedure which can be used to determine the presence of disease of the heart or lungs in 16,000,000 hospital admissions annually needs no emphasis. The advantages to patient and hospital staff, the usual findings, the technical methods available, their respective cost, even ways for financing such a program, have all been determined and have been widely publicized.¹ The fact still remains that in 1948 less than 3 per cent of the more than 6,000 hospitals in this country were on record as having adopted x-raying of all admissions as a routine procedure,² despite the fact that about one-fifth of all deaths from tuberculosis occur in general hospitals.

With these considerations in mind, a brief summary of the present status of routine hospital admission x-ray service would seem pertinent. It is generally recognized that a chest x-ray is as important a part of the routine for every hospital patient as a blood count, serology, or urine examination, and will reveal the presence of unsuspected disease more often. Numerous studies have shown that approximately 2 to 3 out of every 100 admissions to general hospitals will have x-ray evidence of tuberculosis. Half of the cases will be active, a rate at least twice that found in the general population. As many more patients will show other types of pulmonary pathology or evidence of cardiac disease. These are individuals already in hospitals, physically and psychologically receptive to treatment. To cure such a patient of a minor infection and discharge him with still undiagnosed active pulmonary tuberculosis is hardly in keeping with the highest traditions of medical care, and certainly in no way consistent with the ideals of public health.

The routine chest x-ray of all admissions to general hospitals serves a no less useful purpose in the protection of the members of the hospital staff. A higher rate of tuberculous infection has been consistently found among doctors, nurses, and attendants in general hospitals as well as tuberculosis hospitals, compared with groups of similar age, sex, and race composition not so employed. The

presumption is strong that the source of their infection may be the patient with undiscovered tuberculosis. Medlar's recent studies³ would certainly lend weight to this hypothesis. The constantly increasing proportion of non-reactors to tuberculin among adolescents and young adults further accentuates the danger of such exposure in hospital personnel. Even if we disregard the important factor of the hospital's human responsibility for the safeguarding of the health of its employees, the desirability of maximum protection for staff in these days of personnel shortage remains. The cost of compensation, which is being awarded in a steadily increasing number of states to hospital employees who contract tuberculosis in the course of their employment, is an additional consideration.

Equally explicit information is available as to technical methods and costs. There is no one method universally applicable to all situations, and the technique to be employed will depend on the daily hospital admission rate and the space and facilities at hand. For larger institutions, with admission rates of more than 25 patients daily, some type of miniature film equipment has been recommended. Full size film is advised for hospitals with fewer daily admissions. The initial outlay for a photo-fluorographic unit is high, \$5,000 to \$12,000, with an overall cost per film of approximately \$.50. Large films can be taken with little or no additional equipment, but each x-ray will be more expensive and an additional burden will be thrown on the technical staff. A satisfactory compromise for institutions admitting approximately 25 patients daily is the magazine cassette,⁴ which has been employed by the chest clinics of the New York City Department of Health since 1943. This unit operates like a roll camera, requiring reloading only once for every 50 exposures. It is rented for a nominal fee and uses full size paper film in rolls of 50, at a cost much less than that of celluloid film. The interpretation of the x-rays, the follow-up examination on suspicious or definite cases of tuberculosis or non-tuberculous disease, and the necessary record keeping present no unusual difficulties, and are readily incorporated into the hospital routine.

The financial problems involved in securing the equipment can be met in several ways. The hospital may pay for the unit itself. In many areas the city or state health department may be willing to furnish the apparatus, particularly if the latter is in a position to utilize federal funds for the purpose. The local tuberculosis and health association, chamber of commerce, hospital auxiliary, or other good friend of the hospital may make such a contribution. Once the unit has been procured, the cost of its operation, which should not exceed \$1 per patient, can be readily met. In private institutions it is usually added to the patient's bill; in public institutions, to the budget.

The most serious drawback to the extension of the practice of routinely x-raying all admissions to general hospitals has been the difficulty in manufacturing photo-fluorographic equipment rapidly enough to meet the demand. Production is now increasing steadily, delays in filling orders are growing shorter, and this explanation will soon be an excuse rather than a reason. Unless the general hospitals of this country are prepared to carry out their responsibility for this program they may find themselves regarded in the same category as the cobbler in the old proverb whose children always had holes in their shoes.

REFERENCES

1. *Admission Chest X-ray Service for Hospitals and Clinics*. American Hospital Assn., U. S. Public Health Service, National Tuberculosis Assn., 1946.
2. Hullerman, H. V. Personal Communication.
3. Medlar, E. M. A Pathologist Looks at TB. *Bulletin, N.T.A.*, June, 1947.
4. Edwards, H. R., and Siegel, A. The Magazine Cassette X-ray Unit. *Am. Rev. Tuber.*, 49:366 (Apr.), 1944.

Report to National Health Assembly

QUINCY HOWE

Columbia Broadcasting System, New York, N. Y.

THE following stenotypist's report in the style of a radio commentator was a feature of the final session of the National Health Assembly.

The most human of all human interests has drawn us together here in this National Health Assembly. It is the interest in what most of our forefathers called, and many of us still call, the temple of the soul. After all, nothing affects us more personally and more directly than the health of our bodies.

Human nature has therefore played a big part in all of the section meetings of the National Health Assembly, and it is going to play, I think, a still larger part in the summary that I am to present on the work of these sections.

It is human nature for us to want to help others; it is human nature for us to believe that we are right; it is human nature to make mistakes. I have the layman's admiration for the medical profession. I think our doctors are primarily motivated by the desire to help other people. I suspect some of the rest of us may be motivated by more selfish considerations. But, selfish or unselfish, we are reluctant to believe that we are wrong and that the other fellow may possibly be right.

It is the great achievement of this assembly that so many different experts in so many different fields have reached agreement on so many subjects. Just how correct these agreements may be, we shall perhaps learn before the ten years for which we are planning have run their course.

When Mr. Ewing invited me to summarize your findings, I am sure he

wanted to give you a final reminder that it is human to make mistakes. So far, you have seen human nature at its best. What you are about to hear will remind you how fallible human nature can also be. But perhaps my years with the Columbia Broadcasting system will come to my aid. CBS, you see, makes it a policy not to permit news analysts to go in for special pleading on the air. We are told to present our material in such a way that listeners can draw their own conclusions, so it is in that spirit that I am addressing myself to my present task.

The radio industry seems to operate on the assumption that most Americans no longer know how to read. Perhaps I should say that the radio industry is simply making a valiant effort to make reading quite unnecessary. I am not going to operate on that assumption, though, today. I am going to assume that all of you here, all of you, not only know how to read, but do read. I shall also assume that all of you have read, will read, or at any rate can read the conclusions that the 14 sessions of the National Health Assembly have reached in their reports.

Instead, therefore, of summarizing these reports in detail one by one, reports that speak so eloquently for themselves, let me just point out certain common denominators in these reports, and then single out a few striking specific points in the individual reports.

Finally, I will try to suggest a few broad conclusions that seem to me to arise from this material.

Now, there is one common denominator, a very human common denominator, that struck me with special force in every one of these section reports. It is this: Each section regards its own field as fundamental, basic, all important, indispensable. And in each case, the logic behind these section reports seems to me absolutely unanswerable.

For instance, who can possibly disagree with Dr. William C. Menninger and the Mental Health Section when they tell us that more than half of all our sick people, inside and outside our hospitals, suffer from some kind of mental ailment? No one can dispute the statement of the Dental Health Section, that dental caries, tooth decay, is the costliest disease known in civilized man. Perhaps some of you would like to challenge Dr. Haven Emerson and the Local Health Units Section when they say that our people can't possibly expect to enjoy better health unless and until they organize themselves into more efficient local health units. Certainly he wouldn't find any disagreement from Dr. Florence R. Sabin and the Community Planning Section. They would agree with him when they tell us that the community must do a lot more planning for its own health.

And in another section, you know that the child is father of the man; the mother is the source of all human life, as Dr. Leona Baumgartner and the Maternal and Child Health Section have explained. But to have healthy children, we have got to have healthy and also properly educated grown-ups, and Dr. James R. Miller and his section on the Chronic Disease and the Aging Process explained this when they pointed to the need, the growing need, for better care for our growing generation of old folks.

Then, Mr. Joseph W. Fichter and the Rural Health Section explained why

Americans who live on farms have every reason to consider themselves second-class citizens in so far as medical care is concerned. When you think of that, you wonder about the permanently handicapped and the crippled, veterans and non-veterans, for whom Dr. Henry H. Kessler and the Rehabilitation Section made their appeal.

Then we hear Dr. F. G. Boudreau and the Nutrition Section prove beyond any possibility of doubt that better nutrition is the real answer to better health. Then Mr. Arthur D. Weston, and the section on Environmental Sanitation come along, and they make out an equally unassailable case for better sanitation, purer food, a healthier environment, and, of course, Dr. Algo D. Henderson and the Medical Personnel Section explained the big thing we really need is more and better trained doctors and nurses, and especially assistant personnel. It is also just as true as Dr. Andrew C. Ivy and the Research Section's conclusion that we need more and better advanced research and teaching.

And then Dr. Charles F. Wilinsky, in the Hospital Facilities Section, called attention to the shortage of hospitals and other physical facilities.

Dr. H. R. Leavell in the Medical Care Section perhaps had the toughest assignment of all. He had to get his section to agree on the most controversial single issue before any of the sections: What needs to be done to give the American people the better medical care that they clearly require?

Well, so far I have stressed the differences in all these section reports, but my purpose hasn't been to suggest that they conflict with one another. Rather, I have tried to show how wide a variety of subjects this National Health Assembly has covered. Moreover, it seems to me that the subjects the Assembly has covered do not conflict at all; they overlap. I believe "impinge" is the correct word.

And most of all, they complement and even duplicate each other, complement as well as compliment each other. The need for more and better research, for instance, is a universal need. It goes through all these sections. A good local health unit is going to interest itself in the care of both the young and the aged. It is going to interest itself in mental as well as dental cases; it is going to interest itself in questions of environment as well as questions of nutrition.

Several of these sections have referred to the question of discrimination against Negroes, but discrimination takes many forms, and the best cure for discrimination, after all, is education.

Here we come to what is perhaps the most important single common denominator in all the section reports. Again and again section chairmen pointed out the need for more facts, more research, more information. For instance, how many more doctors, nurses, and medical personnel do we actually need? What do we need in the way of enlarged hospital facilities?

And these questions tie right in with the question of rural health. The Rural Health Section had a lot more information than the section on Mental Health was able to gather. Perhaps that is because we have had country doctors much longer than we have had psychiatrists, but the country doctor is becoming the forgotten man. To the outsider, it might seem the psychiatrist is getting all the breaks, until we read this report on mental health from the Mental Health Section coming up with its urgent request for much more information in a field that is perhaps more tragically understaffed than any other.

Without going into the whole list of section reports and their details—I will do that later—it does seem possible to draw this conclusion now: Nearly all the section reports, as I say, call first and foremost for more information. Surely it ought to be possible to avoid

duplication and to send out (instead of duplicating with similar questionnaires and investigating trips) the kind of questionnaire, and gather the kind of information that could be cleared through some central agency and made available to all the groups.

And such an information center would meet the cooperation of all these different sections before it set up shop in the first place.

Now, the friendly attitude that all the delegates to this Assembly have shown toward one another, the interest all have taken in one another's work, suggests that you can pool your efforts in compiling and then applying the information that almost all of you seem to need.

To most Americans shortage is a wartime word. To you who are fighting a never-ending war of your own against all the ills that flesh is heir to, shortage remains just as familiar a word as ever.

First, there is the shortage of highly trained personnel, of your doctors, researchers, and specialists in lots of different fields. Then there is the shortage of assistants, especially dental assistants and nurses. Then there is the shortage of medical schools and medical teachers, the shortage of hospitals, and, it seems, above all else, a shortage of cash. How are we going to pay for all the training, all the equipment, all the services that we need? How are we going to make the career of administering to the nation's health a career that does not require superhuman effort, superhuman sacrifice, or else a superman's bank account?

Perhaps it is not so much a question of salaries as it is a question of less costly training and of greater security for those who are financially equipped to practise medicine, go in for research, or engage in related fields of public health.

Leaving to one side the controversial question of federal health insurance, there does seem to be a rather wide-

spread feeling in which several sections have unanimously concurred—a widespread feeling that the taxpayer is going to have to carry some, probably more, of the financial burden that better health service requires.

The Rural Health Section, for instance, is unanimously agreed that the federal government must bear a greater share of the expense of rural medical care. The farming communities, even the farming states, just haven't got the funds. On the other hand, the local health units must rely largely, I suppose, upon local support—perhaps through local taxation, somewhat after the fashion of our schools.

But, can local communities carry the whole load of maintaining and extending hospital service? And if the state in addition to the federal government comes into the picture, what part has the state medical association to play? What representation will the public have?

Dr. Andrew C. Ivy's section on the Nation's Need for Research in the Service of Health recommends fluid funds from federal tax sources. No less important than the need for funds is the need for people. The two go together. Get the money and you can get the men.

I am not, as I said, going to summarize all these section reports. All of you can read them as well as I can, and most of you can understand what you read in the field much better than I can.

The section chairmen did me the honor last night of telling me what seemed to them the high points in their reports, and I will now try to pass on to the whole assembly here the salient impressions that these section chairmen left with me.

The most newsworthy and the most controversial decisions were those reached by Dr. Hugh R. Leavell's section on Medical Care. These decisions were newsworthy because of the wide area of new agreement among the members of Dr. Leavell's section.

All the groups represented in this section agree that prepayment is the best way to finance medical care. That means insurance. All agree that all the American people are entitled to medical care. All agree that federal funds must be used to finance at any rate some of this medical care.

All agree—and this is important—that the people have the right to set up their own health insurance plans. As you know, there are more than 20 states that do not now permit this but insist that the medical associations must control those health insurance plans.

This section of Dr. Leavell's on Medical Care even agreed that the medical care program alone will not solve all our health problems. This was almost a unique example of humility among the various sections.

The only disagreement among the members of Dr. Leavell's Medical Care Section—and I am not trying to minimize this disagreement, because it is an important one, but it was there—is the question: How to prepay medical care? How to take out this insurance? Some say that we should continue the voluntary method and give free care only to those who need it—a kind of a means test arrangement. That is the system now in force and that is the system that the committee, I believe, has endorsed. Others however, in this section say that we must have universal compulsory federal health insurance and that that need is immediate and urgent.

Now, for the high points of some of the other section reports. Dr. Algo D. Henderson's section on Medical Personnel stressed particularly the great need for nurses, also the need for dentists, baby doctors, and specialists in mental ailments. The big problem in connection with getting more people into nursing seems to be, as in so many cases it is the big problem, economic. They need, among other things, better working conditions, and the public needs to

know more about the prospects and the possibilities of a nursing career.

Dr. Charles F. Wilinsky's section on Hospital Facilities put a lot of emphasis on the need for coöperation between all and among all different groups and elements in the community. They made the point that our hospital system has got to be kept extremely flexible.

Dr. Wilinsky was pointing out last night that new cures that medical science may develop—like these new penicillin drugs and sulfa drugs that have so much speeded up cure of certain diseases that used to hospitalize people for a long time—may radically change the needs of the American people for hospital care. Most hospitals are still run by private, charitable, and religious organizations, but more tax money is going to be needed to do a better job.

Dr. Haven Emerson's section on Local Health Units came up with about as drastic a suggestion as any. They simply urged doubling all personnel and facilities in the public health schools—just double them! At once! As a matter of fact, there are only nine public health schools now in the United States; only nine. Perhaps that could be doubled. There is a need, in any case, says this section, for basic reorganization.

Dr. James R. Miller's section on Chronic Diseases and Diseases of Old Age wanted to stress two points in particular. First, they wanted to stress the importance of diagnosis of these chronic diseases and early treatment for them. After all, it is to the interest of our children to keep us members of the older generation in good shape and fit so we can work and our kids won't have to support us too soon and too long.

The second point that Dr. Miller's section made is the stress on the importance of rehabilitation. Experience in the rehabilitation of war veterans has shown what can be done in this direction. There is also rehabilitation needed among older people who can be and have

been cured of some of these diseases that used to be fatal.

Dr. Leona Baumgartner's section on Maternal and Child Health included in their report these words: "A child's feeling about a test in school can produce as important a stomach ache as eating a spoiled custard."

This section on child health and maternal care points especially to the recent decrease in the maternal death rate, but it also points out some rather striking figures and facts. Three out of every five children in the United States live in families that have an income of less than \$2,100 a year. Four out of five children live in families that have an income of less than \$3,000 a year. And between Pearl Harbor and VJ-Day almost half a million American babies died as compared with somewhat under 300,000 of our fighting men.

The child health and maternal care section urges and stresses also the need for spending more money on the medical care of secondary school children. The amount of money now spent on those children by the states, through the schools now ranges between one cent per child per year and three dollars per child per year.

And this section tells us that the general public and even, I dare say, many members of this Assembly, don't know what great changes have occurred in this whole field of child care and maternal health.

Mr. Joseph W. Fichter's Rural Health Section reports, among other things, that it is not possible for doctors to practise such good medicine in country districts, simply for the lack of facilities, and yet, on the other hand, this section points out that a lot of Americans would like to go back to country living, and more doctors might be willing to go back to country living if they had the hospital facilities, the money, and the cultural opportunities that the rural communities do not now afford.

Perhaps it is worth while to find out, says this section report, what the small town doctors themselves have to say about the prospects of rural medical care, rural hospitalization, and the rest.

Dr. Ivy's Section on Research in the service of health, stresses two very familiar needs that run like a theme through almost all these reports, the need for more money, the need for more funds to be derived from taxes.

Now, one of the most interesting features of Dr. Ivy's Research Section report was that they agreed that there is no lack of zeal among the bright young students. They want to go in for medical and all kinds of scientific research. This applies in all branches. Research is the thing that tempts and attracts the top 20 per cent, the people with the best scientific minds, and this top 20 per cent, ten years ago and more, used to go into medical research and all other forms of scientific research automatically, but something serious has happened.

The discrepancy between the salaries that one gets as a research worker and the salary that he can get if he is a doctor in private practice, or the salary that he can get as a scientist in the employ of private industry—this discrepancy is so great, and the uncertainty of the future for research is so great, that a lot of these best brains among our researchers are going into other fields.

Like this whole question of rural health, the answer on this matter of research in the service of health seems to me to be looking into all our folkways and seeing if we can't plan our whole lives somewhat differently.

Dr. Sabin's Section on Community Planning urges, among other things, that we take a very broad view and define health, not just as not being sick, but as a wide and general sense of well-being, including social and economic conditions, as well as the physical condition. They also warn against selling

the people in your community the idea of community health and its importance in various projects until you have the personnel to carry these projects through. All the community must participate in these projects. We need more public health councils.

Dr. Henry H. Kessler's Section on Rehabilitation reminds us that we as people are not so husky as we think. We need to know and hear more about the rather high rejection for physical reasons by the armed services during the war, and we need to break down, and this is a long process, the prejudices that exist against crippled and permanently handicapped people.

Dr. Ernest G. Sloman's Dental Health Section stressed especially the need for more dental schools and more dental research. Dental schools, it seems, need \$500 per student in addition to the tuition that the student pays in order to give that student the proper training. The big need here is for research projects—something about dental research—it does not seem as dramatic as in some other fields of research, and yet an awful lot can be done to cut the biggest part of our medical bill, the bill of the dentist, and this dental program ties in with the whole sanitation program because of the possible use of sodium fluoride in drinking water.

Dr. William C. Menninger's Mental Health Section is pioneering in what seems to me perhaps the most important field of any—maybe because it is new. Here are some figures that they come up with: Thirty to 60 per cent of all patients who consult doctors have emotional disorders that lead to physical disorders; 62 per cent of all the inmates of veterans' hospitals are psychiatric patients; one million of all admissions to Army hospitals during the war were psychiatric cases. There is an urgent need for personnel in this field. It is most important to do something about the state hospitals. We have a tendency to forget

about the inmates and the doctors in those hospitals. These doctors number anywhere from one to 300 patients, all the way to one to 1,000 patients—one doctor, one psychiatric doctor to 1,000 patients in a mental hospital, and outside the hospitals there is only one psychiatrist to every 140,000 Americans as compared to one M.D. to every 750. Barely 1 per cent of our practising nurses have psychiatric training, and they have got to care for half of all the patients. One hundred thousand new beds are needed for psychiatric cases in our hospitals at once, and yet with all this need for beds and nurses, prevention is the only real cure to this psychiatric problem, and the prevention of these mental difficulties and diseases and ailments needs the coöperation of every agency in the community—our teachers, our clergy, our lawyers, our social workers, management, labor, and everyone—it is perhaps the biggest educational job there is. It goes, maybe, to the very roots of our whole way of living.

Dr. Frank G. Boudreau's Nutrition Section says there ought to be a nutrition expert included in every health group; that nutrition is the field in which the most striking advances have been made in the last twenty-five years. We ought to start nutrition work on expectant mothers at the very start of pregnancy. Then we will get better children all through life and a lower maternal death rate. And one point that Dr. Boudreau recalled last night was that during the war, in England, Churchill went to his top scientists and said:

"What is it that must come first on the list?" They said: "See that the British people get first-class nutrition during the war." They got that nutrition, and in spite of having fallen back in many, many other fields, and suffered all kinds of hardships and tribulations, the British health, due to this good nutrition, is better than it has ever been before, and a great part of the explanation, the

way the British have told us, is because of the attention they gave to this matter of nutrition.

Mr. Arthur D. Weston's Section on Environmental Sanitation is important because it stresses the external—the importance of external factors in relation to public health.

Now, before summarizing this summary, and drawing one or two final conclusions from the many I have outlined, I think I have a duty to report on one other matter.

As Mr. Ewing explained, this assembly cannot, under the law and under its own rules, recommend any definite legislation. I do not think this prevents me in summarizing these reports and discussions from touching on the question of the membership of the United States in the World Health Organization. Dr. Louis I. Dublin raised the question yesterday from the floor. He did not press his proposed motion to urge Congress to act because Mr. Ewing said it would be out of order. Mr. Ewing made it clear, and I think it was clear to everyone present, that all members of all sections agreed that whatever our other differences may be, we united in wanting the United States to join the World Health Organization.

Dr. Fishbein, of the A.M.A., has already made two strong public statements, though, to that effect here at this assembly, and I have not heard one dissenting voice, and I have heard an awful lot in praise and agreement. For what it may be worth, perhaps I may raise my voice, too, safe in the knowledge at this time, at any rate, that I am expressing something that everybody here feels agreement about.

And this question of the World Health Organization is not the only matter on which this assembly has reached agreement. As I review the high points of the section reports, the high points that the section chairmen wanted stressed, it seemed to me that this assembly has

come to agreement on a great many important matters—matters on which agreement has not always been possible before.

Perhaps the greatest single achievement of this assembly is that all kinds of public organizations have sat down together and worked out common problems and common programs with members of the medical profession and other scientific groups.

Now, some laymen may feel that the American Medical Association has been somewhat slow in coming around to health insurance and to the idea of government aid for health. But look at it from the doctor's point of view: Like all of us, doctors are creatures of habit, and they have acquired their habits in about the hardest way there is. Just try to change some of your own habits. Try to stop smoking the way I did a little while ago; or try pulling up stakes; try going to live in a new community, changing your profession—it isn't easy:

Those of us who have been impatient with the American Medical Association for resisting change show a sad lack, I think, of understanding of human nature. Doctors have to make so many sacrifices. They submit themselves to so many disciplines, they are so overworked just keeping up with their own jobs, that the wonder to me is that any of them have time for anything else. And it is only natural that those who do interest themselves in something beyond their engrossing daily tasks want to hold on to their own tried and tested way of doing things.

That so many doctors not only have taken the time to work with the National Health Assembly but have shown themselves so coöperative, so understanding, so open-minded, seems to me the most promising and the most important development of this whole meeting. The example that the doctors have set us here should encourage all of us to go on with the kind of work that this National

Health Assembly has only just begun.

Now, there is no question that the high spot of this assembly is the coöperation between men of science and the general public. This coöperation reminds us that the atomic bomb and atomic energy are not so new as we have been led to believe. Everyone said when the atomic bomb went off that now we are in a new age, nothing is the same as it was before, and now the scientist is out of his ivory tower, and now science has got to interest itself in politics and general affairs, and the general public has got to be interested in science.

But even if there had been no atomic bomb, we would have had a meeting like this just the same. It is all a part of the same trend. The atomic bomb is one part of it, and this meeting is another part of it. It is the trend of bringing the scientists out of the laboratory, forcing the laymen to concern themselves with the impact of science on our lives. Here it happens to be medical science.

There seems no doubt that medical science can do the job. The two big questions are: Where will the money come from and where will the people come from? This assembly is hopeful. It is a hopeful sign because it is a sign of the times. It proves that the scientists and the public can work together, with government officials acting simply as intermediaries, but with the funds that finance this assembly coming from private sources. It seems almost the ideal combination of government, free enterprise, of expert and layman.

Now, as a complete and rank outsider, can I take advantage of the tolerance of this tolerant gathering to close with just one mildly critical observation, not so much of this National Health Assembly as of our American way of doing things.

As I said at the beginning, all these section reports call for more and more

facts. Of course, none of these sections has yet got the complete story. That will never be told. Some of them are just beginning to pioneer. All of them need to correlate what they already know. But we Americans, as a people, seem to have a blind passion for facts as facts. We have an almost mystical faith in statistics. Now, the collection of facts is a necessary and rewarding enterprise, but it is not a substitute for action. It is not a substitute for something that is even more difficult than action, and that is thought. Too many of us simply collect facts simply to avoid having to do anything about it. We are like the fanatic who redoubles his zeal after he has lost the sight of his objective.

During the 1920's, a wise Spaniard, Salvador de Madariaga, wrote a book, *Englishmen, Frenchmen, and Spaniards*. He made the point that the Englishman is the man of action, the Frenchman the man of thought, the Spaniard the man of passion. The Englishman, he said, thinks with his knees and elbows; he acts on instinct, and he almost always acts right, although he cannot, possibly tell you ahead of time what he is going to do or explain afterward why he has done it. The Frenchman, on the other hand, can give a perfect analysis of every situation, but when the moment to act comes, he is mentally muscle-bound and has a hard time putting his ideas into practice. Afterward, however, he can always give a perfect explanation of just exactly what happened.

Now, if the Englishman is a man of action and the Frenchman is a man of thought, the American seems to me a man of fact. Where the Englishman puts all his energy into action, we put all our energy into collecting data. Where Frenchmen put all their energy into theory and logic, we put all our energy into accumulating facts.

This is not a tendency that is peculiar to science. I think my own field of radio is the worst offender. Have

you ever seen a market survey, a listener's survey, a breakdown of Hooper ratings? I am going to take a chance now. It is no accident that Dr. Stanton, president of the Columbia Broadcasting System, one of the sponsors of this National Health Assembly, is himself a statistician.

Now please do not misunderstand me, and I hope Nate Halpern, Dr. Stanton's deputy at today's session, won't misunderstand me either. All I am saying is that a great many Americans are completely fascinated by facts. Obviously the American radio could not be where it is, and the American science could not be where it is if our leading people in these fields had not devoted themselves to the pursuit of facts, facts, facts.

But I am not saying anything to this assembly that I would not say to the president of the great organization for which I work if I say that the mere accumulation of facts is not an end, an aim in itself. It is what we do with the facts; it is what we make the facts mean that really matters.

I am not going to tell you people what all the facts that your various sections have gathered together mean. I don't know. But I am sure a lot of you do. In some of the fields that your sections have covered you will, of course, want to go out and gather more facts. Rightly! But in other cases I am sure that you have enough facts to spell out some answers; and in still other cases I bet you know the answers already and your next step is to do something about them.

It is not, however, part of my function to tell you what to do or what conclusions to draw. It is my function to review some of the material that has come before you. I will feel I have done my part if what I have said leads you to continue in thought, in action, and in spirit, the many tasks you have set yourselves and our people.

Clearing House on Public Health Salary Information

CALIFORNIA STUDIES LOCAL SALARY TRENDS

THE California State Department of Health, through its Division of Local Health Service and at the request of Local Health Officers of California, has released two salary studies covering full-time professional and technical personnel in local health departments of the state. These studies are as of October 1, 1947, and as of January 1, 1948, respectively. The October study includes 34 local departments, the January one, 32, but only 25 departments are common to both studies. A total of 40 jurisdictions are included in one or both studies.

In no instance were salaries decreased between October, 1947, and January, 1948. For the 25 health officers in both studies actual salaries paid or range of salaries, 13 remained stationary, and 12 increased during the 3 month period. In 5 instances the increases were less than 10 per cent, but in 3 they were more than one-third. The highest monthly salary of \$1,125 remained unchanged.

One more example: of 22 chief sanitarians reported at both dates, salaries of 14 remained stationary; those of 8 increased. The increases were less than 10 per cent in 4 instances, and 11, 16, 27, and 41 per cent respectively, in the remaining 4. A detailed study of this material might well reveal that variations in the extent to which salaries were increased among the separate professional groups, bear a close relation to the separate pressures brought upon them to accept other positions.

The relationship between health officers' salaries and the populations of

their jurisdictions is also worth examining. Of the 40 jurisdictions reporting salaries for either October or January or both, 13 had 1940 populations of less than 50,000; in 8 of these the health officer's monthly salary was \$600 or more. Of the 10 whose salaries were less than \$600, 5 served small populations, but 5 served populations of from 50,000 to 250,000. Again it is difficult to sort out exact correlations, particularly in view of the erratic population changes in California since 1940. Nevertheless, these figures bear careful analysis in the development of criteria for setting salary scales. They also pose the perennial question of whether the best use is currently being made of the professional and administrative skills of the public health officer in a population of 30,000, for example.

Perhaps one more word needs to be said. California is among the more fortunate states in having a comparatively low vacancy rate in its local health officer positions, the fruit, in part, perhaps, of such current studies.

LOCAL HEALTH DEPARTMENT SALARY STUDY

The *May Journal* (p. 714) reported a plan to include a sampling of local health departments in the next study of public health salaries. This study, sponsored by the Association of State and Territorial Health Officers, is already under way. The questionnaires have been prepared and sent out by the Committee on Professional Education; the technical work of analyzing and tabulating the material is being undertaken by the U. S. Public Health Service.

Questionnaires have gone to a ran-

dom sample of 126 jurisdictions in 39 states representing all areas of the country. One-fifth of the jurisdictions are state health districts. The study is limited to health departments serving from 50,000 to 250,000 persons.

LOUISIANA TAKES STOCK OF ITS SALARY SITUATION

In January, 1948, the Louisiana State Health Department made a telegram survey of salaries for 30 classes of positions common to state health agencies. Nearly every state replied to the Louisiana questionnaire; the largest number reporting for any category of workers was 43 for director of public health nursing; 42 reported on the director of public health engineering.

Except for the state health officer, salaries in the upper grades of positions appear to be somewhat higher in Louisiana than the average for all states; in the lower grades of positions, they are distinctly lower. For instance, Louisiana ranks 9th among 23 grades of minimum salaries for director of local health administration in 37 states, and 6th in 27 grades of maximum salaries for this position. For public health physicians at the entrance level it ranks 18 among 21 grades of minimum salaries in 28 states, and 14 among 23 grades of maximum salaries.

This study is available from Dan S. Moore, State Director of Personnel, Louisiana Civil Service Commission, Capitol Annex, Baton Rouge 4, La.

CONVINCING A BOARD OF ESTIMATE

In New York City the district health officers of the Department of Health have organized themselves into a Health Officers Council. This organization is

similar to the Conference of Local Health Officers of a number of states.

In April, this Health Officers Council presented a memorandum on salaries to the New York City Board of Estimate. This memorandum pointed out that of 21 health centers covering the 31 health districts of the city, only 13 were administered by health officers qualified according to Civil Service standards; of the 13 only 8 had health department experience. It also pointed out that 8 experienced health officers had left the department in 1947; of 12 carefully selected candidates who received a year's training in a school of public health through federal funds and several months of intensive training in the department, only 5 remained.

The Health Officers Council cites these facts as illustrations of the situation existing with respect to all types of workers in the health department. It believes that the unfavorable salary situation is the basic reason for the failure to maintain department personnel up to strength.

By way of highlighting its argument, the Health Officers Council compares the salaries and the population served of the New York City district health officers with those of 8 neighboring urban areas in New York State and with 10 health jurisdictions in California. This state was chosen because figures were available and because California and New York State are comparable as to per capita wealth.

This memorandum might have suggestions for other areas in their dealings with appropriating bodies. A limited supply of the memorandum is available from the Health Officers Council, 125 Worth St., New York, N. Y.

SANITARY ENGINEERING AND NATIONAL SECURITY

"A Preliminary Report — Sanitary Engineering Aspects of National Security" by the Subcommittee on Sanitary Engineering Aspects of Major Catastrophes of the National Research Council, has now been made available for general study. Prepared for and at the request of the Committee on Sanitary Engineering and Environment of the Division of Medical Sciences of the National Research Council. The Introduction states:

"This report deals with some of the sanitary engineering aspects of major catastrophes primarily as affecting the civilian population. It presents statistical data concerning catastrophes during the last quarter of a century resulting from natural phenomena and man-made causes. It gives emphasis to the special hazards of the future in the light of technological developments in the arts of peace and war and recommends organization of sanitary engineering services to mitigate the effect of future catastrophes and to provide for control and relief measures when they do occur."

"We must make adequate preparations for meeting the emergency sanitary engineering problems associated with natural catastrophes; in addition it is necessary to develop an organization capable of orientation to the contingency of war, while functioning efficiently in times of peace."

The report points out that a well coordinated program of national security to safeguard public health, welfare and our economic potential should include a plan and organization for sanitary engineering activities. The scope of the activities applies particularly to protection and promotion of public health through control measures over the environment in which people live and work. This specialized service and responsibility includes such essential community or regional facilities or services as: water supply, sewerage, control over atmospheric and stream pollution, insect and rodent control, sanitation of food production, processing and distri-

bution, garbage and refuse collection and disposal, sanitation as related to housing, industry, ventilation, swimming and bathing and general community life, and related matters.

Examples of the type of catastrophe in which sanitary and public health engineering play an important role include the general economic prostration which occurred in England during the winter of 1946-1947 due to the unusual snow storms, high winds and floods; the widespread floods which occur in the Missouri and Mississippi River valleys; and the recent Texas City explosion. The committee has classified possible disastrous events into 3 categories: those of natural phenomena such as floods, tidal waves and earthquakes; the man-made accidents which would include explosions, fires, and epidemics; and war hazards, including aerial warfare, atomic bombing, sabotage, and destruction or deterioration of essential civilian facilities.

In the past, the American Red Cross is cited as being the principal disaster relief organization on a national level. According to the report, for the 26 years from July 1, 1920, to June 30, 1946, \$105,000,000 were spent by the A. R. C. in giving disaster relief. Statistical data on the major disasters during that period are included in a separate table. Another tabulation to show the seriousness of major disasters in the United States includes 38 instances during the period 1865-1945 in which a total death toll of 29,622 is listed. A summary and classification prepared by the Metropolitan Life Insurance Company showed that 919 catastrophic accidents occurred during the period, 1937-1946, and listed 12,987 deaths. Data on these events are likewise covered in a special table.

Recommendations include:

"Calamities due to natural phenomena or man-made accidents, or those resulting from acts of warfare such as direct enemy attack or sabotage, involve a wide range of sanitary engineering problems. A consideration of these basic factors indicates that planning for prevention and control over major disasters should originate at a high federal level and be worked out in such detail as to reach down to each community in the nation."

Specific recommendations include:

1. Considering the importance of environmental sanitation in disaster relief work and national security, the committee recommends that special provision be made to develop sanitary engineering programs within the national disaster relief and security program and to place responsibility for them in qualified sanitary engineers.

2. The committee recommends that, in all research and development work of the federal government, channels be established through which the point of view of the sanitary engineer may be obtained. This may be done through employment of qualified consultants or the appointment of one or more full-time sanitary engineers on the staff of the agency or agencies concerned. Agencies in particular need of the full-time services of sanitary engineers are:

American Red Cross
Atomic Energy Commission
Central Intelligence Agency
National Security Resources Board

3. The Sanitary Engineering Division of the Public Health Service, by reason of its specially trained staff and established relationship with the sanitary engineering divisions of state, county, and local departments of health, is particularly well qualified to serve as a liaison unit between federal agencies and those of the respective states and their instrumentalities.

4. The committee recommends that a permanent sanitary engineering unit should be organized in the Public Health Service to carry out disaster and national security activities.

Working with the National Security Council, Central Intelligence Agency, National Security Resources Board, the National Military Establishment, the American Red Cross and various other federal, state, and local agencies, this unit would perform such functions as:

a. Coördinate sanitary engineering work between federal, state, and local agencies, with special emphasis on mitigation of hazards to civilians in times of peace or war.

b. Develop plans in consultation with an overall agency, for the organization and mobilization of sanitary engineers, water works operators, and related man power for service in local, regional, or national emergencies.

c. Promote civilian defense and disaster-relief planning, involving sanitary engineering and environmental sanitation, through the chief sanitary engineers of the state departments of health.

d. Develop a system of liaison and intelligence whereby in the location, design, construction, and operation of public facilities the interests of national security are taken into adequate consideration.

e. Alert state and local agencies of such national defense programs as are likely to affect community resources or facilities for which they are responsible.

f. Develop training programs in environmental sanitation for professional and sub-professional people in order to establish a reservoir of trained personnel for service in times of disorder.

Abel Wolman is chairman of the Committee on Sanitary Engineering and Environment. The Subcommittee on Sanitary Engineering Aspects of Major Catastrophes is composed of Arthur E. Gorman, Chairman, Gerald E. Arnold, Anselmo F. Dappert, Victor M. Ehlers, H. H. Gerstein.

The full report appears in the June, 1948, issue of the *Journal of the New England Water Works Association*, George C. Houser, Editor, Boston 8, Mass.

SCHOOLS OF PUBLIC HEALTH ACCREDITED FOR THE M.P.H. AND Dr.P.H. DEGREES FOR 1948-1949

On April 30, 1948, the Executive Board of the American Public Health Association received the recommendation of the Committee on Professional

Education to accredit ten schools of public health for the Master of Public Health Degree (M.P.H. in the United States; the equivalent degree in Canada

is the Diploma of Public Health or D.P.H.). The Committee on Professional Education also had recommended accreditation of seven schools for the Doctor of Public Health Degree (Dr.P.H.) for the academic year 1948-1949.

The Executive Board voted to accredit these schools all of which had been accredited previously. A reduction of the number of accredited schools

from eleven in 1947-1948 to ten in 1948-1949, is due to a withdrawal of Vanderbilt University which, because of economic circumstances, is forced to discontinue the postgraduate public health training program for the present.

Below are listed the schools accredited for 1948-1949, the degrees for which they are accredited, and the names of the directors or deans.

2

Institutions Accredited by the American Public Health Association To Give the Degree of Master of Public Health (Diploma of Public Health in Canada) and Doctor of Public Health for the Academic Year 1948-1949

CALIFORNIA, UNIVERSITY OF School of Public Health Berkeley 4, Calif.	M.P.H., Dr.P.H.	Edward S. Rogers, M.D., Dean
COLUMBIA UNIVERSITY School of Public Health 600 West 168th Street New York 32, N. Y.	M.P.H., Dr.P.H.	Harry S. Mustard, M.D., Director Harold W. Brown, M.D., Acting Director
HARVARD UNIVERSITY School of Public Health 55 Shattuck Street Boston 15, Mass.	M.P.H., Dr.P.H.	James S. Simmons, M.D., Dean
JOHNS HOPKINS UNIVERSITY School of Hygiene and Public Health 615 N. Wolfe Street Baltimore 5, Md.	M.P.H., Dr.P.H.	Ernest L. Stebbins, M.D., Director
MICHIGAN, UNIVERSITY OF School of Public Health Ann Arbor, Mich.	M.P.H., Dr.P.H.	Henry F. Vaughan, Dr.P.H., Dean
MINNESOTA, UNIVERSITY OF School of Public Health Minneapolis 14, Minn.	M.P.H.	Gaylord W. Anderson, M.D., Director
NORTH CAROLINA, UNIVERSITY OF School of Public Health Chapel Hill, N. C.	M.P.H., Dr.P.H.	Edward G. McGavran, M.D., Dean
TORONTO, UNIVERSITY OF School of Hygiene Toronto 5, Ontario, Canada	D.P.H.	Robert D. Defries, M.D., Director
TULANE UNIVERSITY School of Medicine Department of Public Health New Orleans 13, La.	M.P.H.	M. E. Lapham, M.D., Dean
YALE UNIVERSITY School of Medicine Department of Public Health New Haven, Conn.	M.P.H., Dr.P.H.	Prof. Ira V. Hiscock, Chairman

Credit Lines

NEW YORK PLANS NEW PUBLICATIONS

With the advent of Herman Hilleboe, M.D., as Health Commissioner, and Granville W. Larimore, M.D., as Director of Public Health Education, the New York State Health Department has taken a look at its weekly *Health News* and come up with plans for a weekly, a monthly, and a quarterly.

Beginning in June, *Health News* becomes a monthly publication, beamed primarily to professional health workers, and applying the principles of community organization. Its first developmental issue of April gave news about the State Medical Society and a number of voluntary health agencies, as well as an article on local health services. It was liberally illustrated with pictures, which is a part of the plan, and produced with a high grade of paper and typography. A wide distribution is planned for this publication.

The weekly publication will be the *Bulletin*, reproduced by multilith, and will have "house-organ" type of material and current communicable disease and other information of interest to public health workers. It started publication in June. The *Quarterly* will be devoted to scientific articles. Both the *Bulletin* and the *Quarterly* will be distributed to professional public health workers only.

WHAT DOES A HEALTH DEPARTMENT DO?

Perhaps a new way of answering this question has been found by the Lawrence County (Illinois) Medical Society. In a folded flier it lists each staff member of the Lawrence-Wabash bi-county health department and reproduces the exact record of what each did during one day.

The health officer of this bi-county

unit serving a population of about 35,000 is Dale E. Scholz, M.D.

THE SAFETY WORLD GETS TOGETHER

In February, 1948, the National Conference on Home Safety, originally organized in January, 1946, was dissolved. At the same time its successor, the Home Safety Conference of the National Safety Conference was born and will assume some of the aims and activities of the former organization. Among the notable achievements of the Conference during the two years of its existence was the publication and wide distribution of "A Man's Castle," an excellent home safety health education tool.

Donald B. Armstrong, M.D., who was Chairman of the Executive Committee of the earlier conference is temporary chairman of the new conference, and chairman of its Steering Committee. The next meeting of the conference will be held in connection with the 36th National Safety Congress in Chicago, October 18-22.

"IT'S IN THE BAG" A NEW FILM

The Texas State Health Department has recently released "It's In the Bag," a motion picture describing the nursing bag technique and an accompanying script. It is intended to arouse interest in high school girls in the public health nursing professions, as an aid in nursing training, as a means of getting certain health information to the public, and acquainting lay and professional groups with public health nursing service.

Details available from Texas State Health Department, Austin 2, Tex.

WORLD HEALTH ORGANIZATION

UP TO DATE

The March issue of *International*

Conciliation (Carnegie Endowment for International Peace, 405 West 117 St., New York 17) is devoted to an article on the Program and Accomplishments of the World Health Organization by Professor C.-E. A. Winslow, with an introduction by Brock Chisholm, M.D., Executive Secretary of the Interim Commission, World Health Organization. Professor Winslow's article is a down to earth summary of the various areas in which WHO operates and the machinery which it employs, but in summarizing he makes the reader see also the wide horizons. This should be in the working library of every public health worker and particularly should it be read by the members of the House Rules Committee, that Committee which on March 12 tabled the resolution for United States ratification of the WHO constitution.

INDIANA MEANS IT

The February issue of the *Monthly Bulletin of the Indiana State Board of Health* is devoted primarily to promoting full-time local health services in Indiana. Its opening article on this subject is illustrated with a cartoon of racers entitled "Come On Indiana," and informs its readers that only 5 states ran behind Indiana in the race for complete state coverage with full-time health departments. There are articles by the executives of the Indiana Tuberculosis Association and the Indiana Congress of Parents and Teachers, and excerpts from the paper by George J. Nelbach of the New York State Committee on Tuberculosis and Health given at the Princeton Conference on Local Health Units. Ten counties are listed as the most likely candidates for supporting full-time service. If they should move over, in fact, from candidates to elected status, 50 per cent of Indiana's population would be covered by full-time local health service.

SCHOOL HEALTH IS GOING PLACES IN WISCONSIN

About 3 years ago in Wisconsin a committee became interested in school health services in that state. Under the sponsorship of the departments of health and education a Wisconsin Co-operative School Health Program with the aim of "better health for every child in the state" was set up.

The program has now prepared a series of 10 *Guides for Better School Health*. No. 1 is *The Road to School Health* (see *January Journal*, p. 119), and No. 10 is *Nutrition Education for Boys and Girls*. In between are pamphlets on school water supply, heating and ventilation, lighting maintenance, dental health, tuberculosis health education, school health examinations, health and safety instruction, and nutrition education. All of these bulletins are available on request from the State Department of Public Instruction, Madison.

The program has been under the direction of Warren H. Southworth, Associate Professor of Education of the University of Wisconsin. Many persons and many agencies have coöperated; 5 of the bulletins were published by the State Department of Instruction, 2 of them with funds supplied by the W. K. Kellogg Foundation; 2 by the State Board of Health, and 1 each by the Department of Agriculture and the Wisconsin Anti-tuberculosis Society.

This coöperative program has also had an annual school health conference. The report of the third one, held in October, 1947, is now also available.

MENTAL HEALTH ON THE RADIO

An exciting new series of 13 transcribed dramas on mental health, *The Tenth Man*, was recently released by the National Mental Health Foundation and is now available for sponsorship on local radio outlets or for other educational uses. Designed as tools for local mental

health societies, doctors, social workers, and others who wish to inform the public about psychiatric facts, these 15-minute radio plays dramatize some of the problems of the one man in 10 who needs or will need professional care for a mental or nervous disorder. The series has received commendation and endorsement from the Group for the Advancement of Psychiatry and the United States Public Health Service. Ralph Bellamy, noted actor, appears as narrator throughout the series, and prominent radio actors play supporting roles. For further information write to the National Mental Health Foundation, 1520 Race Street, Philadelphia 2, Pa.

THE IDEA WAS GOOD ANYWAY

The Lorain County (Ohio) Health Department held its 28th annual meeting on March 1. It celebrated, among other things, a \$35,000 two year grant from the W. K. Kellogg Foundation to establish a rural field training center for public health personnel.

Worthy of special mention, however, is its attempt to use the occasion to publicize rural health service over a wide area. It invited *Life Magazine* "to go to an annual meeting of a rural health department" giving as background material some of the facts from *Local Health Units for the Nation*, as well as some indication of the critical personnel shortage.

That *Life* did not accept the invitation, makes it no less good an idea. It takes more than one try to land in big time popular magazines.

MAYORS KNOW THE COST OF SLUMS

The United States Conference of Mayors publishes *America Cannot Afford Slums*, a graphic story in pictures and charts of the increasing financial burden and growing social problem of slums. It is designed as an argument for the Taft-Ellendorf-Wagner housing

bill. This telling argument for the bill is attractively packaged in a well printed, well illustrated booklet in pleasing colors.

HOUSES ARE HOMES

The Woman's Foundation has just published *Houses for Family Living*, a summary of the ideas discussed at the Rye, N. Y., Conference on Housing for Family Living in November, 1946. The stated purpose of the pamphlet is "an attempt to put between two covers some of the information recently acquired on family living and the home and to think through what it means." This excellent technical production is available from the Woman's Foundation, Inc., 10 East 40 Street, New York 16, N. Y., 35 cents—less in quantity orders.

It will be remembered that the Woman's Foundation initiated the chain of events that culminated in the National Conference on Family Life held in Washington, D. C., in May, 1948.

STREAM POLLUTION ABATEMENT

The *Annual Report—Interstate Sanitation Commission* for 1947 gives a record of the accomplishments of the tri-state body organized by New York, New Jersey, and Connecticut to control pollution of the greater New York bay area. Willing coöperation on the part of industry and municipalities is reported, although recourse to the legal powers of the Commission was resorted to 13 times in 1947 through issuance of orders on uncoöperative municipalities or industries. An increase in time spent in meeting requests for special services is noted as a result of continued public education. Among special activities followed was a continued participation in studies of the prevalence of marine borers, studies of storm water infiltration and storm-flow by-passing at sewage treatment plants. Results of chemical and bacteriological tests of samples taken from the various sewage

contributors in the area are presented for the years 1945, 1946, and 1947.

INTRODUCING THE TUBERCULOSIS HOSPITAL

Among the problems of a tuberculosis control program is the natural reluctance of the sufferer's family to hospitalize him away from the home and the nameless fear of hospitals that still remains in many areas. With this in mind the New York State Committee on Tuberculosis and Public Health has published, in an attractive illustrated booklet, *Your Sunnount*, subtitled, "Veterans Administration Hospital and How It Serves You."

The booklet is written for the patient and his family and describes the facilities for his cure and rehabilitation. In the process a good deal of tuberculosis health education is included. This description of a veterans' hospital in New York State to increase effective hospitalization of tuberculous veterans might well be copied elsewhere.

NLNE LEAGUE LETTER

Under date of March 5, the first *League Letter* of the National League of Nursing Education appeared. This is one of a series planned by the NLNE Committee of Public Relations to bring "brief, prompt, accurate information to state and local leagues about happenings in nursing education." Available from NLNE, 1790 Broadway, New York 19, N. Y., at 10 centes each.

A closely related publication is the *News Letter* of the Committee on the Structure of National Nursing Organizations, Volume 1, No. 1, which was issued in March. It is to be "published occasionally" and addressed to every member of the 6 national nursing organizations represented on the Committee on Structure numbering over 200,000. Available without charge from Room 201, 1790 Broadway, New York 19, N. Y.

TELLING DOCTORS ABOUT THE NATIONAL HEALTH COUNCIL

The *New England Journal of Medicine* for January 15, 1948, editorializes on the subject of Voluntary Health Agencies and the National Health Council. This outlines the services the National Health Council can give to existing health agencies. It suggests also that the American Medical Association again become a member of the Council.

The editorial is particularly valuable in interpreting for physicians and local medical societies the Council and its activities in developing local health councils. It has been reprinted by and is available in limited quantities from The National Health Council, 1790 Broadway, New York 19.

ANNUAL REPORTS

Twentieth Anniversary Annual Report, Georgia Warm Springs Foundation, is worth a few minutes for many reasons: to remind us of the physical courage and tenacity of the late President, for the information about the Foundation it contains, especially as to its growth in 20 years, and finally for the technical excellence of the pamphlet itself.

A Summary Report, Food Supply Division, The Institute of Inter-American Affairs, 1942-1947. If you want to know some of the long range attacks on bad health in Central and South America by way of soil conservation, better milk production, use of fertilizer, varied garden crops, leaf through this attractive report with its pictures.

Annual Report of the Social Science Research Council, 1946-1947, is the story of one organization's contribution to the knowledge of human relation through research. It deems its first task in research to be planning, that is, "the entire process of developing research personnel, improving techniques, mapping opportunities and needs, designing

projects, assuring the existence of proper materials, encouraging the investment of funds in research, and better the circumstances under which research is conducted."

Donald Young was the Director of the National Research Council during the period of this report. He is now General Director of the Russell Sage Foundation. His successor at the National Research Council is Pendleton Herring, formerly of the Carnegie Corporation of America and Professor of Government at Harvard University.

The offices of the Council are at 230 Park Avenue, New York 17.

WORTH ACQUIRING

Born Thirty Days Too Soon! was prepared by the Maternal and Child Health Division of the Kansas State Board of Health (Topeka) on behalf of the premature baby because he is too tiny to plead his own case. This tells the simple facts about prematurity, the facilities available, and a plea for tax money of eight cents per capita to expand the program, as well as suggestions for setting up a community program. It gives a page of pictures of great men who were premature babies—Winston Churchill, Darwin, Voltaire, and others.

Good News About Diabetes is number 138 in the series of Public Affairs Pamphlets and explains that the life expectancy of the diabetic is constantly increasing if he pays more attention to his health than the average non-diabetic. The author, Herbert Yahraes, also reports on the activities of the American Diabetes Association and the Diabetes Section of the U. S. Public Health Service, and urges increased funds for research, particularly into the why of diabetes. Public Affairs Committee, 22 East 38 St., New York 16, N. Y., Room 204.

The Unexpected Gift is one of a series of science readers for junior high school. This one, in story form, tells about a well balanced diet and how a school lunch program may be developed. Project in Applied Economics, College of Education, University of Florida, Gainesville, 35 cents, or 28 cents in orders of 25 or more.

The Problem of Cerebral Palsy by Meyer A. Perlstein, M.D., with the assistance of William McPeak, social science analyst, has been published by the National Society for Crippled Children and Adults. It is designed as "an aid to the medical profession, for leaders in community organizations, and as a guide to workers in the fields of health and rehabilitation." Included is a description of the problem of the cerebral palsied child, a suggested state program, professional training, research needs, and cerebral palsy as a socioeconomic problem. There is a diagrammatic chart of how a model cerebral palsy program operates, and some hypothetical case histories illustrating the mechanics of the cerebral palsy program.

Available from the National Society for Crippled Children and Adults, Inc., 11 S. La Salle Street, Chicago 3, 25 cents.

State Administration of School Health, Physical Education and Recreation is a status study by the U. S. Office of Education. It gives the current legal and administrative provisions in the various states for the development of school programs of health, physical education and recreation. One section is devoted to coöperative arrangements between state departments of health and education.

Available from U. S. Government Printing Office, Washington 25, D. C., 15 cents.

Public Health in Foreign Periodicals

GEORGE ROSEN, M.D., PH.D.

DURING World War II, it was realized that a complete and accurate study of the influence of the war and of war conditions on public health would not become possible until the end of hostilities.¹ When the fighting ceased, public health workers in various countries began to survey the situation. Attention was turned to the problems of infant mortality, tuberculosis, venereal disease, and nutrition, that is, those problems that were found to be most pressing. So far, information has become available only in piecemeal form, relating to individual countries or to specific restricted problems. At the same time, new problems have not been neglected. In illustration of these comments, a number of investigations dealing with European countries have been selected for review.²

INFANT MORTALITY IN FRANCE

In France, the natural decrease of population already existing prior to the war was accelerated during the war years. French authors are, therefore, inquiring into the problem of infant mortality. Lesné and Debré point out that infant mortality, which had steadily declined during the years preceding the war, in 1940 showed an abrupt and considerable rise. From a rate of 110 per 1,000 live births in 1914, infant mortality had fallen to 64 in 1939. As a result, however, of conditions arising from the war and the occupation, e.g., the exodus in the summer of 1940, food difficulties, and infections, infant mortality rose to 91 in 1940, dropped to 77 in 1944, and reached 102 in 1945. It should be recalled that this was the severe winter of 1944-1945 when there

was great scarcity of food and fuel. In 1946, however, throughout France there was a sharp drop in infant mortality. The rate for France as a whole was 70 per 1,000 live births.

The authors state that about 100,000 infants under 1 year of age die annually in France. The highest infant death rate occurs before the age of 3 months; and approximately one-third of all deaths under 1 year fall under the heading of neonatal mortality. These deaths are due to various pathological conditions, and to biological, social, and economic causes. Lesné and Debré are more concerned about the latter, for it is their contention that attention to the social and economic problems could save for France three-quarters of the infants who die before the age of 1 year.

The problem of breastfeeding is considered at length. Intensification of the campaign for breastfeeding is advocated. This involves education of doctors and midwives, as well as the general public in the value of breastfeeding. Economic assistance and extra rations should be provided for every nursing mother obliged to work. Breast-milk depots should be established in every large town. Ignorance, carelessness, and poor home conditions contribute to a high infant mortality. Alleviation of these conditions requires a combination of the efforts of doctors and social workers, and an improvement in economic conditions. Furthermore, families with young children should have a priority of fuel. Finally, the authors emphasize the necessity for periodic medical supervision during pregnancy, and during the first year of life. Prenatal clinics and infant

consultation centers must constantly carry on a campaign of education with mothers.

MORTALITY AND MORBIDITY IN DENMARK DURING RECENT YEARS

A survey of public health conditions in Denmark during 1946 presents an interesting comparison with conditions preceding and during the war.⁴ The general mortality rates recorded in Denmark are lower than those observed before the war. The years 1942 and 1943 were record years, with the mortality rate dropping to a low of 9.6 per 1,000 population. Tuberculosis mortality is a sensitive index of prevailing social and economic conditions, especially the factors of nutrition and work. War, influencing as it does both of these factors, might be expected to result in a significant increase in tuberculosis mortality. Such was not the case in Denmark. The pre-war downward trend of tuberculosis mortality was checked at first, but was later stabilized. At present, the trend is again downward. During the period 1936-1940, the tuberculosis mortality rate was 40 per 100,000, whereas in the period 1941-1945, it dropped to 34 per 100,000. In 1945, the tuberculosis mortality rate was the lowest yet recorded. It is reported that deaths from all forms of tuberculosis, both pulmonary and other, were even less numerous in 1946 than in 1945.

On the other hand, the war exerted an unfavorable influence on the incidence of typhus fever, typhoid fever, dysentery, scabies, syphilis and gonorrhea. The incidence of scabies achieved a record peak in 1945. Venereal diseases spread considerably after the beginning of the war. Syphilis is reported to have been eight times more frequent in 1944 than in 1940. The number of cases of syphilis reported for these two years was 4,053 and 485 respectively. The trend with respect to gonorrhea was similar. From 1940 to 1944 the incidence of

the disease is reported to have increased threefold. The peak incidence for gonorrhea was reached in 1945. During the war there was also a rise in the mortality rate from heart disease.

BCG VACCINATION IN SWEDEN AND RUSSIA

Among the problems remaining in the wake of the war, tuberculosis occupies a prominent place. In dealing with this problem many countries are today using BCG vaccination.

The use of the Calmette vaccine in Sweden dates back to 1925 when the first trials were carried out by the oral route.⁵ Intradermal introduction of the BCG vaccine was first employed in 1927 at a children's hospital in Gothenburg, and has since been the preferred mode of administration. During the succeeding two decades the number of persons vaccinated has increased progressively. By the beginning of 1947, 500,000 persons had been vaccinated at least once. The progress of this movement has been promoted by the coöperation of governmental organizations and voluntary agencies. The Swedish National Association Against Tuberculosis has played a leading role in these developments.

Russia, too, has made extensive use of BCG.⁶ The Soviet Union was one of the first countries to undertake the study of the Calmette vaccine. In 1924, Tarashevich at Kiev received a culture from Calmette's laboratory at Paris. Belonovsky at Leningrad received a second one in 1926. After a period of preliminary studies, the first vaccinations were carried out in 1926 in the Ukraine. In 1928, vaccination was started in Leningrad, and a year later, the operation was extended to cover five large cities (Leningrad, Moscow, Saratov, Kazan, and Rostov on the Don). It was not until 1937, however, that a widespread movement was started. This movement continued even during the war. By 1940, more than two million

infants had been vaccinated. In the majority of cases the oral route has been used for vaccination. A small number of infants have been vaccinated subcutaneously.

HEMORRHAGIC FEVER IN THE CRIMEA

The Russians have also been active in the field of medical parasitology.⁷ In the spring and summer of 1944 and 1945, a mysterious hemorrhagic fever prevailed, often with fatal results among farmers and peasants in the Crimea. Investigation by a group of scientists showed that this disease was caused by a virus transmitted by the tick, *Hyalomma marginatum* Koch.

Grobov studied the local fauna in order to establish possible reservoirs of infection. After investigating various rodents, he found that only hares (*Lepus europaeus transsylvanicus*) harbor the larvae and nymphs in large numbers.

When the nymphs mature in the spring, they bite cattle and human beings, in this way transmitting the disease. The author suggests that birds may also play a role in the transmission of this fever, since nymphs of *H. marginatum* were found on several avian species.

REFERENCES

1. Biraud, Y. M. Health in Europe. A Survey of the Epidemic and Nutritional Situation. *Bull. Health Organ., League of Nations*, 10:559-699, 1943-1944.
2. As far as the available foreign literature will permit, it is planned in the near future to deal similarly with South America, Africa and Asia.
3. Lesné, E., and Debré, R. Sur la mortalité infantile. *Bull. Acad. Nat. Méd.*, 131:372-377, 1947.
4. Lindhardt, M. Sygelighed og Dødelighed i 1946. *Ugeskrift f. Læger*, 109:368-373, 1947.
5. Wallgren, A. Calmette-vaccinationen i Sverige. *Kvartalskrift Svenska Nationalföreningen mot Tuberkulos*, 42 (2), 1947.
6. Abolnick, S. A. La prévention de la tuberculose par le B.C.G en U.R.S.S. *Ann. Inst. Pasteur*, 73: 373-378, 1947.
7. Grobov, A. G. On the Question of Carriers of the Crimean Haemorrhagic Fever (K Voprosy o Pere-noschikach Krimskoye Gemorrhagicheskoye Lichoradki). *Meditsinskaya parazitologiya i parazitarnye bolezni*, 15 (6):59-63, 1946.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted. All books reviewed in these columns may be purchased through the Book Service.

Applied Medical Bacteriology—
By Max S. Marshall, with the collaboration of Janet B. Gunnison, Alfred S. Lazarus, Elizabeth Morrison, and Marian C. Shevsky. Philadelphia: Lea and Febiger, 1947. 340 pp. Price, \$4.50.

It is a pleasure to review a book whose title so aptly describes its contents. The authors have succeeded in presenting an amazing amount of information in 340 pages, in a clear, concise, and well organized manner. The method of approach conveys the practical aspects of medical bacteriology as applied to and used by clinicians, public health workers, laboratory workers, nurses, and teachers. An attempt is made to present medical bacteriology in such a way that it will be more understandable to those who come in contact with its many ramifications.

A unique feature of the book is the 160 pages devoted to a discussion of diseases from the viewpoint of etiology, epidemiology, type of specimen for examination, laboratory procedures, and methods of reporting. Excellent judgment is shown in the choice of laboratory procedures, which are clear and up-to-date.

Other chapters deal with specific procedures, such as cultivation, isolation, general techniques as used in bacteriology, the use of laboratory animals and culture media, and general information regarding virology and mycology. An excellent chapter on the collection of specimens and the principles involved adds materially to the value of the book for clinicians and laboratory workers.

The appendix is exceptionally well treated, with clear tables regarding diseases, causative agents, specimens for

examination, pertinent animal and serologic tests, stains, reagents, and diagnostic antigens and antisera.

This well organized text, with its abundance of factual information, should be available in every laboratory doing bacteriologic and serologic diagnostic tests. MELVIN E. KOONS

The Pathology of Nutritional Disease—
By Richard H. Follis, Jr., M.D. Springfield, Ill.: Thomas, 1948. 291 pp. Price, \$6.75.

This book fills a real need and both Dr. Follis and the publisher are to be congratulated, the former for getting together in one place the pertinent pathology involved in many nutritional deficiencies, and the latter for doing a good job of printing and reproduction of the pathology plates. The best sections of the book deal with the author's own work on the pathology of scurvy and rickets. The subtitle of the book is "Physiological and morphological changes which result from deficiencies of the essential elements, amino acids, vitamins, and fatty acids." In general, the sections dealing with physiological changes are so brief that one might question whether they should even have been included, but certainly not in the subtitle. The book is well written and reads easily. The author's frequent use of the phrase "of course"—"such changes are, of course, partially explained by the deranged calcium and phosphorous metabolism . . .—arginine is probably one of the precursors of creatine and, of course, acts as a catalyst in the synthesis of urea . . ." tends to over simplify many statements. Everyone in the field of experimental nutrition will enjoy and

thank Dr. Follis for his splendid contribution.
FREDERICK J. STARE

Hearing and Deafness—A Guide for Laymen—*Edited by Hallowell Davis, M.D. New York and Toronto: Murray Hill Books, Inc., 1947. 496 pp. Price, \$5.00.*

According to the Editor, "This book is written for the deaf and the hard of hearing and for their families, their parents, their teachers and their friends. It is written for physicians, for educators, for social workers, and for all who are concerned with the conservation or improvement of remaining hearing; or with the approach to normal living for those who have suffered either complete or partial hearing loss." Dr. Davis and his thirteen contributors have written an admirable book which should be on the shelves of public health workers whose programs include, or should include, programs of hearing conservation.

Certain sections are too difficult for some readers; however, they are clearly posted in advance so they may be omitted if the reader wishes. For the most part the book is easy to understand. It is interesting and scientifically sound.

Public health workers will find the chapter on testing for hearing especially useful. That on the psychology of the hard of hearing and deaf is illuminating. The chapter on hearing aids has many practical tips for the user of aids. The reader cannot fail to be impressed by the many professional skills, including speech reading, auditory training and vocational guidance that must be utilized to meet the needs of patients adequately, and by the large number of hard of hearing and deaf people in the United States.

The public health administrator will be interested in the chapter on the military program of aural rehabilitation. By analogy he can learn of the organization of services required for many civilian needs. Although organizations for

the aurally handicapped are discussed, the administrator will look in vain for a complete discussion of the efforts made in the United States to develop Conservation of Hearing Programs as part of community health programs. An additional chapter summarizing programs such as those stimulated by the Children's Bureau would have made this fine book even better—at least for the health administrator, for whom it was not primarily written.

WILLIAM R. WILLARD

Communicable Disease Control—*By Gaylord W. Anderson, M.D., and Margaret G. Arustein, R.N. (2nd ed.). New York: Macmillan, 1948. 450 pp. Price, \$5.00.*

The seven years that have elapsed since the publication of the first edition of this excellent work on public health have witnessed many important changes in communicable disease control, most of which have been included in this new edition. New antibiotics, sulfonamides, and antigens have come into common use for the prevention and control of many infections, and their application to preventive medicine has been capably described.

As in the previous edition, the first part of the book deals with the control of the communicable diseases in general; the second with the prevention and treatment of particular diseases. A chapter on rheumatic fever has been added. On the whole, an excellent textbook on preventive medicine has been achieved and only a few minor criticisms can be made.

On page xiii the list of tables spread through the text fails to give the page numbers where the tables can be found. Incubation periods mentioned are not all in entire agreement with those usually found in medical texts. For instance, that of mumps is given as 3 weeks instead of the more usually stated 16 to 18 days. In the bibliographies,

although this is a 1948 book, there are very few references to articles appearing in 1947; and for the chapter on poliomyelitis, a subject on which there has been a great deal written in the last two years, there is no 1947 reference and only one for 1946.

This book can be very warmly recommended to doctors and nurses working in the public health field, and pediatricians interested in preventive medicine will also find much of interest and value in a study of this text.

PHILIP M. STIMSON

Public Health Administration in the United States—*By Wilson G. Smillie. (3rd ed.) New York: Macmillan, 1947. 637 pp. Price, \$6.50.*

This third edition, published seven years after the second, is divided into four parts.

The first presents an analytical and historical development of the public health movement. The functions of public health are listed by Smillie as Sanitation, Control of Communicable Diseases, Public Health Education, Individual Health Protection, and the Development of a Nation-Wide Program of Adequate Comprehensive Medical Care.

Part two summarizes the many scientific and administrative developments in the control of communicable diseases: particularly streptococcal infections, as a group of diseases; tuberculosis with case finding rules and mass surveys; malaria and chemotherapy; meningococcus meningitis and sulfonamide prophylaxis. Critical evaluation of community immunization procedure is an important contribution. The numerous charts, maps, diagrams, and an extensive bibliography add to the value of the text.

Part three contains a chapter on each of eleven basic activities of a health department. The child health chapter covers the entire gamut of services from maternal hygiene and the EMIC pro-

gram through school health, with emphasis on dental hygiene.

Part four is the most outstanding of the book. For the student or teacher of public health practice it is a good summary of the federal agencies and the types of administration existing in the states, municipal, and rural areas. It includes a discussion of voluntary agencies and disaster relief. Final chapters span administrative problems from public relations with the medical profession to budgets and personnel training.

An appendix contains personnel qualifications for some of the key positions of the health department.

The text reflects the experiences brought to public health from World War II. It is an excellent text for students of public health, particularly those without experience or a medical background. It is a reference book which each health department should make available to its personnel.

VLADO A. GETTING

A Synopsis of Hygiene—*By G. S. Parkinson, D.P.H., assisted by Kathleen M. Shaw, M.B.E. (9th ed.) London: J. and A. Churchill Ltd., 1947. 791 pp. Price, \$8.25.*

The Jameson and Parkinson textbook on hygiene has been revised faithfully since the first edition appeared in 1920. This ninth edition is the first to indicate the influence on public health practice of the Education Act of 1944, the National Health Service Act and the National Insurance Act of 1946. Further modifications in the text result from changes in British hospitalization policies and from changes in the requirements for the Diploma of Public Health. The reader of this edition is constantly impressed with the impact of social legislation and increasing authority of the Ministry of Health upon British public health.

The material in this book is a veritable treasury of technical information

on public health and preventive medicine., Organization of material differs considerably from that found in American textbooks. The epidemiologist will find no particular order of presentation of disease control; the industrial hygienist will have to browse through at least four of the nine sections; there is little help for those who are interested in the public health laboratory or in nursing. But public health and hospital administrators, engineers, nutritionists, maternal and child hygienists, and those interested in public health law will find this volume constantly useful as a reference guide. CHARLES E. SHEPARD

A Manual of Medical Parasitology, with Techniques for Laboratory Diagnosis and Notes on Related Animal Parasites—By C. Courson Zelif, M.S., Ph.D. State College: Pennsylvania State College, 1947. 159 pp. Price, \$3.75.

This is a paper-bound, lithoprinted volume of typewritten notes, tables, and keys, describing the appearance and morphology of parasites—principally of man—and laboratory methods, direct and indirect, of recognizing various types of parasitic infection. The symptomatology, treatment, and prevention of parasitic disease are scarcely mentioned. A classification of human parasites by phylum, class, order, family, genus, and species is included, and special sections deal with medical protozoölogy, helminthology, arachnology, and entomology. These are illustrated by some 68 figures on 13 plates. None of these are original with the author and many of them are so reduced in size and poorly reproduced as to be worthless; in many instances the captions cannot be read without a reading glass. Numerous tables of differential characteristics and keys for the separation and identification of related forms are presented; the majority of these are reprinted from well known texts on parasitology. The typescript

was poorly proof-read and abounds in errors of punctuation, spelling, grammar, and diction. The compilation of notes on laboratory techniques is useful, as it includes very recent observations and developments in this field, but these are not treated critically. References are given throughout the text, in footnotes and at the end of the volume.

JUSTIN M. ANDREWS

American Medical Research, Past and Present—By Richard H. Shryock, Ph.D., New York: The Commonwealth Fund, 1947. 350 pp. Price, \$2.50.

This monograph, one of the studies prepared under the auspices of the Committee on Medicine and the Changing Order of the New York Academy of Medicine, is a very worthy addition to that series. Dr. Shryock presents an account of the development of American medical research from the middle of the 18th century to the present. Particular emphasis is placed on the developments of the past half century and on their relevance for the present state of medical research.

Beginning with the formative influences that shaped American medical research—British, 1750–1820; French, 1820–1860; German 1860–1895—the author traces the factors that led, around the turn of the century, to the emergence of American medicine on “a level of cultural independence.” The multifarious elements that enter into the activity known as research are dealt with judiciously and in proper perspective. Dr. Shryock examines the rôles of institutions (Johns Hopkins Medical School) and of persons (William H. Welch), and appraises the significance of private support and the rise of the great philanthropic foundations for the maturation and growth of medical research.

Within the brief compass of this volume, the author examines such important questions as the relation of research to teaching, academic salaries,

medical publications, trends in medicine, and the impact of the changing social and economic background on private and public agencies in supporting research. Finally, he points out that mere technical advance is not enough. What is needed in addition is an appreciation of the cultural significance of science itself. This can be obtained by means of historical perspective. Toward this end Dr. Shryock's volume is a solid contribution. GEORGE ROSEN

Health Instruction Yearbook, 1947
—*Edited by Oliver E. Byrd, M.D.*
Stanford, Calif.: Stanford University Press, 1947. 325 pp. Price, \$3.00.

The 1947 edition of the *Health Instruction Yearbook* will take its place as a welcome companion volume to the *Yearbooks* of preceding years. Because of the increasingly rapid flow of experience in medicine, public health, and allied fields, there is great need for a volume such as this which records in a most convenient form summaries of recent health developments.

As in previous editions of the *Yearbook*, the editor has cast his net wide and has secured information on subjects ranging from the vitamin content of mushrooms to the details of the charter of the World Health Organization. Very little of importance on the health scene of 1947 has been omitted. One feels, however, that certain items might have been deleted. For instance, there seems little reason for the entry about a former postmaster general and his high blood pressure. Nevertheless, this item is indicative of the miscellany of health information to be found in the *Yearbook's* pages.

The editorial labor involved in compiling a book of this sort is exemplified by the editor's prefatory statement in which he says that 1,672 articles and news sources were reviewed. Of this number 323 were culled for inclusion in the 1947 edition. Thus, one can be as-

sured that the text touches on practically every aspect of health that excites interest today. Moreover, the editor's introductory comment to each chapter are as interesting and useful as the factual items treated.

The book is highly commended. As a ready reference source, it is admirably compiled and organized. Every public health library should possess this volume for the *Yearbook* is not only a notable undertaking but an unmixed blessing to those who want to keep abreast of progress in the profession.

JOHN LENTZ

Opiate Addiction—*By Alfred R. Lindesmith. Bloomington, Ind.: Principia Press, 1947. 235 pp. Price, \$3.00.*

In this volume, Professor Lindesmith "... aimed to develop ... an interpretation that would ... cover all instances of drug addiction." His understanding of the physiological and emotional mechanisms of drug addiction is meager, his arguments specious and his proposed "reforms" dangerous to the public health. The book and other writings of Professor Lindesmith represent armchair philosophical rumination on material obtained from "sixty to seventy" addicts about fifteen years ago. He declined, as unnecessary, an opportunity to study several hundreds of addicts before writing the book.

The author's thesis is that habitual users of narcotic drugs do not become addicts until after they have experienced withdrawal distress, known its nature, experienced relief of withdrawal symptoms by readministration of the drug, and have learned the name of the drug. This explanation will not satisfy most students of drug addiction. In the first place, it does not explain why the habitual user or "future addict" takes the drug often and regularly enough to become physically dependent on it, nor does it explain animal addiction. In the

second place, Professor Lindesmith does not understand that addiction and read-diction depend upon personality characteristics and emotional needs; he does not recognize the "addiction-prone" individual repeatedly described by Kolb and others. Most readers will be astonished at the naivete with which the author, without knowledge or regard for psychiatric concepts, has the temerity to discuss dynamics of drug addiction.

In spite of known weaknesses of "police" control of narcotic addiction in the United States, which the author proposes to abolish, the fact remains that since the Narcotic Act was passed in 1915 there has been a substantial decline in the number of addicts in this country, although the author leaves one in doubt as to whether he believes a decrease in drug addiction is really desirable.

Professor Lindesmith approves federal hospitals for treatment of drug addiction for those who wish to go voluntarily, but fails to realize, or thinks it immaterial, that only a very few would choose treatment if drugs were freely available on prescription, as he recommends. He believes the common rationalization of addicts, that drugs make them more efficient. The truth is that addicts who have the quantity of drug they desire become inefficient, lazy, somnolent, and careless of person. Professor Lindesmith mentions as an advantage of this free prescription that contraband drug traffic would be wiped out, and the addicts would be able to get their required drugs at a reasonable price, as if that were desirable. Public clinics and free prescription of drugs for addicts have been tried several times with disastrous results; addicts deceive the physicians and get extra drugs which they peddle in contraband channels, or give to their friends, who then become eligible for dispensation of drugs and a

vicious spread of addiction is thus established.

Proposal for unrestricted prescription of narcotics for addicts is naïve in the extreme and dangerous to the public health of the nation. Fortunately, sounder judgment than the author's will prevail and there is no likelihood of the "reforms" which he proposes being carried out.

VICTOR H. VOGEL

Symposium on Medicolegal Problems. Under the Co-sponsorship of the Institute of Medicine of Chicago and the Chicago Bar Association—*Edited by Samuel A. Levinson, M.D., Ph.D. Philadelphia: Lippincott, 1948. 255 pp. Price, \$5.00.*

On those rare occasions when doctors and lawyers get together to discuss mutual problems both groups invariably learn something. At six notable meetings of this sort the members of these two professions in Chicago gathered to listen to papers and to ask questions about: (1) the medical witness; (2) artificial human insemination; (3) the practice of pathology; (4) operations for sterility; (5) trauma and cancer; and (6) blood tests for paternity and chemical tests for intoxication. These vexing problems were clarified and explained, if not exactly solved, by speakers representing the medical and legal points of view, supplemented by discussion from the floor, which is fully reported and sometimes is more brilliant than the original paper. Although based mainly on Illinois experience, the material is of general interest and value, and might well set a pattern for similar assemblies in other states or in the larger cities. This well printed book will appeal to those who are concerned with the six special medicolegal problems which are so ably discussed in it.

JAMES A. TOBEY

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

In Battle Array—What the National Cancer Institute will do with the fourteen millions entrusted to it should prove an effective antidote against despair. It's assuring just to read of the magnitude and the scope of the work, being done without fanfare, fireworks, or benefit of radio comedians.

ANON. The Program of the National Cancer Institute. *Pub. Health Rep.* 63, 16:501 (Apr. 16), 1948.

From the Experts—Though a half million syphilitics have been treated with penicillin, and though that drug is now the principal agent employed, treatment is not yet entirely standardized. This report is the last word in that direction.

ANON. The Status of Penicillin in the Treatment of Syphilis. *J.A.M.A.* 136, 13:873 (Mar. 27), 1948.

"Theirs Not to Reason Why"—Having proved himself to be an effective delinquent case chaser-upper the put-upon Western Union messenger was sent out to bring in reported venereal disease contacts. Of the 1,500 he called upon, 47 per cent reported within 3 days, a better response than health board visitors procured.

BAUER, T. J., *et al.* The Telegram as a Case-Finding Technic in Venereal Disease Control. *Ven. Dis. Inform.* 29, 2:42 (Feb.), 1948.

Human Souls, Not Cases—This is an effective plea for more and better social work in connection with the detection and care of the quarter million tuberculosis patients we have on our national hands.

BLOOM, S. Some Economic and Emotional Problems of the Tuberculosis Patient and His

Family. *Pub. Health Rep.* 63, 14:448 (Apr. 2), 1948.

One in Six Gets It—It's time we did something more about trichinosis, this distinguished committee says. It recommends excluding from New York pork from hogs fed uncooked garbage, prohibiting shipment of uncooked garbage from town, and its feeding in-town, among other measures.

CORWIN, E. H. L., and PRICE, L. Control of Trichinosis (Committee Report) *Pub. Health Rep.* 63, 15:478 (Apr. 9), 1948.

Incidental Intelligence—Reported cases of polio were fewer in 1947 than any year since 1942. Epidemics occurred in only small areas. England and some of the continental countries were hard hit.

DAUER, C. C. Incidence of Poliomyelitis in 1947, (and) BRADLEY, W. H., and GALE, A. H. Poliomyelitis in England and Wales in 1947. *Pub. Health Rep.* 63, 13:393 (Mar. 26), 1948.

Science Marches On—Don't let the word "therapy" in the title persuade you that this paper is for practising physicians only. It is for every professional worker who wants to know what's back of the rule-of-thumb nutritional precepts he preaches to others, or neglects to apply to himself. Not to be missed!

ELVEHJEM, C. A. Recent Progress in Nutrition and Its Relation to Drug Therapy. *J.A.M.A.* 136, 14:915 (Apr. 3), 1948.

Canners, Take a Bow!—From a year-long nation-wide survey of canned, frozen, and fresh fruit and vegetables comes the conclusion that canned foods cost least and offered the best nutri-

tional values from an economic standpoint.

KREHL, W. A., and COWGILL, G. R. Comparative Cost and Availability of Canned, Glassed, Frozen, and Fresh Fruits and Vegetables. *J. Am. Dietet. A.* 24, 4:304 (Apr.), 1948.

They're Still at Large—Note for your book: penicillin applied locally cleared up diphtheria carriers.

LEVY, A. J. Local Treatment of Carriers of Virulent Diphtheria with Penicillin. *J.A.M.A.* 136, 13:855 (Mar. 27), 1948.

Facts About Food—Promised as the first of a series of papers on nutrition (to be published later in book form), this one is full of facts about cereals, legumes, vegetables, and fruit. I can't remember ever reading an article with more facts heaped up, pressed down, and pounded in, than this one.

MAYNARD, L. A., and NELSON, W. L. Foods of Plant Origin. *J.A.M.A.* 136, 16:1043 (Apr. 17), 1948.

As Our Population Ages—First of a series of statistical papers on heart disease morbidity and mortality, this one presents two graphs you should find useful, the percentage of population in age groups and percentage of deaths in these groups. A more dramatic presentation of the fact that our saving of lives has been in childhood and early adult ages would be difficult to conceive.

MORIYAMA, I. M., and GOVER, M. Statistical Studies of Heart Disease. *Pub. Health Rep.* 63, 17:537 (Apr. 23), 1948.

Anent Healing Thyself—How are you? Do you bite your nails, drink too much, take barbiturates? Does your anger or fit of tension persist beyond natural limits? Do you enjoy ill-health? You may still not be beyond gaining a better insight into your own condition by reading this dissertation on psychosomatic medicine, which, the writer points

out, is akin to preventive medicine in many ways.

RUESCH, J., and BOWMAN, K. M. Personality and Chronic Illness. *J.A.M.A.* 136, 13:851 (Mar. 27), 1948.

1948 Complications—Ping-pong syphilis is a new descriptive for your vocabulary. The infection is batted back and forth from the infectious partner to the one who has just completed treatment. Under penicillin therapy the situation is not rare. Ways to stop it are discussed.

SCHAMBERG, I. L., and STEIGER, H. P. Syphilitic Relapse vs. Reinfection. *Ven. Dis. Inform.* 29, 4:92 (Apr.), 1948.

State Paper—Preventive geriatrics, mental health, and research seem to be uppermost in the mind of the new Surgeon General as he takes command of the U.S.P.H.S. You'll want not to miss this address.

SCHELLE, L. A. The Road Ahead in Public Health. *Pub. Health Rep.* 63, 15:472 (Apr. 9), 1948.

You'll Be Surprised—As part of their course of training these students were required to go out and start a group along the road to better health. Some of the unusual enterprises the youngsters thought up are briefly described.

STEINHAUS, A. H. Adventures in Health Education. *J. School Health*, 18, 4:103 (Apr.), 1948.

DeLuxe Model—This is about an agreement worked out between the executive officers of the Rochester (Minn.) Public Schools and the Public Health Department, to provide complete school health services by a staff of 25 qualified physicians, nurses, and educators—for 5,000 children.

THOMAS, M. J. Unifying Health Services Through Public Education. *Pub. Health Nurs.* 40, 4:168 (Apr.), 1948.

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

- ASEPTIC TREATMENT OF WOUNDS.** Carl W. Walter, A.B., M.D. New York: Macmillan, 1948. 372 pp. Price, \$9.00.
- BIOLOGY AND HUMAN AFFAIRS** (new ed.). John W. Ritchie. New York: World Book Company, 1948. 818 pp. Price, \$3.40.
- CARDIOVASCULAR SYPHILIS.** New York: Social Hygiene Committee-N. Y. Tuberculosis and Health Association, 1948. Reprinted from Vol. IV., No. 2, February, 1948. pp. 248-278. *American Journal of Medicine*.
- CARE AND MANAGEMENT OF LABORATORY ANIMALS.** Edited by Alstair N. Worden, M.A.B.Sc. Baltimore: Williams & Wilkins, 1947. 368 pp. Price, \$8.50.
- DENTAL HEALTH TEACHING OUTLINE.** Nos. I, II, III, IV. No. I for Grades 1, 2, and 3. No. II for 4, 5, and 6. No. III for 7, 8, and 9. No. IV for 10, 11, and 12. Vern D. Irwin, D.D.S., M.P.H., and Netta W. Wilson, M.A. St. Paul, Minn.; Bruce Publishing Co., 1948. Price, \$1.00 for 4.
- DETOXICATION MECHANISMS.** R. Tecwyn Williams, Ph.D., D.Sc. New York: Wiley, 1947. 288 pp. Price, \$5.50.
- ESSENTIALS OF NURSING.** Helen Young, R.N., Eleanor Lee, A.B., R.N., and Associates. New York: Putnam's, 1948. 556 pp. Price, \$3.75.
- GLOMERULAR NEPHRITIS: DIAGNOSIS AND TREATMENT.** Thomas Addis, M.D. New York: Macmillan, 1948. 338 pp. Price, \$8.00.
- HEALTH IN SCHOOLS. TWENTIETH YEARBOOK.** Washington: American Association of School Administrators, 1948. 400 pp. Price, \$1.50.
- HEALTH IN YOUR DAILY LIVING.** Josephine L. Rathbone, Francis L. Bacon, and Charles H. Keene, M.D. Boston: Houghton Mifflin, 1948. 442 pp. Price, \$2.60.
- INTERESTING AND USEFUL MEDICAL STATISTICS.** Edited by William H. Kupper, M.D. Dubuque, Iowa: William C. Brown, 1948. 528 pp. Price, \$6.50.
- MEDICINE IN THE POST WAR WORLD—THE MARCH ON MEDICINE, 1947.** Number XII of the New York Academy of Medicine Lectures to the Laity. New York: Columbia University Press, 1948. 109 pp. Price, \$2.00.
- MOTIVATION IN HEALTH EDUCATION.** The 1947 Health Education Conference of the New York Academy of Medicine. New York: Columbia University Press, 1948. 53 pp. Price, \$1.00.
- NOAH WEBSTER: LETTERS ON YELLOW FEVER ADDRESSED TO DR. WILLIAM CURRIE.** Supplements to the Bulletin of the History of Medicine. No. 9. Introductory Essay by Benjamin Spector. Baltimore: Johns Hopkins Press, 1947. 110 pp. Price, \$2.00.
- ORAL VACCINES AND IMMUNIZATION BY OTHER UNUSUAL ROUTES.** David Thomson, D.P.H., Robert Thomson, M.B., Ch.B., Assisted by James Todd Morrison, M.D., D.P.H. Published for the Pickett-Thomson Research Laboratory. Edinburgh, Scotland: E. S. Livingstone, 1948. 329 pp.
- PHYSIOLOGIC THERAPY IN RESPIRATORY DISEASES.** (2nd ed.). Alvan L. Barach, M.D. Philadelphia: Lippincott, 1948. 408 pp. 74 illus. Price, \$9.00.
- PHYSIOLOGY OF EXERCISE.** Laurence E. Morehouse, Ph.D., and Augustus T. Miller, Jr., Ph.D. St. Louis: Mosby, 1948. 353 pp. Price, \$4.75.
- PLANNING THE NEIGHBORHOOD.** American Public Health Association, Committee on the Hygiene of Housing. Chicago: Public Administration Service, 1948. 90 pp. Price, \$2.50.
- PRACTICAL FOOD INSPECTION.** Vol. II. FISH, POULTRY AND OTHER FOODS. C. R. A. Martin, M.R., San. I. London: H. K. Lewis, 1948. 284 pp. Price, 18s. net.
- PROBLEMS OF HOSPITAL ADMINISTRATION.** A Report of a Study Based upon Interviews with 100 Hospital Administrators Located in Various Sections of the United States. Charles E. Prall, Director. Chicago: Physicians' Record, 1948. 106 pp.
- RECENT PROGRESS IN HORMONE RESEARCH.** Vol. II. The Proceedings of the Laurentian Hormone Conference. Edited by Gregory Pincus. New York: Academic Press, 1948. 427 pp. Price, \$8.00.
- RECLAIMING USED GAUZE SPONGES.** Dewey H. Palmer. New York: Hospital Bureau of Standards and Supplies. 7 pp. Price, \$5.00.
- RHEOLOGY IN RELATION TO PHARMACY AND MEDICINE.** G. W. Scott Blair, M.A., D.Sc. London: The Pharmaceutical Press, 1947. 20 pp. 2s.
- SOCIETY AS THE PATIENT.** Lawrence K. Frank. New Brunswick, N. J.: Rutgers Uni-

- versity Press, 1948. 395 pp. Price, \$5.00.
- SYNOPSIS OF PEDIATRICS. (5th ed.). John Zahorsky, A.B., M.D., F.A.C.P. Assisted by T. S. Zahorsky, B.S., M.D. St. Louis: Mosby, 1948. 449 pp. Price, \$5.50.
- TAKING THE CURE. Robert G. Lovell, M.D. New York: Macmillan, 1948. 93 pp. Price, \$2.00.
- THERAPEUTIC AND INDUSTRIAL USES OF MUSIC. Doris Soibelman. New York: Columbia University Press, 1948. 374 pp. Price, \$3.00.
- TO YOUR HEALTH AND EMOTIONS LADY! Margaret W. Metcalf. New York: Woman's Press, 1948. 40 pp. Price, \$.50.
- TRENDS IN SOCIAL WORK. As Reflected in the Proceedings of the National Conference of Social Work 1874-1946. Frank J. Bruno. New York: Columbia University Press, 1948. 387 pp. Price, \$4.50.
- TUBERCULOSIS REFERENCE STATISTICAL YEARBOOK 1946. New York: N. Y. Tuberculosis and Health Association, 1947.
- USE OF AIRCRAFT IN THE CONTROL OF MOSQUITOES. Sponsored by the American Mosquito Control Association. T. D. Mulhern, Secy-Treas. New Brunswick, N. J. American Mosquito Control Asso., Bull. No. 1, 1948. 46 pp. Price, \$1.50.
- WATER PURIFICATION CONTROL. (3rd. ed.). Edward S. Hopkins. Baltimore: Williams & Wilkins, 1948. 289 pp. Price, \$4.00.
- THE FOLLOWING REPORTS HAVE BEEN RECEIVED
- AMERICAN NATIONAL RED CROSS, THE. Annual Report for the Year Ending June 1947. Washington, D. C.: The American National Red Cross. 201 pp.
- CHARLES V. CHAPIN HOSPITAL. 38th Annual Report for the Year Ending September, 1947. Providence, R. I. Oxford Press, 1948. 88 pp.
- EDMONTON, CITY OF. Report of the Local Board of Health 1947. Alberta, Canada, 1947. 23 pp.
- FEDERAL SECURITY AGENCY. Annual Report 1947. U. S. Office of Education. Washington, D. C. Supt. of Documents, U. S. Gov. Ptg. Office, 1948. 248 pp. Price, \$.20.
- INSTITUTE OF INTERNATIONAL EDUCATION. 28th Annual Report of the Director. New York: Institute of International Education. 115 pp.
- MASSILLON, CITY OF. Health Report 1947. Wm. B. Wild, M.D., Health Commissioner. Ohio: Massillon Health Department. 64 pp.
- METROPOLITAN HEALTH COUNCIL OF COLUMBUS AND FRANKLIN COUNTY. Annual Report Year Ending February 1948. Columbus, Ohio: Metropolitan Health Council, Council of Social Agencies, 1948. 11 pp.
- MORBIDITY AND MORTALITY REPORT 1946. Welby W. Bigelow, M.D., Acting State Health Commissioner. Salt Lake City, Utah: State Department of Health. 42 pp.
- NEW BRUNSWICK DEPARTMENT OF HEALTH. 30th Annual Report of the Chief Medical Officer to the Minister of Health and Social Services. 1947. New Brunswick, Canada: Department of Health, 1948. 140 pp.
- ROCKEFELLER FOUNDATION, THE. A Review for 1947. Raymond B. Fosdick. New York: The Rockefeller Foundation. 64 pp.
- TUBERCULOSIS IN THE BRITISH ZONE OF GERMANY. With a Section on Berlin. Report of an Inquiry made in September-October, 1947. M. Daniels, M.D., D.P.H., and P. D'Arcy Hart, M.D. London: His Majesty's Stationery Office, 1948. 32 pp. Price, sixpence.
- WEST VIRGINIA MERIT SYSTEM COUNCIL. 5th Report. January 1, 1946 to June 30, 1947. Charleston, W. Va. Office of the Supervisor. 26 pp.

cations are accepted up to August 1 each year for consideration by the Governing Council at the fall meeting. It is important to make clear that members themselves should take the initiative in submitting such applications. Neither the Sections nor the A.P.H.A. administrative staff are authorized to solicit applications. This means that, although nearly 3,000 persons have been duly recognized with this grade of affiliation since 1922, there are other persons well qualified who have never initiated the process of applying for Fellowship. It should be clear that members should not await action by others if they wish to attain Fellowship. It is necessary and proper for them to take the first step.

An application for Fellowship requires sponsorship by two Fellows of the Section with which the applicant desires to be affiliated. These personal signatures are to be obtained by the applicant before submitting the completed application. The A.P.H.A. office will assist, on request, in determining the Section with which prospective sponsors are affiliated. Applications from persons not wishing to be identified with a particular Section and requesting unaffiliated Fellowship may be sponsored by any two Fellows of the Association.

When properly sponsored and otherwise completed, the application is sent to the A.P.H.A. office, after which the list of persons applying is published in the *American Journal of Public Health*, usually in the September issue, but in any case not less than 15 days before the date for the Annual Meeting. An established routine is followed for review by the Section Councils (unaffiliated applications are reviewed by the Executive Board) and by the Commit-

tee on Eligibility. This Standing Committee of the Association is made up of one Fellow from each of the 12 Sections, plus a Chairman elected by the Executive Board. This group is under instructions from the Governing Council to examine each application in accordance with the provisions of the clause of the By-laws chosen by the applicant, and to apply the criteria with precision in each case. Final election is by the Governing Council at the second meeting at each annual session.

The privileges of Fellowship include eligibility to serve as an officer of the Association or one of the Sections, Chairman of an Association or Section Committee (over one hundred in number), a member of one of the four Standing Committees, a member of the Governing Council or Executive Board, and the right to vote at the Annual Meeting for the elective members of the Governing Council and on amendments to the Constitution. Some Civil Service and merit system records depend upon Fellowship in the American Public Health Association as an achievement deserving recognition in applicants.

The dues of Fellows are \$12.00 annually, and include a subscription to the *American Journal of Public Health* and other services to which members are eligible. Life Membership is available at \$200, covering all future annual dues.

Applications for Fellowship to be considered at the 76th Annual Meeting in Boston, Mass., November 9-12, 1948, should be filed with the Association as soon as they are completed, and in any case not later than August 1. For further information, address the Membership Department, American Public Health Association.

THE 76TH ANNUAL MEETING

Boston, Mass., November 8-12, 1948

Hotel Reservation Form

The hotels listed below have rooms available for Association delegates at the rates indicated. Please note that NO RESERVATIONS WILL BE ACCEPTED DIRECTLY BY HOTELS. Make your reservation through:

The Convention Bureau, Boston Chamber of Commerce, 80 Federal Street, Boston 10, Mass.

Hotels	Singles	Doubles	Twin Beds	Suites
Bellevue	\$4.00-\$6.00	\$6.00-\$8.00	\$7.25-\$10.00	\$12.00-\$15.00
Bostonian	3.00- 4.50	5.00- 6.50	5.00- 7.00	8.00- 10.00
Bradford	4.00- 6.00	6.00- 7.00	6.50- 8.00	12.00- 14.00
Braemore	4.40- 6.60	6.40- 9.90	6.60- 9.90	9.90- 25.00
Continental	3.50- 4.00	6.60	7.00	8.00- 25.00
Copley Plaza	4.50- 6.60	7.75- 8.80	8.80- 10.00	15.00- 25.00
Copley Square	4.00- 5.00	6.00	7.00	10.00- 14.00
Gardner	2.50- 5.00	4.00- 6.00	4.00- 6.00	7.50
Hemenway	3.00- 3.85	4.40- 5.50	4.40- 5.50	None
Kenmore	4.00- 6.00	6.50- 8.50	6.50- 8.50	10.00- 12.50
Lenox	3.75- 5.00	5.50- 6.50	7.50	10.00- 16.00
Manger	3.85- 5.50	5.00- 7.50	5.50- 7.50	None
Minerva	3.00- 5.00	4.00- 6.00	5.00- 7.00	5.00- 8.00
Myles Standish	3.85- 6.50	5.50- 7.50	6.50- 7.50	6.50- 15.00
Parker House	4.00- 6.50	6.25- 8.50	7.50- 10.00	14.00- 16.00
Puritan	4.40- 6.60	6.60- 8.80	9.90	13.20- 17.60
Sheraton	4.00- 4.50	7.00- 8.00	7.00- 8.00	7.00- 16.00
Somerset	5.00- 9.00	7.00-11.00	7.00- 11.00	10.00- 20.00
Statler	4.00- 9.50	6.50-12.00	8.50- 14.00	17.50- 27.00
Touraine	4.00- 6.00	6.00- 9.00	7.50- 9.00	14.00- 16.00
Vendome	3.75- 7.00	5.50- 8.75	6.50- 8.75	10.00- 15.00

MAKE ROOM RESERVATIONS EARLY

APPLICATION FOR HOTEL ACCOMMODATIONS AMERICAN PUBLIC HEALTH ASSOCIATION

76th Annual Meeting and Meetings of Related Organizations, Boston, November 8-12, 1948

(Note that the Meeting opens Monday, November 8, at 9.30 A.M.)

Please make hotel reservation as indicated below:

Give three choices of hotels.

Hotel 1st Choice; Hotel 2nd Choice; Hotel 3rd Choice

.... Room with Double Bed at \$..... per day for persons

.... Room with Twin Beds at \$..... per day for persons

.... Room for three people at \$..... per day for persons

.... Single room at \$..... per day

.... Suite at \$..... per day for persons

ARRIVING. NOVEMBER Hour LEAVING: NOVEMBER Hour

Please print (or type) names and addresses of all occupants including persons making reservation.

NAME	STREET ADDRESS	CITY	STATE
.....
.....
.....

Name

Street Address

City State

MAIL TO: The Convention Bureau, Boston Chamber of Commerce, 80 Federal St., Boston, Mass.

RESERVATIONS WILL BE HELD UNTIL 6:00 P.M. ONLY, UNLESS
THE HOTEL IS NOTIFIED OF LATE ARRIVALS

APPRECIATION OF DR. CARL E. BUCK

BY THE C.A.P.

At its meeting in New York in March the Executive Committee of the Committee on Administrative Practice adopted the following resolution with respect to Dr. Carl E. Buck who resigned his position as Field Director of the Association in February to become Resident Lecturer in Public Health at the University of Michigan School of Public Health:

BE IT RESOLVED that we, the members of the Executive Committee, for ourselves and for all the members of the Committee on Administrative Practice, express herewith our deep regret that Dr. Carl E. Buck, Field Director, has found it necessary to resign from this important position after seventeen years of continuous service.

Since his appointment in 1931 he has completed surveys of 17 states, the Territory of Alaska, and the Province of Manitoba. His studies have included 36 local communities—cities and counties—and follow-up consultant and advisory visits to the number of 64 in states where studies had been made.

This formidable list of detailed inquiry and recommendation for the administration of state and local health departments does not include a multitude of services to states, cities, and counties in connection with the Evaluation Project or his participation at conferences, institutes, and national, state, and local public health meetings.

His loyalty to the professional objectives and standards of the American Public Health Association, his critical and constructive analyses of official and voluntary health services, and his persuasive and courageous expressions of sound opinion for the betterment of these, often in the face of political, popular, or press criticism, have marked his labors with high quality and consistency.

Dr. Buck's personal and professional contributions to the work he undertook have left a permanent mark upon the purpose and pattern of public health service in the United States and Canada.

The committee wishes him many years of further productive contribution to the teaching of the principles of public health administration in the friendly and coöperative atmosphere of an academic environment.

COMMITTEE ON ADMINISTRATIVE PRACTICES OF THE INDUSTRIAL HYGIENE SECTION

Omitted inadvertently from the Committee List published in the *Year Book* was the following committee of the Industrial Hygiene Section:

COMMITTEE ON ADMINISTRATIVE PRACTICES

J. G. Townsend, M.D., *Chairman*, Industrial Hygiene Division, U. S. Public Health Service, Washington 25, D. C.
 W. E. Frederick, Ph.D.
 J. M. MacDonald, M.D.
 V. A. Nasatir, M.D.
 M. F. Trice, B.S.
 Miss J. Y. Ziano

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

J. R. Brandon, M.D., City Health Dept., High Point, N. C., City Health Officer
 Arthur F. Chaisson, M.D., C.M., Provincial Dept. of Health, Fredericton, N. B., Canada, District Medical Health Officer
 Gerald R. Clark, M.D., 411 Capitol Bldg.,

Phoenix, Ariz., Senior Asst. Surgeon, U.S.P.H.S., Director of Tuberculosis Control, State Health Dept.
 Catherine E. Coleman, M.D., Clay County Health Dept., West Point, Miss., Health Officer
 William E. Gregson, M.D., M.P.H., Sick Mari-

ners' Clinic, Immigration Bldg., Vancouver B. C., Canada. Quarantine Officer in Charge

Vane M. Hoge, M.D., U. S. Public Health Service, Washington, D. C., Medical Director and Chief, Division of Hospital Facilities

Philip A. Klieger, M.D., Cass Lake Indian Hospital, Cass Lake, Minn., Senior Physician, U. S. Indian Service

Adolph G. Liedloff, M.D., 222 South Front St., Mankato, Minn., Acting Director, District No. 2, State Dept. of Health

E. E. McClellan, M.D., Kaparoulis Bldg., Williamson, W. Va., Mingo County Health Officer

Ruth McDougall, M.D., D.P.H., Red River Health Unit, Ste. Anne des Chenes, Man., Canada, Medical Director

Alejandro Guevara-Rojas, M.D., M.P.H., Martires de Tacubaya 70, Mexico, D. F., Mexico, Director, Unidad de Salubridad y Estacion de Adiestramiento de Xochimilco

John W. Spies, M.D., M.P.H., State Board of Health, Marshallton, Dela., Director, Divisions of Cancer Control and Communicable Diseases, State Board of Health

Leroy K. Young, M.D., U. S. Public Health Service, Manila, Philippines, Consultant on Tuberculosis to Philippine Public Health Rehabilitation Program and Chief, Tuberculosis Control Division, U.S.P.H.S.

Laboratory Section

Rena L. Dodd, 1026 New Scotland Road, Slingerlands, N. Y., Bacteriologist, State Dept. of Health

E. H. Garrard, M.S., Dept. of Bact., Ontario Agricultural College, Guelph, Ont., Canada, Professor and Head, Dept. of Bacteriology

Roderick D. Hamblin, 3086 Stoddard Ave., San Bernardino, Calif., Laboratory Director, San Bernardino County Public Health Laboratory

Dorothy Lewis, Richards Chemical Works, 190 Warren St., Jersey City 2, N. J., Research Bacteriologist and Laboratory Supervisor

Irving J. Lipovsky, M.S., Biology Dept., Univ. of Massachusetts, Fort Devens, Mass., Asso. Professor of Bacteriology

Denys R. Lock, M.A., 1709-21st St., Everett, Wash., Director of Laboratory, Providence Hospital

Frank R. Martuccio, 1422½ Barry Ave., West Los Angeles, Calif., Bacteriologist, U. S. Veterans' Center

Celia Rubin, 2839 India St., San Diego, Calif., Senior Laboratory Technician, City Public Health Laboratory

Helen R. Seraichekas, 19 Barrett St., Cranston,

R. I., Medical Technician, U. S. Veterans' Administration

Kenneth E. Shull, 762 Lancaster Ave., Bryn Mawr, Pa., Chief Chemist and Superintendent of Purification, Philadelphia Suburban Water Co.

Kenneth W. Stewart, 1217 Harrison, Kansas City, Mo., Production and Quality Control, Franklin Ice Cream Co.

Vital Statistics Section

Vira Anderson, R.N., Salem Memorial Hospital, Salem, Ore., Medical Record Librarian

Stephen S. Henkin, 555 Prospect Place, Brooklyn 16, N. Y., Chief Record Librarian, Jewish Hospital of Brooklyn

Judith Killeen, 6300 Beacon Ave., Seattle 8, Wash., Advisory Field Clerk, State Dept. of Health

Virginia M. Riley, Barre City Hospital, Barre, Vt., Chief Record Librarian

Henry S. Robinson, 23 Grove St., New York 14, N. Y., Field Statistician, American Cancer Society

Martha C. Wood, 237 Pontotoc, Houston, Miss., Business Manager and Medical Record Librarian, Houston Hospital

Engineering Section

Irwin G. Bircher, D.V.M., 50 University Ave., Rochester 5, N. Y., County Veterinarian

Harlan G. Formo, M.P.H., 115 Court House, Duluth, Minn., Public Health Engineer, District IV, State Health Dept.

Alfred A. Gannon, 16205 Tracey, Detroit 27, Mich., Sanitarian, Wayne County Health Dept.

Pharm. Ralph T. Goerner, Jr., (HC) USN, U. S. Naval Station, Treasure Island, San Francisco, Calif., Sanitarian

Eric J. Hanneemann, 806 Highland Ave., Austin, Tex., Graduate Work in Sanitary Engineering, Univ. of Texas

Bernard L. Jacobson, Box 2892, University, Ala., Student, Univ. of Alabama

C. C. Potter, 3520-54th, Des Moines 10, Iowa, Asst. Sanitary Engineer, State Dept. of Health

Thomas J. Rinaldo, 465 Concord St., Framingham, Mass., Asst. Sanitary Engineer, Water Division, Metropolitan District Commission

Major Clyde M. Turner, MSC, 9829th TSU, Engineer School, Ft. Belvoir, Va., Sanitary Engineer

Industrial Hygiene Section

George G. Richards, 1940 South 16th East, Salt Lake City 5, Utah, Industrial Hygiene Technician, State Health Dept.

Food and Nutrition Section

- Marian L. Arnold, 172 Westminster St., Hamden 14, Conn., Nutrition Director, Connecticut Dairy and Food Council
- Slava Malec, 217 E. Broad St., Bethlehem, Pa., Staff Nutritionist, State Dept. of Health
- Margaret A. Ohlson, Ph.D., Michigan State College, East Lansing, Mich., Head, Foods and Nutrition Dept.

Maternal and Child Health Section

- Catherine D. Carlson, M.D., International House, Berkeley 4, Calif., Student, School of Public Health, Univ. of California
- Ernest W. Hancock, M.D., 1103 State House, Lincoln, Neb., Chief, Division of Services for Crippled Children, Dept. of Assistance and Child Welfare
- Pedro Magana-Erosa, M.D., 10/a. de Puebla 204, Depto. 6, Mexico, D. F., Mexico, Pediatrician, Unidad Sanitaria y Estacion de Adiestramiento de Xochimilco
- Henrietta L. Marquis, M.D., Medical Arts Bldg., Charleston, W. Va., Pediatric Consultant, State Health Dept.
- Ursula G. Sanders, M.D., 17 Capitol St., Concord, N. H., Asst. Director, Maternal and Child Health Division, State Dept. of Health
- Jessie J. Turnbull, Sc.D., Elizabeth Steel Magee Hospital, Pittsburgh 13, Pa., Supt.

Public Health Education Section

- Samuel J. Barham, 601 Topeka Blvd., Topeka, Kans., Exec. Director, Kansas Hospital Service
- Francis G. Bean, M.D., 223 Washington Ave., Bennington, Vt., Administrator, Putnam Memorial Hospital
- Mary I. Cawley, 364 Edison St., Staten Island 6, N. Y., Public Health Analyst, Venereal Disease Research Laboratory, U.S.P.H.S.
- Louie H. Crowl, D.D.S., 3201 Cutter Way, Sacramento 17, Calif., Director of Health Education, McClellan Air Force Base
- Ruth L. Flater, 526 Goodwyn Institute, Memphis, Tenn., Sec., Health Section, Community Council of Memphis-Shelby County
- Arden E. Hardgrove, 231 West Oak St., Louisville 3, Ky., Administrator, Norton Memorial Infirmary
- Ruskin King, M.D., 10 West Taylor St., Savannah, Ga., Private Pediatrician
- Fraser D. Mooney, M.D., C.M., 100 High St., Buffalo 3, N. Y., Supt., Buffalo General Hospital
- Mary H. Parks, M.P.H., 18 Dove St., Albany, N. Y., Asso. Public Health Educator, State Dept. of Health

Willard C. Rappleye, M.D., Sc.D., 630 West 168th St., New York, N. Y., Dean, Faculty of Medicine, Columbia Univ.

Lauritz S. Ylvisaker, M.D., Fidelity Mutual Life Insurance Co., 25th and Parkway, Philadelphia, Pa., Vice-President and Medical Director

Lawrence Zuccolo, 723-17th St., Union City, N. J., Student, New York Univ.

Public Health Nursing Section

- Maude C. Bailey, M.A., 4217 Blossom St., Columbia, S. C., Hospital Consultant, Maternal and Child Health Division, State Board of Health
- Margaret G. Bennett, c/o North American Embassy, Montevideo, Uruguay, S. A., Consultant Public Health Nurse, Institute of Inter-American Affairs
- Anna K. Bergstrom, R.N., 307 Court House, Springfield, Mo., Public Health Nurse, State Crippled Children's Service
- Judith S. Cantor, 500 Riverside Drive, New York, N. Y., Student, Teachers College, Columbia Univ.
- Florence M. Clark, R.N., 17 Capitol, Concord, N. H., Director, Public Health Nursing Division, State Dept. of Health
- Elizabeth Dills, R.N., B.S., George A. Hormel & Co., Austin, Minn., Nurse Consultant and Visiting Nurse
- Amelia M. Engel, 2300 Bronx Park East, Bronx 67, N. Y., District Supervising Nurse, City Dept. of Health
- Hylda A. Harp, R.N., M.P.H., 2825 N. 58th St., Milwaukee, Wis., Supervisor of School Hygiene, City Health Dept.
- Lucile M. Johnson, R.N., B.S., 805 Sixth St., Eureka, Calif., Supervising Public Health Nurse, Humboldt County Dept. of Health
- Genevieve S. Jones, 2405 First St., N. W., Washington, D. C., Senior Asst. Nurse Officer and Tuberculosis Nursing Consultant, U. S. P.H.S.
- Marjorie A. McIntosh, Ottawa Civic Hospital, Range Rd., Ottawa, Ont., Canada, Instructor of Nurses and Asst. Supervisor, Communicable Disease Unit
- Birdie M. McKee, R.N., B.S., Red Cross Nursing Service, 14 Park Ave., Caldwell, N. J., Supervising Nurse
- Eleanor J. Pingrey, 2019 E. 3rd. Ave., Durango, Colo., Student, Univ. of Colorado
- Jeanne Richie, R.N., B.S., R.F.D., Rialto, Calif., Public Health Nurse, Imperial County Health Dept.
- Eula P. Rogers, 4173 S. Elati, Englewood, Colo., Supervisor of Public Health Nurses, Arapahoe County
- Jeanne W. Walvoord, R.N., M.S.P.H., c/o American Mission, Amoy, South Fukien,

China, Supervisor of Public Health Nursing, Board of Foreign Mission of Reformed Church

Epidemiology Section

Carl M. Eklund, M.D., Rocky Mt. Laboratory, Hamilton, Mont., Senior Surgeon, U.S. P.H.S.

Major John H. Scruggs, V.C., Fort MacArthur, San Pedro, Calif., Station Veterinarian

School Health Section

Leo J. Wade, M.D., Washington Univ., St. Louis 5, Mo., Director, Student Health Service and Asst. Professor of Preventive Medicine and Public Health

Dental Health Section

Howard M. Johnston, D.D.S., 2300 Durant Ave., Berkeley 4, Calif., Dentist

Perley J. Lessard, D.D.S., 51 Deering St., Portland 4, Me., Dentist

Carlos E. de Oliva Paz, D.D.S., 782 Uruguay St., Buenos Aires, Argentina, S. A., Dentist for President and Senate of Argentina

Unaffiliated

Philip D. Bonnet, M.D., 750 Harrison Ave., Boston 18, Mass., Administrator, Massachusetts Memorial Hospitals

H. Robert Coler, M.D., 55 Shattuck St., Boston 15, Mass., Student, Harvard School of Public Health

Dean Conley, 22 East Division St., Chicago 10, Ill., Exec. Secy., American College of Hospital Administrators

Mark H. Eichenlaub, 4800 Friendship Ave., Pittsburgh, Pa., Supt., Western Pennsylvania Hospital

Albert G. Engelbach, M.D., 330 Mt. Auburn St., Cambridge 38, Mass., Administrator, Mount Auburn Hospital

Lee C. Gammill, 6221 South Main St., Houston 5, Tex., Administrator, St. Luke's Episcopal Hospital

Marianne S. Hahn, M.D., School of Public Health, Univ. of North Carolina, Chapel Hill, N. C., Student in Public Health Administration

John N. Hatfield, Pennsylvania Hospital, 8th and Spruce Sts., Philadelphia 7, Pa., Administrator

Edgar C. Hayhow, Ph.D., East Orange General Hospital, East Orange, N. J., Director

A. J. Hockett, M.D., Wilmington General Hospital, Wilmington, Del., Medical Director
F. Stanley Howe, Orange Memorial Hospital, Orange, N. J., Director

Stuart K. Hummel, Silver Cross Hospital, Joliet, Ill., Supt.

Clement W. Hunt, M.A., 25 N. 26th St., Camp Hill, Pa., Exec. Director, Capital Hospital Service, Inc.

Lt. Col. James T. McGibony, M.C., New Tripler General Hospital, APO 958, San Francisco, Calif., Commanding Officer

C. Rufus Rorem, Ph.D., 311 South Juniper St., Philadelphia 40, Pa., Exec. Secy., Hospital Council of Philadelphia

Charles M. Royle, 133 East Ave., Rochester 4, N. Y., Exec. Manager, Rochester Hospital Council

Jean Savage, 130 Broadway, Chicopee Falls, Mass., Director of Social Service, Holyoke Hospital

Moir P. Tanner, 219 Bryant St., Buffalo 9, N. Y., Supt., Children's Hospital

Peter D. Ward, M.D., C.M., 125 West College Ave., St. Paul 2, Minn., Director, Charles T. Miller Hospital

George O. Whitecotton, M.D., 2701-14th Ave., Oakland 6, Calif., Medical Director, Alameda County Institutions

Norbert A. Wilhelm, M.D., 721 Huntington Ave., Boston 15, Mass., Director, Peter Bent Brigham Hospital

DECEASED MEMBERS

Mrs. Edna M. Kech, Harrisburg, Pa. Elected Member 1940, Elected Fellow 1946, Public Health Education Section

Conrad Kinyoun, Savannah, Ga., Elected Member 1926, Elected Fellow 1933, Laboratory Section

Edward L. Miloslavich, M.D., Zagreb, Yugoslavia, Elected Member 1926, Elected Fellow 1932, Elected Life Member 1933, Industrial Hygiene Section

Florence A. Gates, South Nyack, N. Y., Elected Member 1946, Public Health Nursing Section

Harold J. Halligan, M.D., Jersey City, N. J., Elected Member 1946, Public Health Education Section

Mrs. Harriett M. Williams, Akron, Ohio, Elected Member 1945, Public Health Education Section

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

(Supplemental to list in May Journal)

POSITIONS AVAILABLE

Qualified Director of Public Health Nursing program within Department of Nursing Education in College of Arts and Sciences in Eastern University. Annual salary \$5,000. Write Department of Nursing Education, University of Rochester, Rochester 3, N. Y.

Public Health Nursing Education Director, leading to Director of Nurses position within a year. Salary \$275-\$300; good experience and background.

Also, opening for Public Health II, \$230 beginning salary.

Write: Director, Weld County Health Department, Court House, Greeley, Colo.

Graduate in Bacteriology with some background in chemistry and experience in field of sewage and water research or treatment. To take charge of section in newly organized research project, Eastern U. S. Salary \$3,200-\$4,200 depending upon qualifications. Write Box A-11. Employment Service. A.P.H.A.

Nurses are needed for public health work in Texas. The program is conducted under a Merit System. Compensation range for Sr. Public Health Nurses from \$2,277 to \$2,553 per year. Compensation range for Jr. Public Health Nurses from \$2,001 to \$2,415. Compensation for War Emergency Nurses from \$1,725 to \$2,139. In addition to above salary; possible provision of approximately \$600 car allowance annually. Write Box A-12. Employment Service. A.P.H.A.

District Health Officer. Two positions opened in progressive areas. Salary \$7,440 to \$9,120 per annum, plus traveling expenses. Applicant should possess three years of experience in professional medical work and one year graduate study in public health. Address inquiries to Arthur L. Ringle, M.D., State Director of Health, 1412 Smith Tower, Seattle, Wash.

Public Health Nurses. Several excellent positions available in full-time health departments in attractive areas in State of Washington. Salary range \$2,640 to \$3,360 per annum, plus traveling expenses.

Applicant should possess one year of experience in public health work and one year of graduate study in public health. Address inquiries to: Anna R. Moore, R.N., Chief, Public Health Nursing Division, 1412 Smith Tower, Seattle, Wash.

City Health Commissioner for New England city; 55,000 population. Progressive city. Excellent environment. Salary \$6,000. Reply in detail. Mayor's office, City Hall, Pittsfield, Mass.

Veterinarian for modern (quality) milk control program. Beginning salary \$3,120, annual increments. Car furnished. Position provides for vacation, sick leave, retirement benefits, permanency. For further particulars write Charles A. Neafie, M.D., Director, Department of Public Health, Pontiac 15, Mich.

Pathologist, certified by American Board of Pathologists. Salary commensurate with ability and experience. Excellent opportunity. Large addition under construction. Write in detail to Superintendent, South Side Hospital, Pittsburgh, Pa.

Three openings for **Public Health Nurses** in Santa Cruz County. Salary \$248-\$260 monthly. General services in rural area. Must furnish own car, mileage paid. Apply to: Charles C. Gans, M.D., Santa Cruz County Health Department, 21 Front Street, Santa Cruz, Calif.

Openings in Public Health Department, New Mexico

Public Health Nursing Consultant	\$325-\$420
Public Health Nurse-Midwife Consultant	325- 420
Public Health Nursing Supervisor	250- 325
Public Health Nurse-Midwife..	225- 290
Public Health Nurse.....	200- 260
Graduate Nurse	170- 200

Write to: Merit System Council, Box 939, Santa Fe, N. M.

Physicians Wanted

The Tennessee Valley Authority announces openings for well qualified physicians. Training and experience in Public Health and Employee Medical Services are desirable. Salaries are based on 40 hour week schedule with periodic within-grade increases. Retirement, annual and sick leave benefits are provided. Interested candidates should write the Tennessee Valley Authority, Division of Personnel, Knoxville, Tenn.

Graduate Assistantships in Bacteriology

Candidates must enroll in Graduate School. Eight credit hours of graduate work leading to master's or doctor's degree permitted per semester. Stipend \$1,000 for the academic year. Approximately 12 hours of laboratory teaching or preparations required per week. Send application for admission to Dean of Graduate School. Send personal data, transcript, and recommendations to Chairman of Department of Bacteriology, University of Michigan, Ann Arbor, Mich.

Public Health Opportunities in Connecticut

Openings for epidemiologist; crippled children's physician; child hygiene physician and local health consultant at \$6,300-7,500 salary range. Clinical psychiatrist, salary range \$6,840-8,280. Three years' employment or training including experience in child psychiatry required.

Write: Personnel Department, State Capitol, Hartford, Conn.

Sanitary Engineer or Sanitarian, recent graduate, with engineering or science degree. Generalized sanitation program. City of 50,000 population. Car allowance. Vacation, sick leave and retirement benefits. Starting salary \$3,600 per annum. Communicate with J. Burriss Perrin, M.D., C.P.H., Health Officer, City of La Crosse, Wis.

Dental Hygienist. City of 50,000 population, twenty-four schools. Dental clinic. Starting salary \$2,900 per annum with vacation, sick leave and retirement benefits. Communicate with J. Burriss Perrin, M.D., C.P.H., Health Officer, City of La Crosse, Wis.

Neuropsychiatrist with pediatrics training to direct child guidance program being conducted by private foundation on state-wide basis, New Mexico. Must be diplomate of his board. Also assistant to Director, some general qualifications. Salaries at general level paid for similar services in comparable locations. New Mexico Health Foundation, 819 East Central, Albuquerque, N. M.

Health Officer for six county unit in Northeast Colorado with offices in Sterling. Estimated population of district 59,000. Budget provides for personnel of 16. Minimum salary \$6,000 plus travel, and may be increased depending upon qualifications of applicant. Write Dr. Paul R. Hillebrand, Brush, Colo.

Community Health Educator for Mid-western city. Demonstration program under joint sponsorship of city health department and a local voluntary agency.

Program will eventually be absorbed by the official agency. University center. Challenging opportunity of demonstrating value of health education to community. Write Box A-13. Employment Service. A.P.H.A.

Laboratory openings requiring professional training and experience in State Health Department, East.

1. Research Microbiologist
2. Principal Biochemist
3. Senior Sanitary Chemist
4. Dairy technologist

Write Box A-15. Employment Service. A.P.H.A.

Public Health Staff Nurses for Linn, Yamhill, and Union Counties. Applicants must have had at least one year in approved program of study in Public Health Nursing. Under Merit System. Salary range \$2,700-\$3,300 plus travel allowance. Address correspondence to: Dr. Harold M. Erickson, State Health Officer, Portland 5, Ore.

Public Health Nurse: Generalized public health nursing program in progressive official agency in rural-suburban area adjoining Washington, D. C. Beginning salary \$2,400. Trainees accepted. Fifteen day vacation and sick leave, 35½ hours per week. Mileage allowed for use of personal car. Write Director of Nurses, Montgomery County Health Department, Rockville, Md.

Director with supervising experience in public health nursing to direct newly re-

organized visiting nurse association in industrial city of 22,000. Salary, car allowance and other details upon request. Write Box A-14. Employment Service. A.P.H.A.

Full-time Health Officer, town of 26,000, convenient to medical and cultural centers, salary \$6,000 plus mileage. Write: Chairman, Board of Health, Milford, Conn.

Public Health Nurse. Salary range \$2,640-\$3,120 (probably more beginning July 1). One year of postgraduate public health nursing training. Generalized service. Merit system and good personnel policies. Write: Division of Public Health Nursing, Kern County Department of Public Health, P. O. Box 120, Bakersfield, Calif.

Alaska Territorial Department of Health. Health Education Consultant wanted. Salary range \$4,104-\$4,644; minimum requirements college degree and one year graduate work in public health. Experience: one year full-time paid employment in public health education plus additional one year employment in any of allied fields. Write Box 1931, Juneau, Alaska.

Hearing and Vision Consultant. Minimum of two years' practical experience in hearing and vision programs; college graduate plus one year graduate training in psychology, speech, or related field with studies of handicapped children; \$3,360 to \$4,260. Civil Service status. Retirement. Permanent. Apply to: Harold M. Erickson, M.D., State Health Officer, Oregon State Board of Health, 1022 S.W. 11th Ave., Portland 5, Ore.

Qualified Public Health Nurse for itinerant work in tuberculosis in areas without local public health nursing services. Beginning salary \$230 per month with \$100 expense account. Furnish own car. Write: Public Health Nursing Section, State Dept. of Public Health, 515 Majestic Building, Denver 2, Colo.

Commissioner of Health, well established county health department, New York State. Salary \$7,500 plus necessary traveling expenses. Write Box A-17. Employment Service. A.P.H.A.

Two qualified Public Health Nurses for staff duty in well established generalized program for California city and county population of 65,000. Full staff consists of supervisor and 9 staff nurses. Salary \$2,916 to start, 5 increments to \$3,540. Car required, 6¢ mileage. 5½ days, 38 hours; 15 days' annual vacation; 5 days' annual

sick leave. Apply: H. O. Swartout, M.D., Dr.P.H., County Health Officer, P. O. Box 360, San Luis Obispo, Calif.

Sanitary Engineer for permanent connection with established company manufacturing sanitary equipment. Duties include technical advisory functions with the company as well as educational work with health departments and trade groups. No direct selling involved. Headquarters Northeast, travel half time. Desire man experienced in public health work and, if possible, sewage disposal work. Starting salary \$4,000, plus actual traveling expenses. Write Box A-16. Employment Service. A.P.H.A.

Supervisor Health Education Department for Chicago and Cook County Tuberculosis Institute, man preferred. Candidates must have public health background and experience in community education programs. Salary open. Excellent opportunity for developing broad education in tuberculosis control programs. For further information write: Dr. E. E. Kleinschmidt, Tuberculosis Institute of Chicago and Cook County, 1412 Jackson Boulevard, Chicago 7, Ill.

Bacteriologist with Ph.D. for full-time research in medical institute; research experience. Salary \$6,000 annually, dependent upon training and experience. Write Box A-18. Employment Service. A.P.H.A.

Engineering Graduate, age 35-40, not less than 5 years' experience in water pollution correction work. Technical competence as well as knowledge control techniques; experience in dealing with industrial management and municipal officials; required residency western part of state. Salary range \$4,020-4,740, plus expenses outside home station. Civil Service appointment. Apply Michigan Stream Control Commission, Box 87, Lansing 1, Mich.

Physician for well established California health department serving mixed urban and rural population of about 65,000. Male or female. Work largely in child hygiene conferences but moderate amount of time spent in field epidemiology; immunization campaigns; diagnosis and treatment venereal diseases. Five and one-half days; 38 hours; 15 days' vacation, 5 days' sick leave annually. Car needed, 6¢ mileage. Salary \$5,232 to start, five increments to \$6,360. Experienced candidate may start at higher level. Apply: H. O. Swartout, M.D., Dr.P.H., County Health Officer, Box 360, San Luis Obispo, Calif.

Three Staff Nurses, postgraduate work public health nursing or acceptable public health experience. Salary range

\$2,640-2,940. Starting rate based on training and experience. Own automobile required; 7¢ mileage. Write J. B. Eason, M.D., City Health Officer, City Hall, Spokane, Wash.

County and District Health Officers, \$7,200 to start; ample travel allowance. Openings coastal and north central Oregon; merit status; written examination unnecessary. Graduation from approved medical school including one year internship and preferably one year graduate study in public health. Permanent. Apply to: Harold M. Erickson, M.D., State Health Officer, 1022 S. W. 11th Avenue, Portland 5, Ore.

Public Health Nurses for attractive rural area; southern Michigan; short distance several important urban centers. Opportunity for supervised experience and university study. Salary excellent, dependent upon experience and qualifications; systematic increments; 40 hour week, liberal travel allowance. Write Director, Eaton County Health Department, Charlotte, Mich.

Physician to head established health and medical service center in Greenbelt, Md. Population 8,000. Planned community, 30 miles from Washington, D. C. Prepayment plan in effect now. Minimum annual income guaranteed as agreed upon. Housing available. Write Greenbelt Health Association, 30 D Ridge Road, Greenbelt, Md.

1. Health Officer

2. Public Health Nurses

for six county health unit in Northeastern Colorado. Population 59,000, essentially rural $2\frac{1}{2}$ hours from Denver. Staff of 16 anticipated. Health Department will be housed in a new wing of the local hospital. Write: P. O. Box 1296, Sterling, Colo.

Public Health Staff Nurses in new Quadri-County Health Department, Southern Illinois. Generalized service. Salary \$2,400 plus mileage. Write or wire: Medical Director, Quadri-County Health Department, Golconda, Ill.

Statistician, graduate accredited college or university. Statistics or higher mathematics major. At least 2 years' experience in Public Health Statistics within past 5 years. Salary range \$2,700-3,900 with excellent opportunity for promotion. Liberal retirement privileges. Write: State Health Officer, P. O. Box 210, Jacksonville, Fla.

Assistant Director of Public Health in city public health department of 150 employees. Southern city of approximately 200,000. Must have M.D. and either Master's degree in public health or equivalent in experience. Salary \$6,144-7,368.

Superintendent of Sanitation. Degree in sanitary engineering with municipal experience. Salary \$4,080-4,896. Write: Box A-19. Employment Service. A.P.H.A.

Tuberculosis Clinician to serve as Assistant Director of Bureau of Tuberculosis Control and Director of Clinics for Tuberculosis Control, Florida State Board of Health with residence in Jacksonville, Fla. Must be graduate of approved A.M.A. School of Medicine and have minimum of 4 years' full-time paid experience in Public Health or Tuberculosis Control. Salary up to \$7,200 depending upon training and experience. Daily allowance of \$6.00 while traveling. Must obtain license to practise in Florida within one year of appointment. Write Wilson T. Sowder, M.D., State Health Officer, P. O. Box 210, Jacksonville 1, Fla.

Public Health Nurses for staff positions in generalized program. Rural and urban. Forty hour week. Vacation and sick leave according to Washington State Merit System. Monthly salary scale \$200-\$280. Car essential; mileage allowance. Write District Health Officer, Clark County-City Health Department, Box 149, Vancouver, Wash.

Public Health Nurse Supervisor in generalized program. Rural and urban. Vacation and sick leave according to Washington State Merit System. Monthly salary scale \$250-\$310. Write District Health Officer, Clark County-City Health Department, Box 149, Vancouver, Wash.

Field Associate with a national voluntary health agency at interesting salary in an interesting job. Experience, training, ability, and personality are factors which will be equally important in determining eligibility. Offers opportunity to implement national policy in program development and community organization for public health action on state and local levels. Male or female, over 30 and under 50, willing and able to travel, with graduate degree in public health or social work, and at least three to five years' executive experience. Retirement plan, one month vacation. For further details, communicate with Box A-20, Employment Service, A.P.H.A.

POSITIONS WANTED

Academic position as Professor of Bacteriology or Preventive Medicine. Ph.D.; M.D. expected in spring, 1948. Sixteen years' experience in teaching and research (7 years as Professor of Bacteriology). Many publications including textbook of bacteriology for medical students. Write Box Ph-2. Employment Service. A.P.H.A.

Statistician-Administrator. Ten years' professional experience. Completing assignment in nation-wide health survey as chief of staff of 40-80 professional and clerical personnel doing following operations: coding, IBM tabulations, computations, analyses, etc. Intensive training in statistics, mathematics and accounting. Write Box St-1. Employment Service. A.P.H.A.

Physician, Woman, New York University graduate 1945, M.P.H. expected May, 1948; interested in position in or outside the U. S. Predominant interest communicable disease control. Write: Box Ph-3. Employment Service. A.P.H.A.

Engineer, ASCE, June; B.S., Public Health Eng.; M.S., Sanitary Eng.; desires to develop idea for "Model Communities" as adapted to rural areas in Southern Asia; South America. Interested in employment with organization or government engaged in redeveloping existing communities with regard to housing, sanitation, water supply, and general municipal facilities. Experienced overseas and domestic; single; 24. Write: Box E-3. Employment Service. A.P.H.A.

Clinician, 12 years' practice in surgery, gynecology, and general medicine abroad and in the U. S. Citizen, male, married. Interested in clinical opening in group practice hospital, industry, or health department. Write Box Ph-4. Employment Service, A.P.H.A.

Dentist, male, 30 years old, single. M.P.H. expected in June, 1948. Three years' experience in clinical and administrative work. Interested in administrative dental opening with or without clinical responsibilities. Write Box D-1, Employment Service, A.P.H.A.

Veterinarian, M.P.H. degree; 2 years' experience federal meat inspection; 2 years' teaching milk hygiene and assistant in bacteriology in large university. Interested in public health openings. Will consider full-time positions (or part-time with practice opportunities) in state or local work, agencies or institutions. Available between July 1 and August 1. Write Box V-3, Employment Service, A.P.H.A.

Sanitary Engineer, B.S., M.S., M.P.H.; seven years' experience with State Health Department; three years in Army Sanitary Corps; two years in industry, desires position in public health engineering. Write Box E-4, Employment Service, A.P.H.A.

Bacteriologist, M.S., minor chemistry, 9 years' extensive experience in research, clinical bacteriology, and industrial development. Interested in responsible position in public health, industrial laboratory, or teaching institution. Write Box L-D-1, Employment Service, A.P.H.A.

Health Educator, female, six years' experience in community organization for health with voluntary agency; 5 years' experience as supervisor of a community health center; 5 years' experience in university health service, R.N., B.S. Seeks opportunity in health education or administrative opening. Write Box H-E-3, Employment Service, A.P.H.A.

Physician, woman, considerable experience in practice of pediatrics and school health administration, consultant to professional and voluntary agencies, desires interesting position part or full time in greater New York area. Write Box Ph-6, Employment Service, A.P.H.A.

Advertisement

Opportunities Available

WANTED—(a) Public health physician for appointment as state commissioner of health; Master's or Doctor's degree in public health medicine with minimum five years' experience; \$12,000. (b) Young physician, preferably with military experience and interest in field of preventive medicine, to direct student health department; university medical school; full-time appointment with opportunity to engage in teaching and research; \$7,000. (c) Young dentist experienced or trained in public health dentistry; regional consultant position; South. (d) Public health administrator, key position in one of the leading cities of the Middle West; outstanding candidate required. (e) Medical director, division of communicable disease control; duties include supervising school of health; town of 100,000 located short distance from university medical center; Middle West. (f) Several well qualified public health physicians and dentists for appointments to Germany, Austria, and Italy; headquarters of organization in Paris. (g) Public health physician to direct health department of rapidly growing county; present population 155,000; staff of 30 personnel, Pacific Coast. **PHG-1** Medical Bureau (Burneice Larson, Director) Palmolive Building, Chicago 11.

WANTED—(a) Health educator to direct division of county community fund and council of social agencies; newly created position; \$4,000. (b) Sanitary chemist, with working knowledge of chemistry of water and sewage; experience in water filtration plants and sanitary engineering laboratories advantageous; chemist, Ph.D., with interest in sanitary chemistry field eligible; health department of modern community, new research institution; \$4,900–\$5,900; Southwest. (c) Superintendent of sanitation; city health department;

150 employees; Southern city, 200,000; \$4,080–\$4,896. (d) Vital statistician to supervise and maintain system of registration; degree with graduate training in public health or statistics required; state department of health; West. (e) Sanitary engineers experienced with drainage problems, insect control, water purification and sewage disposal; knowledge of Spanish advantageous; South America. (f) Sanitarian; health department serving three counties; Michigan. (g) Young women, Ph.D.'s or M.D.'s for academic appointments; university having highly organized program of professional training in health field for teachers; one should be qualified in teaching correctives; other in health education; students, undergraduates and graduates; ranks dependent upon qualifications. **PHG-2** Medical Bureau (Burneice Larson, Director) Palmolive Building, Chicago 11.

WANTED—(a) Public health nurse to direct nursing service serving two residential towns; generalized program; eventual staff of twenty public health nurses; minimum \$4,000. (b) Assistant professor of public health nursing; preferably one with Master's degree and supervisory experience; collegiate school; \$4,000–\$5,000; ten month year; additional income for summer teaching. (c) Public health supervisor to direct staff of thirty nurses; metropolitan health department, Middle West. (d) Student health nurse; young women's college; Pacific Coast. (e) Public health nurses with executive ability to supervise modern health center in South America; knowledge of Spanish, Portuguese or French desirable. (f) Public health nurse for position of health coordinator; public school system, small town in Wisconsin. **PHG-3** Medical Bureau (Burneice Larson, Director) Palmolive Building, Chicago, Ill.

Opportunities Wanted

Young dentist; D.D.S., M.S., degrees; recently received Master's degree in Public Health; has done considerable research work on problem of dental caries; prefers public health dentistry or teaching position in pedodontia; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Chemical engineer; B.S. in Chemical Engineering; year's graduate training in Sanitary Engineering, Harvard; seven years, communicable disease control, major part of work in malarial control; for further information please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Sanitary engineer; B.S. in Civil Engineering with Sanitary option; considerable work toward Master's degree in public health engineering; eight years, director of sanitation, state health department, four years, sanitary engineering in foreign fields; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health physician; M.D., southern university; M.P.H., Johns Hopkins; 10 years' experience as administrative health officer; for further information, please write Burneice Larson, Director, Palmolive Building, Chicago 11.

Public health nursing executive; M.S. degree, Health education and Public Health; six years, executive secretary, county tuberculosis association; seven years, director, metropolitan public health nursing association; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Health educator; A.B., middle western school, Sc.D., Johns Hopkins; eight years, director, health education, state tuberculosis association; past several years on faculty of school of hygiene, eastern university; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

NEWS FROM THE FIELD

REGIONAL CONFERENCE ON LOCAL HEALTH UNITS

The first in a series of regional conferences to get home town action on the problem of getting ever person in every county under the umbrella of local health protective services was held in Mitchell, Ind., on April 21 and 22. Under the sponsorship of the National Health Council, and planned with the co-operation of the health departments of the five states of Indiana, Kentucky, Michigan, Ohio, and Wisconsin, this conference brought together representatives of a variety of voluntary health and citizen agencies.

The Indiana State Health Department was host to the conference and made arrangements for the details of recording, publicity, stenographic, and other services. It also had the largest delegation.

Except for several resource persons the conference group was selected by the respective state health officers to bring together those interests that could develop most effectively favorable opinion for extending local public health services in their states. The keynote of the conference was accented by Bailey B. Burritt, Executive Director of the National Health Council, in his opening address with a quotation from Woodrow Wilson to the effect that, "The highest and best form of efficiency is the spontaneous coöperation of free people."

The plan of the conference was for a general session the first morning to explore the problem areas to which working committees should devote the afternoon session. The problem areas were resolved into three major groupings, each of which was assigned to a working committee. These committees, each with a discussion leader and a recorder, grappled with their problem during an after-

noon session. Their reports were then presented to the entire conference at an evening session.

The three main problems were defined as (a) securing public demand and support, (b) organization of a plan for each community including a consideration of the legislative and political factors affecting the development of such a plan, (c) accomplishing the plan through provision of adequate funds, a strong state health department, and qualified personnel. The discussions were active, with everyone participating and with colorful illustrations of specific conditions or achievements in the various states. There was universal agreement that local upsurge must be stimulated; that lasting results cannot be achieved by superimposing a state program upon local lack of knowledge and interest. The state's role, both of official and voluntary agencies, is that of stimulation, information, consultation, and assistance. The importance of local assistance in recruitment of personnel was also emphasized as was the necessity for training facilities. Inadequate salaries and an anomalous situation with respect to prestige, particularly as it affects the medical profession in public health, are the chief stumbling blocks to recruitment of personnel in adequate numbers.

The second morning discussions were carried on by the separate state groups. Here the plan was to apply the general findings of the previous day to the particular problems of the respective states. On this day the afternoon was devoted to the state group reports and general discussion of them and to a summing up.

The various state situations were reviewed. Michigan, for example, has nearly 100 per cent coverage but is currently struggling with the problem of personnel and with political currents that

are detrimental to effective completion of coverage. Kentucky, because of the constitutional limitations on salaries of public workers, is under the necessity of holding back demands for additional county units because of failure to secure personnel.

The Wisconsin Legislature has just passed a permissive health unit law and many citizen agencies throughout the state are demanding local action. There is hope that many areas may be organized in the near future. A meeting of 25 representative citizens was held on May 12 to develop a strategy for getting widespread public understanding of and demand for the services of local health departments throughout the state.

Ohio is handicapped by its public health law dividing the state into 203 health districts, a separate one for each city of 5,000 or more, and one for each county outside these cities. Since the law provides for consolidation of districts, however, the state health department has developed a plan for 37 county, city-county, and multi-county health departments to replace its 203 health districts. Some score of voluntary and citizen agencies in the state plan a survey of the various state public health laws as a basis for proposing amendments to the Ohio law.

Indiana's recent legislature passed a permissive health unit act and there is hope that the 1949 legislature will provide state aid to local health departments. One bi-county department has already been organized and sufficient interest has been created in enough areas so that if they become organized half of the state's population will be served instead of less than one-quarter now served.

In summing up the two day discussions, Mr. Burrill used Haven Emerson's Catechism on "What are the Seven Steps to the Temple of Health," which was used as display at the Princeton Conference on Local Health Units in

September, 1947. These seven steps are:

1. A plan by the state health department
2. The organization of a state-wide citizen committee of voluntary and citizen agencies and approved by the governor
3. Completing legislative authority
4. Legal authorization for personnel and salaries
5. Agreement upon tax sources of support—local, state, and federal, for the local health department
6. Recruitment and training of personnel
7. Local community health council follow through to secure results and tax support

About 50 persons attended the conference. Chairmen and reporters of problem and state committees were drawn from the conference membership. Delegates represented parent-teacher associations, the Farm Bureau, CIO, state medical societies, Federation of Women's Club, American Association of University Women, state branches of such national agencies as the National Tuberculosis Association, National Society for Crippled Children, National Foundation for Infantile Paralysis, American Red Cross, as well as representatives of official health agencies. State health commissioners of three of the five participating states attended the conference.

The National Health Council staff is now analyzing the results of the conference with a view to determining whether it represents a pattern for similar conferences in other regions of the country.

AWWA OFFICERS

The following officers of the American Water Works Association were elected recently to take office on May 7, 1948:

- President*—Linn H. Enslow, Editor, Water and Sewage Works
Vice President—A. P. Black, Professor of Chemistry, University of Florida
Treasurer—William W. Brush, Editor, Water Works Engineering

Harry E. Jordan is the permanent secretary of the Association, which has headquarters at 500 Fifth Avenue, New York.

AUSTRALIA'S MEDICAL CARE PROGRAM INCLUDES PHARMACEUTICALS

According to a federal Act, passed in 1947, pharmaceutical benefits now are included in the Australian government's health and social services program. Compiling and reviewing at regular intervals a formulary defining the scope of the benefits is in the hands of a permanent committee of seven members, including three medical practitioners and pharmacologists and pharmacists.

A prescription, in authorized form consisting of items included in the formulary, and signed by a physician, will be presentable without charge to the patient to any chemist or dispensary approved under the Act.

In reporting on this development, the Australian Information Service says, "It is hoped that the public will receive a service not only as good as present practice, but actually better, because of the elimination of drugs long superseded."

DR. PARRAN TO CHILDREN'S FUND

Thomas Parran, M.D., who retired as Surgeon General of the U. S. Public Health Service on April 6, leads a temporary mission to the Far East of the United Nations International Children's Emergency Fund. He is making a study preparatory to the extension of special forms of Children's Fund aid to mothers and children. Dr. Parran's mission is in line with the Fund's Executive Board recent directive that future allocations give special consideration to the needs of children in countries outside Europe. Five and a half million dollars has already been allocated for a child aid program in China, and a million and a half for other Far Eastern Countries.

Dr. Parran's tour of duty, which began late in April and will take about two months, will cover the Philippines, China, Hong Kong, French Indo-China, Malaya, Singapore, Indonesia, Thailand, Burma, Ceylon, India, and Pakistan.

PROFESSOR STARIN RETIRES

William A. Starin, Ph.D., Chairman of the Department of Bacteriology, Ohio State University, was honored at a dinner in Columbus on May 8. He will retire from active service at the end of the academic year, after 38 years of teaching at the university. He is known particularly for his work on filtrable viruses, pathogenic fungi, immunology, and pathogenic bacteriology. He has been a member of the American Public Health Association since 1933 and a Fellow since 1943.

The William A. Starin Lectureship has been established at the university by Professor Starin's friends and former students. Those wishing to share in this permanent tribute may send contributions to Dr. Margaret D. Heise, Department of Bacteriology, Ohio State University, Columbus, Ohio.

NEW BI-COUNTY HEALTH DEPARTMENT IN ILLINOIS

Fred O. Tonney, M.D., is the Health Officer of the recently organized joint health department of Effingham and Shelby counties in Illinois. This department was established as a result of a referendum in 1946. The combined population of the two counties in 1946 was nearly 50,000.

ARMY MEDICAL DEPARTMENT EXPANDS TRAINING PROGRAM

The United States Army Medical Department announces an expansion of its educational and training program, the primary goal of which is an unequalled high standard of medical care for the U. S. Army. Public health training is part of this program with courses in public health, sanitary engineering, hospital administration, and related fields. Medical officers who desire to be certified by American specialty boards can participate in officially recognized programs leading to examination for specialist certification, including the In-

terim Specialty Board in Preventive Medicine recently announced for the medical officers of the services.

All six Corps of the Army Medical Department—Medical, Dental, Nurse, Veterinary, Medical Service and Women's Medical Specialist Corps—and both enlisted men and women and commissioned officers, are represented in these training courses. The Army Medical Department arranges for personnel to take the courses and pays the tuition when required. Full pay and allowance is offered for the period of study at civilian and Army institutions.

PEDIATRICS, A NEW JOURNAL

In January, 1948, *Pediatrics*, the Journal of the American Academy of Pediatrics, began publication. It is "the medium of expression of the Academy to the medical profession and the public," "brings to its readers a comprehensive survey of the pediatrics field," and "publishes original articles on scientific and clinical investigations in the field of pediatrics."

Hugh McCulloch, M.D., is the Editor-in-Chief. Contributing editors are Leona Baumgartner, M.D., of New York, John P. Hubbard, M.D., Director of the Academy's study of child health services, and Dr. Felix Hurtado of Havana.

Annual subscription to this new monthly journal is \$10.00. Manuscripts, books for review, and correspondence concerning editorial matters should be sent to the Editor-in-Chief, 325 North Euclid Ave., St. Louis 8, Mo.; correspondence concerning subscriptions, advertising, and business matters to Charles C. Thomas, Publisher, 301-327 East Lawrence Ave., Springfield, Ill.

CECIL K. CALVERT, 1886-1948

On April 19, 1948, Cecil K. Calvert died at the age of 61. For forty years he served in various capacities in water purification work in Indianapolis, Ind.

In 1908, Mr. Calvert joined the staff of the Indianapolis Water Company becoming Superintendent of Purification in 1936, which position he held at the time of his death. Among his more prominent accomplishments in the field of sanitary engineering was his work with the American Water Works Association, in which he was Chairman of the Water Purification Division and of the Committee on Control of Chlorination. He joined the American Public Health Association in 1927 and became a Fellow in 1946.

LONG ISLAND COLLEGE CONCLUDES POST-GRADUATE COURSE IN INDUSTRIAL MEDICINE

The Fifth Postgraduate Course in Industrial Medicine offered by the Department of Preventive Medicine and Community Health, Long Island College of Medicine, Brooklyn, N. Y., was concluded April 16 after running for two weeks.

Thomas D. Dublin, M.D., Professor and in charge of the course reports that the total enrollment of full- and part-time students was 75, the second largest of the postgraduate courses so far offered. Thirty-one of the matriculants were physicians, 26 nurses, and 18 members of other professions. Students from Belgium, China, and Egypt were included, as were representatives of 26 different organizations in 6 different states. The lectures given for the students are expected to be published in a volume of proceedings.

KANSAS PUBLIC HEALTH ASSOCIATION MEETS

The Kansas Public Health Association held its Sixth Annual Meeting in Topeka on April 16 and 17. At the meeting a feature was a dinner honoring Charles H. Lerrigo, M.D., for forty-seven years of public health service in the state.

The officers who will serve the Kansas

society during the forthcoming year are:

President—M. Leon Bauman, M.D., Parsons

President-elect—James M. Mott, M.D., Lawrence

Secretary-Treasurer—Evelyn Ford, Topeka

The 1949 Annual Meeting of the K.P.H.A. will be held in Pittsburg April 25 to 27.

MICHIGAN PUBLIC HEALTH ASSOCIATION

At its recent annual meeting the following officers of the Michigan Public Health Association were elected:

President—Mildred Cardwell, R.N., Ingham County Health Department

President-Elect—E. Frank Meyer, D.V.M., Grand Rapids

Vice-President—Joseph G. Molner, M.D., Deputy Commissioner and Medical Director, Detroit Department of Health

Secretary-Treasurer—Marjorie Delavan, Director, Bureau of Education, State Department of Health

Representative on Governing Council, A.P.H.A.—Kenneth R. Gibson, D.D.S., Dental Director, Children's Fund of Michigan

ILLINOIS PUBLIC HEALTH ASSOCIATION ANNUAL MEETING

The Illinois Public Health Association held its 8th Annual Meeting in Chicago on April 15 and 16. The attendance was well over 500. New officers were elected as follows:

President—Maude B. Carson, R.N., Springfield

President-Elect—Baxter K. Richardson, Springfield

Secretary-Treasurer—Harold M. Cavins, Ed.D., Charleston

WHO CHARTER RATIFIED

The final meeting in Geneva of the Interim Commission of the WHO on February 7 was climaxed by an announcement that 29 United Nations, 3 more than necessary, had ratified the charter of the WHO. By April 7, 26 of the ratifications had been deposited with the United Nations, thus bringing the WHO officially into being. In addition, 8 nations not members of the

United Nations have ratified the constitution. This announcement was made by its Chairman, Dr. Andrija Stampar of Yugoslavia, who announced that the first session of the World Health Assembly will open in Geneva probably on June 24, 1948.

The United States is not among the member nations that have ratified the charter, the House Rules Committee having tabled the resolution indefinitely on March 12.

The budget of \$6,000,000 adopted by the Interim Commission provides for fellowships, teaching equipment, and medical supplies to meet post-war health problems, world-wide campaigns against malaria, tuberculosis, and venereal diseases, and a top-priority program for mother and child welfare.

LATIN AMERICAN NUTRITION CONFERENCE

In an effort to encourage all Latin American countries to provide their peoples with a healthy diet, the Food and Agriculture Organization of the United Nations will hold a regional meeting of leading nutrition workers at Montevideo, Uruguay, starting July 28. Delegates have been invited from 18 Latin American countries and from France, the Netherlands, the United Kingdom, and the United States. The Argentine Republic, which is not a member of FAO, and interested international organizations have been asked to send observers.

The delegates will determine the gaps in existing knowledge about dietary habits, the state of nutrition, and the prevalence of deficiency diseases. They will plan measures to fill these gaps and attempt to develop and dovetail their national plans into a concerted attack to improve the nutrition of the people.

Serious malnutrition due to deficiency of protein, certain minerals, and vitamins, exists in many Latin American countries. Despite the fact that total

food production has increased in parts of Latin America, a large proportion of the population still exists on inferior and ill-balanced diets.

Recommended by the FAO Geneva Conference last summer, the 10 day meeting is the second of a world series planned by FAO on nutritional problems. The first, held in the Philippines in February, 1948, was concerned mainly with ways and means of improving rice diets in South East Asia.

PROGRESS IN STREAM POLLUTION CONTROL

About the time you read this paragraph, the Ohio River Valley Water Sanitation Compact will become effective. This Compact commits 8 states, comprising the Ohio River system, to a program of stream pollution abatement. To aid in carrying out the Compact a "Symposium on Water and Waste Treatment" will be held on October 16, 1948, in the Engineering Society Headquarters Building, Cincinnati, Ohio, for the purpose of providing a medium for disseminating the technical information essential to the solution of stream sanitation problems. For further information, write to Robert C. Head, Publicity Representative, American Institute of Chemical Engineers, 795 Greenville Avenue, Glendale, Ohio.

CANADA'S PUBLIC HEALTH FILM SURVEY

Supplement 3 of the *Medical and Biological Films Catalogue*, of the National Film Board of Canada, brings up to date the master list published in March, 1945, and two subsequent supplements published in July, 1946, and March, 1947. As with the previous lists, the films are classified according to the public health specialty such as industrial health and safety, cancer, personal hygiene, with the names and brief descriptions of specific films under each heading, also a comment of the suitability of each film for certain purposes. Ad-

ditional information may be obtained from the Distribution Officer, Health and Medical Films, National Film Board, Ottawa.

NEW ANTIBIOTICS DIRECTORY

Second edition of *Antibiotic Substances, Their Biological and Chemical Properties*, has recently been published by the antibiotic section in the Division of Research Grants and Fellowships, National Institute of Health. It contains current material on source, biological activity, unit, potency, and miscellaneous properties of more than 150 antibiotic substances ranging alphabetically from actidione to viridan. The compilation includes a number of unnamed factors, as well as named chemotherapeutic agents from non-microbial forms (quercetin, tomatin, etc.). First edition of the guide was published early in 1947.

NEGRO HEALTH AND MEDICAL CARE

In January the Health and Medical Care Collection of Meharry College was a year old. By way of celebrating its first birthday it published an annotated list of books, periodicals, pamphlets, leaflets, and articles relating specifically to the health of the Negro. With the coöperation of state health departments, national organizations, and individuals the Collection now numbers nearly 500 items.

Thomas A. LaSaine, M.D., the director, renews his invitation to share with this Collection available material concerning the health of the Negro. The address is Health and Medical Care Collection, Meharry Medical College, Nashville 8, Tenn.

DR. NORTON SUCCEEDS DR. REYNOLDS AS NORTH CAROLINA STATE HEALTH OFFICER

The retirement of Carl V. Reynolds, M.D., Secretary and State Health Officer of North Carolina, Raleigh, as of July 1, 1948, has been announced. Dr.

Reynolds will move to California and live in Altadena.

John W. R. Norton, M.D., M.P.H., of Chattanooga, Tenn., has been appointed to succeed Dr. Reynolds. Dr. Norton is a native of North Carolina, born in 1898, a graduate in medicine of Vanderbilt University in 1928, and with a Master's degree in Public Health from the Harvard School of Public Health in 1936. Dr. Norton served four years as Health Officer of the City of Rocky Mount, N. C., and served for several years with the North Carolina State Board of Health in the Divisions of County Health Work and Preventive Medicine. Dr. Norton served in the Army Medical Corps during World War II, since which time he has been Chief Health Officer of the Health and Safety Department, Tennessee Valley Authority, Chattanooga, Tenn.

DEATH OF DR. RUPERT BLUE

Rupert Blue, M.D., Ex-Surgeon General of the U. S. Public Health Service, died on April 12 in Charleston, S. C., at the age of 80. Dr. Blue retired in 1932 after 39 years in the Service, 12 of them as Surgeon General by appointment of President Taft in 1912 and reappointment by President Wilson in 1916.

Dr. Blue was noted for his bubonic plague campaigns in San Francisco in the early 1900's. He conducted extensive rat extermination drives there. During the first World War he was adviser on sanitation for military establishments in the United States. In 1923 he was American delegate to the Opium Conference of the League of Nations.

Dr. Blue became a member of the American Public Health Association in 1912 and a charter Fellow in 1922.

VIRGINIA'S MODEL ALCOHOLIC CARE BILL

The Virginia Legislature, one of the few that meet in the even numbered

years, has enacted a bill that sets up a Bureau of Alcohol Studies and Rehabilitation in the State Department of Health. Including an appropriation of \$200,000 for the biennium, the new law places the initial responsibility for the study and treatment of alcoholics upon medical schools and hospitals.

The first of several state research centers will be located at the Medical College of Virginia in Richmond where patients will receive both hospital and clinic care.

In reporting the Virginia law, Joseph Hirsh, Acting Director of The Research Council on Problems of Alcohol, said it would "undoubtedly serve as a model for the rest of the country." He pointed out that none of the other seven states that have already established medical programs for the care of alcoholics provides such an integrated program as that of Virginia.

EDUCATIONAL OPPORTUNITIES IN INDUSTRIAL HYGIENE

Industrial Hygiene Newsletter for April, 1948 (Vol. 8, No. 4), has a list of schools that give complete courses in industrial hygiene. Classified into the 9 U. S. Public Health Districts and into courses for physicians and dentists, nurses, engineers, and chemists, this list gives the name and address of the school and a short description of the courses, the time required to complete them, and degrees offered.

The Industrial Hygiene Division of the U. S. Public Health Service, which publishes this monthly *Newsletter*, carefully warns that the list is not a complete one. It is recommended to readers, however, as the most complete such listing that has come to hand.

PUBLIC HEALTH SECTION OF EXCERPTA MEDICA

Excerpta Medica, the project for abstracting the world's medical literature was mentioned in the August, 1947,

vacated by Dr. Scheele. Dr. Heller's position in the Division of Venereal Diseases will be assumed by Dr. Theodore J. Bauer who is at present on duty with the Chicago Board of Health as municipal venereal disease control officer.

INSTITUTE IN PUBLIC HEALTH ADMINISTRATION

The University College of Northwestern University, in coöperation with the U. S. Public Health Service, has announced a two week Institute in administration for principal administrative officers of state and local health departments. The Institute, July 12-23, will concern itself with administrative problems, and its registration is limited to 40 persons who must be health officials with managerial responsibilities.

The Institute was planned at an earlier regional conference of state and local health officers to meet gaps in the health officer's knowledge of such items as press and public relations, personnel administration, budget presentation, etc.

Registration fee for the Institute is \$100, of which \$10.00 must accompany registration request. Provision will be made for room and meals in Abbott Hall of the university at \$60 per person for the period. Application should be made before June 21 to the University College, Northwestern University, 710 Lake Shore Drive, Chicago 11, Ill.

"THE AMERICAN ENGINEER" UNDER NEW MANAGEMENT

The National Society of Professional Engineers announces the appointment of Franklin F. Page as Editor of the *American Engineer*, the monthly publication of that Society. Prior to joining the staff of the NSPE, Mr. Page had had considerable experience in newspaper work and has been editor of *Constructor and Engineer*, a publication serving the northwestern part of the United States.

PERSONALS

Central States

RICHARD F. BOYD, M.D., M.P.H.,* who has served for some years as Chief of the Division of Local Health Administration, Illinois State Department of Health, Springfield, Ill., has resigned, effective May 17, to accept a position of Medical Officer, Welfare and Retirement Fund, United Mine Workers of America with offices at 900-15th Street, N.W., Washington 5, D. C. In this capacity Dr. Boyd will be associated with R. R. SAYERS, M.D., who is Chairman of the Medical Advisory Board, and who is responsible for developing plans for the medical care and hospitalization of approximately 400,000 bituminous coal miners in 26 states.

DORIS G. CHANDLER, M.P.H.,† has been appointed Director of Health Education of the National Society for the Prevention of Blindness, New York, N. Y. For the last few years she has been Executive Secretary of the Metropolitan Health Council of Dayton and Montgomery Counties, Ohio.

CHARLES T. DOLEZAL, M.D.,† has been appointed Assistant Director and Secretary of the Council on Professional Practice of the American Hospital Association, Chicago, Ill., to succeed HUGO V. HULLERMAN, M.D.,* resigned. Dr. Dolezal was formerly Superintendent of City Hospital of Cleveland, Ohio.

WINSTON H. TUCKER, M.D.,* Commissioner of Health of Evanston, Ill., represented the A.P.H.A. at a meeting on April 5 and 6 on a Subcommittee of the American Medical Association Council on National Emergency Medical Service, for the purpose of planning for the most effective use of the overall medical resources of the nation in case of another national emergency. HAROLD S. DIEHL, M.D.,* Dean of the University of

Minnesota School of Medicine, Minneapolis, is Chairman of the Committee.

JOSEPH R. WAGNER, widely known in the fields of biochemistry and nutrition, has joined the staff of the Quartermaster Food and Container Institute for the Armed Forces, Chicago, Ill., as Chief of the Fruit and Vegetables Branch, Food Development Division. He was formerly head of the Nutritional Research Section in the General Laboratory of Libby, McNeill & Libby, Blue Island, Ill.

E. EUGENE WEHR, M.D., is now Assistant Health Commissioner in the Cincinnati, Ohio, Department of Health. WATSON DERSHAM† recently took up his duties as Health Educator of the Department.

WALDO W. WILMORE† has been appointed Associate Executive Secretary of the Kansas Tuberculosis and Health Association, Topeka. He was formerly Personnel Officer under FLOYD C. BEELMAN, M.D.,* Kansas State Board of Health.

E. V. THIEHOFF, M.D.,* has been appointed Professor and Head of the Department of Public Health and Preventive Medicine of the University of Kansas, Lawrence. He resigns as Commissioner of the Peoria City, Ill., Health Department on April 1.

Eastern States

STANHOPE BAYNE-JONES, M.D.,* who is President of the Joint Administrative Board, New York Hospital-Cornell Medical Center, New York City, has been awarded the insignia of Honorary Commander of the Military Division of the Most Excellent Order of the British Empire. The presentation was recently made in Washington by Lord Inverchapel, Britain's Ambassador.

CONRAD BERENS, M.D., of New York City was elected President of the Pan

American Association of Ophthalmology at the Third Pan American Congress of Ophthalmology held in Havana, Cuba, January 4-10.

ELSIE M. BOND has retired as Assistant Secretary of the State Charities Aid Association, New York, N. Y., after 25 years of service with the Association. Miss Bond served as the legislative representative of the S.C.A.A. in Albany during the administrations of Governors Alfred E. Smith, 1923-1929; Franklin D. Roosevelt, 1929-1932; Herbert H. Lehman, 1933-1942; and Thomas E. Dewey, 1943-1948.

THOMAS E. CONNOLLY was recently appointed Executive Secretary of the Onondaga Health Association, Syracuse, N. Y., to succeed ARTHUR W. TOWNE, retired recently as Executive Secretary of the Association after 24 years of notable service.

VLADO A. GETTING, M.D.,* was reappointed April 7 as Commissioner of Public Health of Massachusetts by GOVERNOR ROBERT F. BRADFORD. Dr. Getting, who is also President of the State and Territorial Health Officers Association, was first appointed to his present post in 1943 after having served as Worcester City Health Officer.

CUSHMAN D. HAAGENSEN, M.D., Associate Professor of Surgery at Columbia University's College of Physicians and Surgeons, New York, N. Y., has been named Coördinator of Cancer Teaching for the college's cancer research program. He is developing a project on cancer research designed to obtain close coöperation among major divisions of the university's medical sciences and clinical departments.

JOSEPH HIRSH,* who has been on leave of absence to WHO, has returned to the Research Council on Problems of Alcohol, New York, N. Y., and is now its Acting Director, following the

resignation of LYMAN C. DURVEA, M.D.,* to return to active service with the U. S. Army Medical Corps. Mr. Hirsh also serves as consultant to WHO.

THEODORE G. KLUMPP, M.D., President of Winthrop-Stearns, Inc., New York, N. Y., was elected President of the American Pharmaceutical Manufacturers Association at its recent annual convention in Havana, Cuba.

ESMOND R. LONG, M.D.,* Director of Medical Research and Therapy, National Tuberculosis Association, and Director of the Henry Phipps Institute, Philadelphia, Pa., has been named Editor-in-chief of the *American Review of Tuberculosis*, official journal of the National Tuberculosis Association's Medical Section, The American Trudeau Society, to succeed the late MAX PINNER, M.D.

WALSH McDERMOTT, M.D., Associate Professor of Medicine, Cornell University Medical School, New York, N. Y., has been appointed to the newly created post of Managing Editor of the *American Review of Tuberculosis*, New York City.

GORDON W. MOLYNEUX,* formerly Supervising Milk Inspector for the Westchester County, New York, Department of Health has resigned from the county service to manage the Rock Gate Dairy Farm, Bedford Hills, N. Y.

HOWARD A. RUSK, M.D.,† New York, N. Y., received the first annual Survey Award for "an imaginative and constructive contribution to social work" on April 22, for his outstanding work in translating into civilian life what was learned about rehabilitation in the armed forces. The award was presented by EDUARD C. LINDEMAN, M.D., for *The Survey* Midmonthly during the 75th Anniversary Meeting of the National Conference of Social Work held in Atlantic City, N. J.

AUSTIN SMITH, M.D.,* Secretary of the Council on Pharmacy and Chemistry of the American Medical Association, Chicago, Ill., has been appointed Science Editor of *American Druggist Magazine*, New York, N. Y. Dr. Smith will continue his work with the A.M.A., and will maintain his office at the A.M.A.'s headquarters in Chicago.

Southern States

DANIEL BLAIN, M.D., formerly Chief of Neuropsychiatric Service for the Veterans Administration, Washington, D. C., has accepted the newly established position of Medical Director of the American Psychiatric Association.

FRANCIS G. BLAKE, M.D., Sterling Professor of Medicine at Yale University, New Haven, Conn., has been appointed to head the Medical Science Committee of the Federal Research and Development Board, Washington, D. C. Dr. Blake is a member of the Lasker Awards Committee, A.P.H.A.

JOHN M. DAVID† has accepted a position with the Layne-Atlantic Well Company, Albany, Ga. He was formerly Regional Engineer with the Georgia State Department of Public Health in the Southwest Region of Georgia.

LAWRENCE MACHEMER FISHER,* Sanitary Engineer Director of the Public Health Service, was recently appointed by PRESIDENT TRUMAN to the Interstate Commission on the Potomac River Basin. Other commission members serving by presidential appointment are C. C. BURGER, Department of the Army, and ABREU WOLMAN,* Johns Hopkins University.

ROBERT A. HINGSON, M.D., has been

* Fellow A.P.H.A.

† Member A.P.H.A.

American Journal of Public Health and THE NATION'S HEALTH

Volume 38

July, 1948

Number 7

Some Concrete Problems of Health Administration*

A GROUP of outstanding health administrators (on state, city and county levels) were asked to prepare for

* Special Review article prepared at the request of the Editorial Board.

the JOURNAL brief statements with regard to specific problems of administration which they had faced during the past year. The general significance of these contributions is discussed editorially on page 1008 of this issue.

Staff Education in Chicago

HERMAN N. BUNDESEN

During the depression years, the food inspection section of the Chicago Health Department had been operating with a totally inadequate force, due to insufficient appropriations.

Previous to the passage of the appropriation bill for the year 1947, it was the practice of the Board of Health, in submitting budget estimates for each year, to ask for additional personnel for the food inspection section in order to maintain a reasonable inspection standard. However, these requests for funds to employ additional personnel went unheeded year after year.

During the year 1946, the U. S. Public Health Service made a survey of the activities of the Health Department of the City of Chicago, together with other official and voluntary health agencies

in the city and Cook County. Among the recommendations made in the report of that survey was that the food inspection section be provided with added personnel, and that a revision of the food control ordinance, based on the requirements of the U. S. Public Health Service recommended code, be adopted by the City Council. As a result of this report, twenty-five additional food inspectors and three additional supervisors were provided, and the revision of the *Municipal Code* was made.

The coming of new inspectors upon the staff necessitated a change in the existing in-service training program for the purpose of teaching these new men the fundamentals of sanitation and inspection technique.

At about the time these men were first

employed, a program of food handler education was being carried on in cooperation with the Chicago Restaurant Association. Newly appointed food inspectors were first required to attend these food handler courses, in order that they might acquaint themselves with what was necessary from the food handler's standpoint. Following this, an intensive course in ordinance requirements and recognition of satisfactory compliance was carried on. Instructions were given especially as to the public health reasons for ordinance requirements. Inspectors were required to spend some time in the laboratory to observe the method of making plate swab counts and to learn the technique of making swab tests.

Newly appointed inspectors were sent out in groups of three with a supervisor accompanying each group, in order to observe the supervisor's method of making food inspections; then, after a week, the new men made the inspections themselves under the personal observation of the supervisor. Following this part of their training, they were required to spend at least 2 weeks in the field with qualified inspectors, and in some cases more time, until they were able to make a satisfactory inspection and report. The In-Service Training School has continued to operate after the new inspectors completed this training and were out working on their own responsibility. Weekly sessions of the school were held to give them specialized training on such subjects as milk inspection, meat inspection, poultry inspection, refrigera-

tion of foods, food poisoning, disinfection of utensils, plumbing and back siphonage, particularly as applied to restaurants and hotels, construction of dishwashing machines, courtesy and tact in dealing with the public, fumigation of foods for destruction of vermin infesting the foods, procedures in license approval, preparation of drastic measures where warranted, and other subjects with which the food inspector should be familiar.

It is the opinion of the Chicago Health Department that food inspectors do not become efficient merely by grace of an appointment. In addition to such knowledge and experience as a man may have when he receives an appointment, he must also have a will to learn and the capacity to absorb and use the knowledge that is given to him in the In-Service Training School and by supervisors in the field.

The food inspector, on entering a food establishment, is the representative of the Board of Health. As such, he should be able to conduct inspections in such a way as to render to the citizens of his community all the service which the city ordinance requires the head of the Health Department to render in food establishments and to reflect credit upon the department which he represents.

There is no set formula by which one can convert a new inspector from raw, untrained material to the ideal which is needed. It is only by constant education within our own service that this goal can be reached.

Housing the Health Department in Detroit

BRUCE H. DOUGLAS

Local conditions will have much to do with the housing of the health department. Much will depend too on whether

it is a small or a large health unit, a state health department, a county unit in a rural area, or a municipal depart-

ment serving a populous urban community. It would seem, however, that there are certain principles that should prevail in providing housing for a health department in order to contribute good public health administration in the best interest of the people.

Too often the space provided for a health department is some inaccessible, reconverted building or basement location which is assigned because of limited budget or lack of vision by public officials. Frequently there is little appreciation of the needs of the health department or of the place it should occupy in the area to be served.

Of course it is to be conceded that the housing of a health department is not as important as the matter of having well qualified personnel, but nevertheless, appropriate housing will make for better service and greater appreciation by all concerned, including the public, as to the importance of the role the health department plays in the community.

With new public building programs under way or projected, it is timely to give consideration to this matter. Several large cities are planning new provisions varying from a separate building for public health administration to combination with one or more other governmental departments or, finally, inclusion in a large municipal building where all administrative offices of the city or the city-county government will be housed.

There are points in favor of each of these arrangements as well as points against them. It is also true that variations in the functions performed by different health departments may affect

the arrangements for housing. For instance, when the health department is responsible for the operation of a hospital or hospitals, it may be desirable to have the administrative offices of the health department located in or near the hospital plant.

The principal point in favor of a municipal health department being housed with other city administrative offices is the convenience afforded those who must secure certain permits, license approvals, and similar records or information, often related to other public departments, so that if housed together, the individual visitor can transact all his business within one building.

Much of the work of a health department, however, is not related directly to other departments of government. For example, services to physicians, provision for clinics, and issuance of vital records make it highly desirable to have these activities housed within easy access for those coming to the health department for such services. In addition, the ease with which field staff may come and go in carrying out their duties must be given consideration. Of course, in a large city some services can and should be decentralized by providing health centers for certain functions in locations where they are near the people needing the services and out of which the field staff may more readily work. These may profitably be located in or near hospitals or medical centers.

There is therefore good justification for the health department having its own building properly located, thereby emphasizing the importance of its services as well as making possible greater accessibility for those it serves.

Coöperation with Voluntary Organizations in Montgomery County, Maryland

V. L. ELLICOTT

The year 1947 has shown no decrease in voluntary organizations. Each one still remains a pressure group for a special interest. The health officer's attitude is usually one of caution so as to keep these people from getting out of hand. My suggestion is to take the risk of encouraging them and working with them in order to get the advantage of their public support.

The progressive health officer does not want a static health program but one geared for growth, the growth being directed toward unmet health needs. So few health departments approach adequacy at present that provision for growth should be a basic principle of organization. This means successive increases in personnel and budgets. The simplest way to obtain them is by direct request of the health officer to the county commissioners or other appropriating body, the appeal being based on a clear, logical statement of needs. This appeal often fails, however, because the county commissioners expect new proposals to be supported by public interest as well as logic. Can the health officer utilize voluntary organizations to gain this support?

Since voluntary organizations may be pulling in different directions, the health officer's problem is to get them to pull together and pull with him. In Montgomery County we believe we have found an effective way of doing this. Each organization is encouraged to take

an interest in the general county-wide program in addition to its special interest. Each of our eleven local public health lay committees, for example, does this by recognizing the dependence of the local public health nurse on the county nursing group. As a result, local committees vigorously supported the 1947 successful drive for more adequate nursing salaries. The Tuberculosis Association and many other similar groups are joining in a concerted effort to secure a new county health center in Rockville. The most important part of this county-wide interest, however, is the agreement among the organizations and the Health Department as to what the principal health needs are and what is the order of their importance. We depend largely upon the American Public Health Association's *Evaluation Schedule* for this important step. The *Schedule*, we point out, represents the opinions of leading nation-wide health authorities. It therefore has a common appeal to all intelligent public spirited citizens, the same appeal as the recommendations of an important survey. It also proves that the current proposals for meeting the needs are something more than the special interests of the health officer. This approach—agreement between voluntary agencies, other citizen groups, and the health officer—has one other advantage—it works better with each year of usage.

Procurement of Personnel in Massachusetts

V. A. GETTING

Today health agencies are faced with a critical shortage of professional and technical personnel. An analysis of the factors for this ever increasing shortage reveals some of the major difficulties which make positions in public health unattractive to candidates seeking fields for professional training. This is true in spite of the fact that the words "public health" are more in the mouths of the everyday citizen, and the importance of health is better recognized than at any time previous. The obstacles in procurement of personnel must be overcome in order to procure staffs of adequately trained and experienced workers. Some of these difficulties may be summarized as follows:

1. Inadequate compensation — Although many health agencies have increased their salaries, the new salary schedules are still far below those which exist in the federal government agencies, in private practice, and in industry. Further substantial increases are indicated to overcome this obvious shortage.

2. Procurement policies—Merit systems and civil service procurement facilities cannot be relied upon exclusively. Health agencies, particularly state health departments and large voluntary agencies, must carry on detailed procurement programs from the secondary schools, professional and technical schools, to the public as well. Special personnel may be assigned to such programs.

3. Political interference—Freedom of exercise of the responsibilities of the health department is an absolute necessity. This must be unhampered by political interference if these positions in public agencies are to attract capable administrators. Too often administra-

tors drift from public to voluntary agencies because they are unable to discharge their duties without regard for political policies.

4. Dramatizing the job—General information which is both current and interestingly presented must be supplied to the public and the professions in order to make the positions and the work of health departments known. Today, as a matter of fact, only a relatively small number of physicians realize what health departments are doing. The significance of the work and accomplishments of health departments must be so dramatized and pictorialized that high school and college students will become enthusiastic about seeking positions in this field.

5. Security of tenure—With forty state health officers being replaced within a period of 5 years, it becomes apparent that the top administrative positions in public agencies are insecure. Because of this insecurity, positions of staff members become less desirable. With every replacement of a state health officer, policies are revised and responsibilities shifted, and there result obvious limitations in promotions and lack of continuity in the content of programs. Thus, measures must be taken to insure security of tenure at all administrative levels.

6. Merit system limitations — Although the primary purpose of merit and civil service systems is the procurement of qualified personnel, too often such systems, especially those established many years ago, offer serious limitations in the procurement of personnel. The merit system has too often become a method for protecting the employee rather than the service. Thus, veterans'

preference, residential requirements, and lack of educational qualifications may actually be deterrents to the procurement of adequately trained and experienced personnel. Some method must be found whereby the procurement work of merit systems is improved, so that promotional advancements may be offered to employees, and the limitations of lack of educational requirements, total veterans' preference and residential requirements may be limited, modified, or, if necessary, removed.

7. Retirement, vacation and sickness benefits—As human beings, employees have certain rights which must be respected and certain privileges which must be offered in order to attract them to positions in public service. The provision of adequate retirement systems, vacation allowances, and sick leave are

necessary, especially in today's shortage of personnel. A specialty board for physicians in public health may be an added inducement in the procurement of adequate personnel.

8. Physical facilities—Cheerful, well furnished, well lighted and ventilated offices are a necessity to any department. Too often a health department is located either in a basement or on a top floor of a public building, in the least desirable quarters available.

9. Recognition of services—Professional and technical workers require recognition in the form of credit and praise both in professional and public circles. Ample opportunities should be provided to reward faithful and hard working health department employees in recognition of their work and accomplishments.

Financing Local Health Departments in Florida

F. M. HALL

In 1911, Dr. Hermann M. Biggs,¹ then Commissioner of Health of the City of New York, said, "Public health is purchasable. . . ." He might have added, "but not at bargain-basement prices."

Too frequently state health departments, in their overzealous ambition to see local health service established in all areas of their jurisdiction, have sold the services at bargain-basement prices to the local appropriating bodies, assuming that, once the local unit was established, it would sell itself to the community. However, if a health department is to render in the community the worth while services expected, from the beginning, the financial support must be adequate. If this adequate financial support is not available, the local health department must depend upon poorly

trained individuals to render public health services to the community. This procedure results in poor services to the people and an undesirable impression given to the local governing body as to quantity and quality of work. Thus, a health department that is inadequately financed from the beginning is unable to render the services expected, and the local governing body and the community are unfavorably impressed by such services. So, when additional funds are sought, the appropriating bodies are not interested in increasing the appropriations.

The local governing body must be given, and must assume, full responsibility for its health department, both financially and for the services to be rendered, with a minimum of supervisory or advisory control from the state and

federal levels. To secure adequately financed health services in a community there must be local autonomy, but it should be impressed upon the local officials of the community that with local autonomy goes a local responsibility—a responsibility to finance its health services adequately; and a responsibility, after such financing, that services be rendered to the community in a manner that is in accord with good public health practices.

A goodly number of local health officers today find themselves in a situation that is rather difficult to meet. The individuals responsible for the establishment of the initial budget for the area based their estimates upon a monetary situation that is entirely different from the present-day inflationary period. Emerson² and his Committee on Administrative Practices used as a guide an overall cost of \$1.00 per capita for complete coverage of six minimum full-time services.

With our ever-broadening concepts of public health, one would readily come to the conclusion, even in a non-inflationary period, that \$1.00 per capita would be inadequate in financing a program based on these six phases.

Even to carry a program embracing the basic requirements, plus a few additional programs that are needed in any area, if we consider the inflation of the day, the minimum total per capita should be at least \$2.50, with \$1.00 as local contribution. Since the services of a health department are available to the entire health jurisdiction which it serves, the local support for such a health department should come from the governing body that directs the entire health jurisdiction unless special services are requested by a municipality that is within the area. Then, of course, those special services should be financed by the municipality concerned.

When the Alachua County Health De-

partment was established in 1944, an agreement was made by the Director of Local Health Service and a local committee spearheading the formation of this health department that 53 cents per capita locally would be adequate. The area would have, after state and federal contributions, \$1.11 per capita for public health services. As inflation has progressed over the years, the governing body has always reminded the committee and the Director of Local Health Service, of their original commitments. It is felt that many health officers find themselves, through no fault of their own, bound by such commitments. Even the governing bodies themselves have been caught short by the ever-increasing cost of government.

The health officer has open to him two courses:

1. Reduce staff with a resultant curtailment of program in order that salary increases may be met.
2. Secure additional funds to maintain an adequate public health program.

The latter method is preferred. The services rendered must be maintained at the present levels because the general public, having once become accustomed to an efficient public health program, would not understand why these services were curtailed.

The method of securing additional appropriations to augment the local budget must be determined by the health officer in his own respective area. He should be, and is, better informed of the local conditions than any other individual. If the health department has rendered a service that has been adequate and efficient, the difficulties in breaking down the barrier that was once built is much easier than if, from the beginning, the services of the organization have been considered inadequate.

It is well before an attempt is made to increase the appropriations, to evaluate your own health program both as to services rendered and allocation of

time to each service. This evaluation should include the accomplishments of the department. If it can be shown from such an evaluation that progress has been made, then the health officer has in his possession one of the strongest arguments that can be presented, a

local governing body in a justification of his request for additional funds.

REFERENCES

1. Biggs, Hermann M. *Monthly Bulletin*, Department of Health, City of New York (cover), Oct., 1911.
2. Emerson, Haven. *Local Health Units for the Nation*. New York: The Commonwealth Fund, 1945, p. 2.

Fiscal Relationships Between the State and Local Health Departments in California

W. L. HALVERSON

The question of the fiscal relationship between the state and local health departments is squarely before us in California. This is occasioned by the passage of the Public Health Assistance law providing \$3,000,000 for local health services, which became effective September 19, 1947. This appropriation is in addition to approximately \$1,000,000 of federal funds available for local health services.

Federal funds have been allocated largely on the basis of the extent of the problem in the various areas rather than on a formula basis. Density of population, percentage increase in population, morbidity and death rates for specific diseases such as venereal disease and tuberculosis, infant and maternal mortality rates, have all been factors in the decision as to the allocation of the various federal funds available. However, these factors have not been crystallized into a definite formula. Local health departments organized during the war period were allotted relatively large amounts per capita. In a survey of the situation, allocations to local health departments were found to vary from nothing to approximately 50 cents per capita. This can be defended during periods of stress such as the recent world war, but not on a continuing basis.

The formula for the allocation of the \$3,000,000 state fund for local health services is written into the law. Each county receives a basic allotment of \$16,000 or 60 cents per capita, whichever is less. The remainder, after subtraction of $7\frac{1}{2}$ per cent of the total for administrative and consultative services and training, is allocated to health departments meeting standards on a straight per capita basis.

In effect, counties with a population of 26,000 or less, and meeting minimum standards, receive approximately 82 cents per capita regardless of whether they operate individually or as a part of multi-county health units. Larger health jurisdictions receive a gradually decreasing per capita allotment, so that the metropolitan areas receive between 22 cents and 23 cents.

With this fairly liberal allocation of state funds, especially to the smaller health jurisdictions, we ask ourselves the question, "Should not a large proportion of the federal funds available for local health services also be allocated on a formula basis?" This administrative question has not been answered.

Our Public Health Assistance Act officially sets up a California Conference of Local Health Officers. This Con-

ference has at present four standing committees:

1. Administrative Practice
2. Fiscal Affairs
3. Personnel
4. Records and Reports

By law, the Conference must approve standards for local health service before establishment by the State Department of Public Health. We now propose that this Conference shall actively participate in the development of policy regarding the allocation of the federal funds. To this end, the Committees on Administrative Practice and Fiscal Affairs have developed proposals, with the assistance of the Divisions of Adminis-

tration and Local Health Service of the State Department of Public Health. These proposals were submitted to a meeting of the Conference, in February.

This department subscribes to and promotes the concept that local health departments should have a high degree of local autonomy. In order to accomplish this, it is essential that local health officers actively participate in the planning and execution of the total statewide public health program. It is anticipated that the present California law will go far in facilitating close working relationship between the state and local health departments, and will preserve the basic concept of local control.

Program Plans for Public Health Action in New York State

HERMAN E. HILLEBOE

One of the most important administrative problems of an official public health agency is the creation of orderly and well defined procedures and plans for public health action. Such a master working plan should have sufficient flexibility to permit such changes as circumstances and new knowledge require, but still present a uniformity of principle to which all public health workers can unanimously subscribe.

During the past year, the administrative staff of the New York State Department of Health has been engaged in an intensive review and evaluation of every program carried on by the department. The knowledge, experience, and thinking of the men engaged in and responsible for rendering health service to the public were presented in frequent conferences. Eventually, through change and interchange, through criticism and attack, through accumulation of data in all fields, specific public health program plans have been developed.

It should be recalled that a general health program in a nation, state, or local community is no better than the quality of the special programs which compose it. The emphasis on each disease should be determined by the seriousness of that disease in the particular area involved, making each special attack on a disease strong, effective, and well financed in relation to the problem. This is the surest way of building a general health program that will meet the needs of all the people and that will be accepted by them and permanently supported.

Before any disease which affects the general public can be controlled or eliminated, it is essential that professional public health personnel attack the problem under three main headings:

- A. The need for the program
- B. Objectives to be achieved
- C. Functions and techniques to be used to gain the objectives

When these three categories are ade-

quately considered, it is interesting to observe that public health program planners arrive at a remarkable uniformity of procedure and policy. The conventional approaches to public health administration and action; such as, control of communicable diseases, maternal and child health, vital statistics, nursing service, health education, and environmental sanitation, undergo a functional regrouping so as to permit an enlarged scope of program and the application of multiple techniques that will bring improved health services to the people.

To reach our important goals, particularly in providing health services in local communities, an official public health program should have three specific objectives:

1. Prevention and control of mass diseases
2. The collection and analysis of vital records
3. The maintenance and improvement of a healthy environment

Such specific objectives postulate certain well defined activities and functions and the application of definite techniques. These techniques can be described briefly as follows:

1. Study the extent of the public health problem. This includes the making of a complete survey of a community either by state or local personnel or by both. It will be necessary to review this evaluation at regular intervals, possibly as frequently as every year.

2. Recruit, train, and use competent personnel. Plans for improvement of local health services can be carried out only if adequate numbers of well qualified physicians, nurses, sanitary engineers, sanitarians, dentists, physiotherapists, health educators, medical-social workers, nutritionists, and others are available for employment. With the present-day shortage of personnel this requires that health departments obtain recruits who are untrained and give them the necessary academic or field training and experience to perform the duties of the several positions. Such training should not cease with employment but provision should be made for continuous-on-the-job training to keep the employees informed of newer methods and techniques, as well as to qualify them for more responsible positions.

3. Provide adequate modern quarters and the necessary equipment and tools of the profession.

4. Demonstrate the newest methods and consult with all participating groups. Frequently, local appropriating authorities "must be shown." Demonstrations can be given through loan of state personnel and equipment. Unofficial agencies may participate in financing a program on a demonstration basis. Frequently, the "know how" in public health is essential in the starting of a new program and those with previous experience may be loaned to assist the local community in the inauguration of a new activity.

5. Provide financial assistance. The benefits of public health activities are *not on the individual community basis*, and provision must be made for the equitable distribution of the cost of public health work.

6. Do basic and applied research. The inception of new progress requires a trial and error period. This might best be confined to one or a few areas, and, when techniques and procedures are developed, these can be given to other communities with reasonable assumption that there will be considerable saving in time, effort, and money.

7. Coöperate with other agencies, both public and private. Health, both from the individual and community standpoints, results from the coöperative efforts of many official and unofficial agencies.

8. Develop and carry on extensive health education activities.

9. Obtain laws and prepare regulations that will permit the establishment and increase the effectiveness of local health services.

10. Analyze and evaluate public health programs to determine their effectiveness, achievements, and the attitude of the people toward them. This analysis should preferably be done annually. Frequently, it is advisable to have such analysis and evaluation performed by someone outside of the department concerned. For instance, the analysis and evaluation of a county health department might well be performed by members of the state health department. Self-analysis and evaluation is likewise important, and each administrator should make such analysis of his own activities and adjust his program accordingly.

These objectives and techniques are as applicable to public health work in Texas, California, or any other state as they are to public health in New York State.

Allocation of Funds to Local Programs

G. F. MOENCH, OAK RIDGE, TENN.

The subject, "Allocation of Funds to Local Programs," is assumed to apply to the adequate financing and support for the extension of local health units for the nation.

It is also assumed that patterns, methods, and formulae are available. Funds are now currently available; therefore, this discussion deals with some dangers and offers suggestions for an action program relative to responsibility of the three potential sources of funds: local, state, and federal.

The financing of local health units began with an effort by the local community and has remained largely a local responsibility. In the last twenty years, certain state governments have made feeble attempts to assist local communities in the financing of local health departments. And, today, several states are doing an admirable job helping local communities.

The principle of federal assistance to states is well established. Modest sums have been provided and earmarked to deal with special health problems, such as venereal disease, tuberculosis, nutrition, and cancer control. Relatively little of this money has filtered down to the local health units development. It is high time that professionally trained people in public health unite their efforts to support a fundamentally sound plan for adequately financing local health units. Responsibility is at least half that of the local community in accordance with local financial resources, and the state and federal government must step in where the local level reaches the end of its ability to pay. Health services, both preventive and curative, cost money and are worth paying for. The need is pressing. Fast moving events of

this Atomic Age demand that we change the tempo of our thinking and movements.

There are three sources of danger, or factors to consider, in efforts to allocate funds and support to local health units: (1) Professional conventions and conferences have admirably discussed organization problems, including finance. For five years, these meetings have closed with no definite action. (2) Public health-trained people are conditioned to the belief that the growth and development of a local health unit is a long, slow process. In the light of present-day needs and knowledge, this dull, inert, negative, defeatist, smugly complacent attitude is a serious threat to the security of our nation. (3) The increased responsibility for new programs, the constant insecurity, the frustrating effect of heavy case loads on limited staff, leaves little time for constructive planning and adequate financing on a long-range basis. If we are to convince the consumer public that health services are valuable to the community, local health workers must believe wholeheartedly in health service goals and show by administrative action that public health cannot be compromised, neglected, shortchanged, or curtailed.

Several specific suggestions for overcoming some of our difficulties in allocating support of local health service units are offered for consideration.

First, public health workers must maintain within themselves the firm conviction that the principles of the entire program are essential, sound, and worth upholding against all odds. Ask the questions, "Do we really believe in the concepts of health practice that we are trying to instill in the consumer public?"

If so, are we functioning or working half as well as we know how? If not, what can we do ourselves to fit ourselves better to the job at hand?"

The second suggestion is the need for professional health administrators' association on a state-wide basis.

The third suggestion is coöperation with other professional and lay leadership by the organization of local health committees or councils. Many suggestions and patterns for this type of local health council are available from such organizations as the National Health Council, the American Medical Association, the National Congress of Parents and Teachers, as well as educational organizations.

The fourth essential is closer coöperation with voluntary and lay organizations as a means of interpreting financial needs and obtaining legislative support for the extension of local health units. Nearly every organization in the country has a health committee, a health interest, or a health program, and it is a responsibility of the local health unit to know just how the program can be integrated with that of the local health department to prevent an overlapping of services and wasting of resources.

The fifth specific suggestion is awareness of pending legislation, studying it as to objectives and source of introduction and support, following through with action to back it if favorable to community health services, and fighting it just as hard if it appears to be a threat to the health and welfare of the local community.

A most significant piece of federal legislation, which has a direct bearing on providing financial assistance from the

federal government to state health departments for support and extension of local health units for the nation, has been introduced into our Congress this year. This is the first time in history that federal aid bills have ever been introduced solely for the purpose of extending local health units. This bill is identified in the Senate as S-2189 and in the House as Joint bills H.R. 5644 and 5678, and is known as the Local Health Services Act of 1948. This legislation is initiated and sponsored by the National Congress of Parents and Teachers. Over forty-five other national professional, voluntary, and lay organizations, support the National Congress of Parents and Teachers in their introduction of the bill into the Congress of the United States of America.

It is suggested that each local health officer, and all others interested, immediately contact their state health officer and coöperate with him and the state and local Parent Teachers Association to follow the bill through its various steps to becoming a law, and to initiate local action and support at the proper time that will inform Congressional, Senate, and House committees of the needs for immediate passage of this legislation.

The need for favorable action on this bill is unquestionable. Regardless of how good the professional help and guidance in technical matters may be, there is a time when the assistance of lay consumer groups is essential. Consumers are voters and voters have a responsibility to inform their senators and representatives as to their wishes regarding health legislation.

Let us all go into action.

Amalgamation of Health Departments in Seattle and King County

EMIL E. PALMQUIST

The amalgamation of the administration and the combining of the clinics and the laboratories of the City of Seattle and of the King County Health Departments became effective September 8, 1947.

The idea of amalgamation in our state is not a new one since several of the first class and second class cities, some of them for many years, have pooled their resources with those of their respective counties to form districts or health units. Seattle, however, is the first large city (over 100,000 population) to begin such an amalgamation. A merger of the City and County Health Departments was first recommended in the book *Local Health Units for the Nation*. The impetus for the present amalgamation began in May, 1947, when the Health Officer of King County resigned with the recommendation that such an amalgamation be effected. The Board of Commissioners of King County requested recommendations from the King County Medical Society, which appointed a special committee consisting of three of its members, who after investigation recommended to the Board that they approach the City of Seattle and request consideration of an amalgamation of the City and County Health Departments. The Seattle Municipal League also made a study of the problem and approved the plan and recommended to both the city and county governments that they get together and work out a plan of amalgamation as far as possible under existing laws. The state at present has no enabling legislation providing for combined health units for cities over 100,000 popu-

lation. On the other hand, there are no state laws making it illegal to work out a combination by agreement. The existing law covering smaller cities and counties was passed as recently as 1945 after several of the cities and counties in the state had been operating on a combined health unit basis for many years. There was a precedent, therefore, with which we had to work.

Since there is no law setting up a way of merging the two departments, it was agreed that the amalgamation would be worked out on the following basis:

The Director of Public Health for the City of Seattle was made Director for both the City and the County Health Departments.

The Division Directors of the following respective divisions of the City Health Department were put in charge of the same respective programs for the County Health Department:

- a. Acute Communicable Disease Control (Epidemiologist)
- b. Division of Tuberculosis Control
- c. Division of Venereal Disease Control
- d. Division of Maternal and Child Health Services
- e. Division of Public Health Nursing
- f. Division of Central Administration, which includes the Director's office combined with the Chief Clerk and his staff
- g. Director of Laboratories
- h. Public Health Education
- i. The Divisions of Sanitation of the City and County are kept on a separate basis, each with its own chief under the general direction of the Director of Public Health. They will be combined under the same administration at a later date.

The Division of Costs for the jointly employed people who are the administrative personnel indicated above, was

worked out according to the population ratio of 75 per cent for the City of Seattle and 25 per cent for King County. The population in the City being 470,000 and the population in King County outside of the City, being 155,000. Actually, what has taken place is the joint employment by the City and the County of the same people to carry out the administrative work and then on an agreement basis combining the clinics, leaving it up to the discretion of the Director of Public Health to use to the best advantage the available space of both departments and the assignment of the employees.

Enabling state legislation, now being prepared, is still needed to effect a complete merger. Many factors must be considered, among which are: that the city employees have civil service and retirement benefits, and the county employees do not; a plan for permitting a single budget and the pooling and disbursement of moneys from a single fund.

The above is a successful beginning. The amalgamation has removed much of the confusion, overlapping, and duplication which existed before, and is proving beneficial to both the City and the County.

Health Coördination in New Orleans

JOHN M. WHITNEY

In August, 1947, the Mayor of New Orleans decided that the city needed a cleanup campaign. He called in the Health Officer who first suggested that a citizens' committee be appointed, but at the same time recommended that some type of permanent organization be effected which would mobilize and utilize citizen participation in various health activities each year. Since there was a very effective organization of block leaders during the late war it was felt that a start could be made by reactivating this organization. Accordingly the war-time leader of the block organization, a prominent civic minded volunteer, was called in and she agreed to accept the job of securing the active participation of as many of the former block leaders as would respond. However, she was willing to do this only on the condition that a permanent organization be set up with funds available to provide office and clerical facilities as well as educational supplies. Neither she nor the Health Officer wanted to engage in the

stereotyped "annual cleanup" and then see the city lapse into the same old condition. It was further felt that the time and effort necessary to enlist wide citizen participation would not be justifiable for just a single project.

The Council of Social Agencies in New Orleans has a Health Division which includes the voluntary health agencies, and the professional groups, as well as the official health agency. This division has functioned as a health council in the accepted definition of such councils as a planning and coördinating group for community health. In addition, there is in the Council of Social Agencies a "Community Volunteer Service" whose function is to recruit volunteer workers for such hospitals, Red Cross programs, etc.

After much discussion and many conferences a "steering committee" was set up consisting of the Secretary of the Health Division of the Council of Social Agencies, representatives from each

of the nine voluntary agencies operating in the health field,* from the Association of Commerce, the Young Men's Business Club, the Junior Chamber of Commerce, the public and parochial school systems; the block system leader, the director of the Community Volunteer Service, and the Health Officer.

The city administration came through with a \$10,000 appropriation to the health department to implement the entire program. A coördinator with clerical assistance was employed and housed in the health department. This coördinator's job was to secure health chairmen from every woman's organization in town and to arrange for meetings with these chairmen, first to explain the purpose and planned functions of the "Health Council of New Orleans" (as it was then named), and then to funnel information and materials through the chairmen to their members. The chief purpose was to get approximately 100 groups working on the same program at the same time. Practically every one of these groups had health committees and was engaged at some time during the year in its own pet projects. It was thought that many projects of community-wide significance could be put into operation much more effectively by having everybody doing the same thing at the same time. The city clean-up campaign served as the first example, and was a "natural" because a hurricane descended on New Orleans at about this time (September, 1947), and there we had a most effective stimulus.

Since the purpose of this report is not to give an account of the activities of the Health Council, suffice it to say

that the clean-up campaign was accomplished by intensive publicity, with actual operations by both city crews and volunteers during a one month period.

The next thing we had to consider was how to keep alive the interest and active participation of all the groups concerned. It soon became apparent that there was considerable duplication by the Health Council with the Health Division of the Council of Social Agencies with respect to planning, and with the Community Volunteer Service in respect to direct services. Also, from the administrative viewpoint of the Health Officer, here was this "coördinator" and her staff standing out like a branch on the department and spending funds officially appropriated to the Health Department. Further, the Health Division of the Council of Social Agencies was justifiably disturbed over the developing situation. On the one hand the Health Council was composed of a much broader representation than the Health Division would ever have, such as women's civic clubs, auxiliaries, veterans' groups, church societies, etc. In addition, the Health Council program was designed to be one of direct services, such as actual distribution by group members of literature, rat poison, or any other service relating to a community-wide program. On the other hand, many of the women's groups in the Health Council were also a part of the Community Volunteer Service. But the direct services they were performing were limited to a few central points such as clinics and hospitals, and in addition did not include educational programs. So it was felt that there was a definite need for the services to be rendered by the Health Council, and the problem now was how to furnish these services without duplicating and overlapping the areas of operation of the Health Division of the Community Volunteer Service of the Council of Social Agencies.

We have proceeded to effect this re-

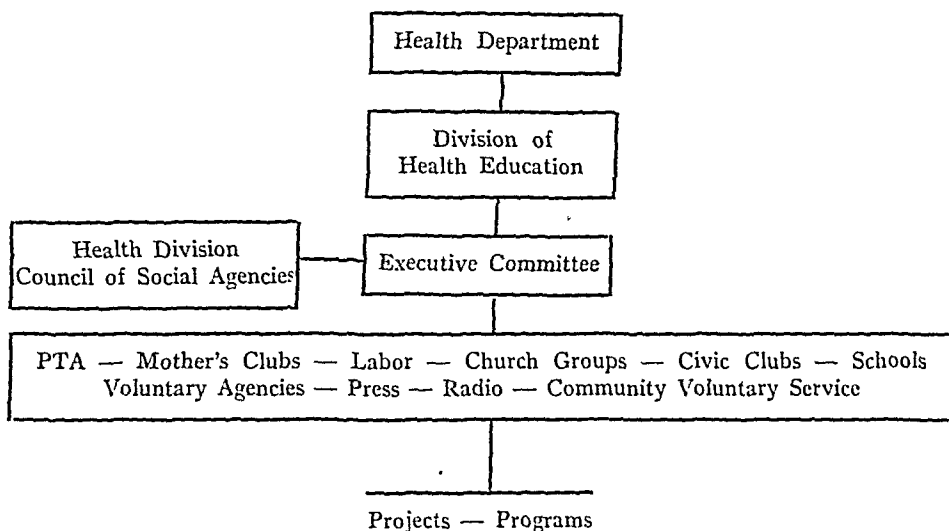
* Cancer Society
Red Cross
Community Health Association (geriatric nursing)
Mental Health Society
Tuberculosis Association
Better Hearing League
National Foundation for Infantile Paralysis
Crippled Children Society
Social Hygiene Association

organization by placing the paid staff of the Health Council in the division of health education of the Health Department. The name will be changed to some title such as "Citizens' Health Committee." An executive committee will be set up with representation from the professional societies, the voluntary agencies, and the official agency. To the Health Division of the Council of Social Agencies will still be reserved the planning and coördination of all community health, and it will act as an advisory committee to this executive committee. All organized groups, including the Community Volunteer Service, will then carry out the programs and policies as

determined by the executive committee with advice from the Health Division of the Council of Social Agencies.

The Citizens' Health Committee will be considered more as an organization to supplement official work of the Health Department in special programs.

During the period of reorganization two additional projects have been successfully carried out—food conservation in January, 1948, and a city-wide rat poisoning campaign in April, 1948. Other contemplated projects are chest x-rays on a city-wide basis, annual physical examinations, and any timely health programs projected on a national basis.



What's Happening to Malaria in the U.S.A.?

JUSTIN M. ANDREWS, Sc.D., F.A.P.H.A.

*Scientist Director, Deputy Officer in Charge, Communicable Disease Center,
U. S. Public Health Service, Atlanta, Ga.*

THE general decline of malaria in this country is believed to have begun during the last quarter of the 19th century,¹⁻³ some years before it was known how the disease is transmitted. At that time, malaria virtually blanketed the eastern two-thirds of the nation, except for the Appalachian highlands, and extended up the Central Valley of California.⁴ Its retreat has been interrupted, at least during the latter half of the intervening period, by resurgences in prevalence at such regular intervals that a 5 to 7 year cyclicity in epidemic manifestations has been postulated.^{4, 5} The last of these periods of enhanced transmission took place during the mid-1930's of this century. By that time, the principal areas of endemicity had contracted to the coastal plains and lime-sink sections of the southeastern states and the flood-plain areas of the lower Mississippi and its main tributaries. Since this last upswing, 12 to 14 years ago, reported malaria prevalence in the U.S.A. has decreased steadily as shown in the accompanying graphs (Figure 1). Making generous allowance for the traditional errors of omission and commission in malaria reporting, it is evident that consistent declines in recorded morbidity and mortality, unprecedented in their magnitude and

duration, have been in effect for the last decade or more. This downward trend is verified by the general testimony of residents and by special field studies^{6, 7} in areas where malaria has been highly endemic in the past.

What is the significance of this latest recession? Since 1935 there has been no reported increase in indigenous malaria case or death rates in the country as a whole. This indicates that the regular wave-like pattern of malaria epidemicity throughout the nation is not an immutable phenomenon. If the negative slope of the last 12 years' experience can be continued or accelerated, it can mean nothing more or less than the ultimate extinction of malaria in the United States. To exploit this trend, it is important to determine its causes, if possible, while they are still in effect.

Is malaria being treated out of existence? Has it stopped relapsing or has man become generally refractory to infection? Have infectible anophelines become so few that transmission is not possible? Have these species lost their susceptibility to plasmodial parasitism?—or their taste for human blood? Have all rural homes in the South been made secure against insects?—and do their occupants remain indoors after dark so punctiliously that they are no longer accessible to mosquitoes? A brief review of these and other possible nullifying influences seems desirable (1) to

* Presented before the Georgia Public Health Association, June 10, 1947, and the American Society of Tropical Medicine and the National Malaria Society in Atlanta, Georgia, December 4, 1947.

FIGURE 2—Per capita income payments, by years, in the continental United States and in eleven southeastern states (Alabama, Mississippi, Arkansas, Florida, Georgia, Kentucky, Louisiana, Tennessee, Virginia, North Carolina, South Carolina, Tennessee, Virginia).

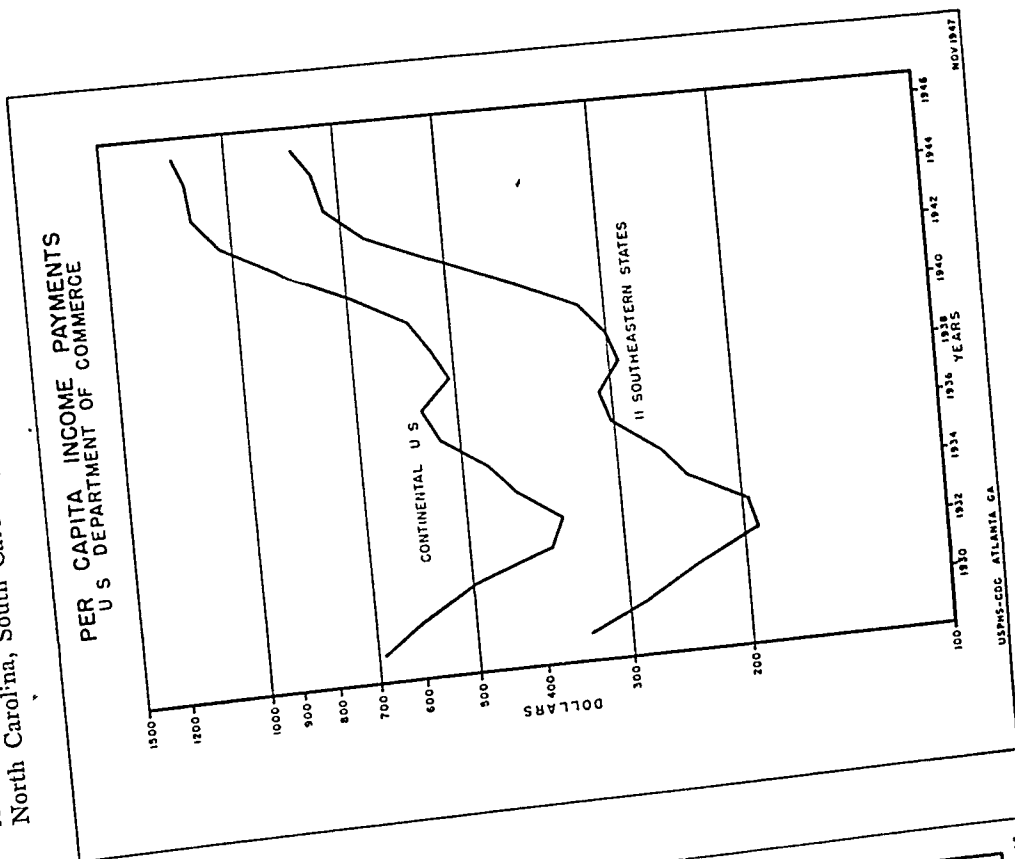
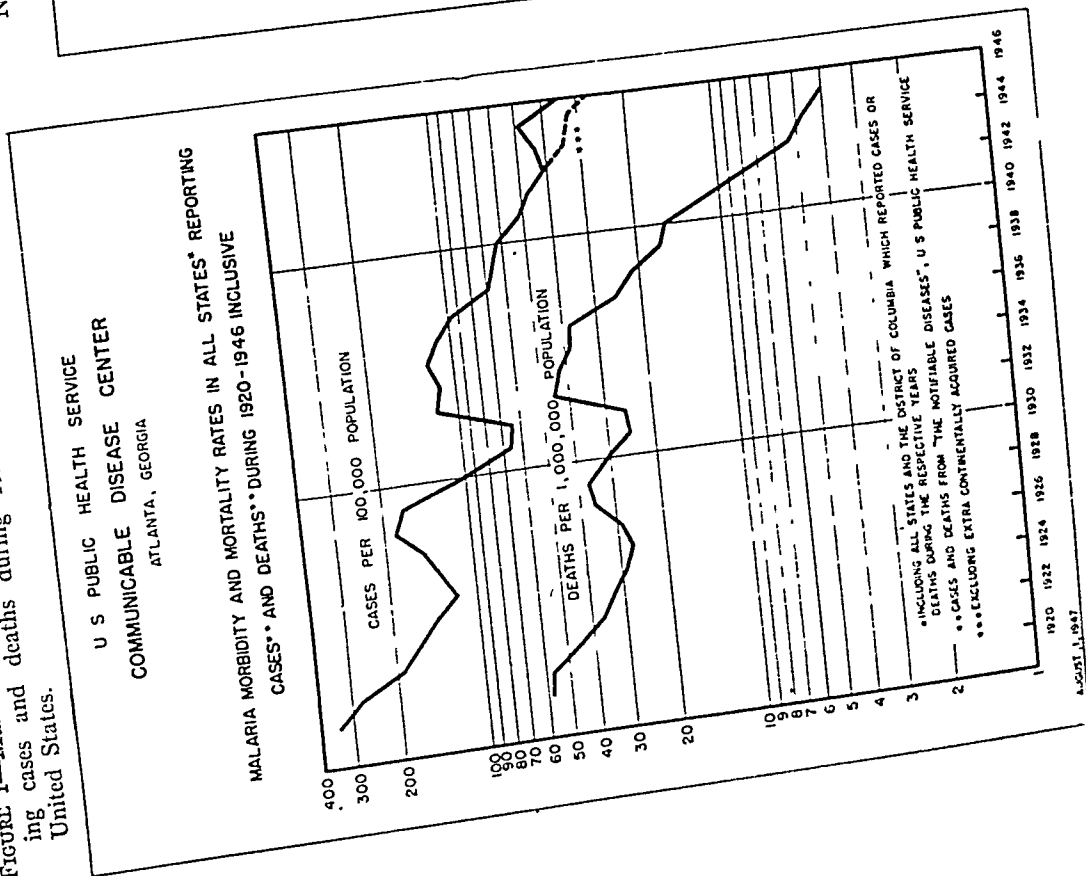


FIGURE 1—Malaria morbidity and mortality rates in all states reporting cases and deaths during 1920 to 1946, inclusive, in the United States.



assess the evidence for or against their causal participation in the current malaria regression, (2) to judge the extent, if any, to which these phenomena may be due to purposeful control efforts, and (3) whether it would be wiser, in view of the present low level of malaria incidence, to stop all organized attempts at further malaria prevention as unjustified expenditures, or to continue them with the hope and expectation that, within the foreseeable future, they will result in the total eradication of the disease.

Economic improvement in the South—The South shared in the nation's present wave of prosperity which started its upward swing (see Figure 2) at about the time malaria rates commenced their latest descent. In connection with this circumstance, it is pertinent to note that socio-economic progress was believed to be the prime determinant in the extinction of malaria in the Upper Mississippi Valley by various authorities,¹⁻⁵ though they disagreed as to the most probable means by which it was achieved. Malaria is more firmly entrenched by environmental conditions in the South than it was in the North, nevertheless it seems probable that economic improvement is the basis for various pressures to which it is now yielding. Those which may be presumed to exert antimalarial influence include better housing, more medical and public health services, more drainage for agricultural and suburban development, enlarged use of insecticides in homes, enhanced animal husbandry, and increased industrialization with its attendant shift in population residence from rural areas to or near metropolitan centers. Wartime and post-war shortages of materials and professional personnel have doubtless prevented the fullest elaboration of these forces against malaria.

Human susceptibility—Considering first the human factors which may have

been involved in the present recession, there appears to be little reason for assuming that it is due to an American loss of susceptibility to initial infection or relapse. Well over a half million American soldiers and sailors,⁸ including many from the South, acquired malaria overseas from 1942 to 1945, inclusive, evidencing no resistance to the numerous strains of plasmodia encountered. Some of the tertian infections imported subsequently are still relapsing after three years. Paretics and other recipients of induced malaria in this country appear to accept and react to blood- or mosquito-transmitted infections with old or new strains of parasites in recent years as their predecessors did before them, according to observers whose investigations involve the extensive use of this procedure.⁹⁻¹²

Antimalarial medication—It is difficult to assess correctly the role of medication in the malaria decline. Since the days of "Sappington's Anti-Fever Pills," residents of endemic areas in the United States have consumed huge quantities of ethical and proprietary antimalarials with the object of treating or preventing malaria. It seems logical to expect that drugs which reduce parasite densities in man should diminish his infectiousness to mosquitoes at the same time, but this effect has not always been sufficiently realized to be of significance in the prevention of malaria.

Thus, while the world thankfully accords memorable prominence in medical history to quinine for the relief it has given to countless millions suffering from malaria, it is now well known that the drug possesses no prophylactic properties, except the ability to effect the temporary suppression of symptoms, nor can it be depended upon to extinguish completely any type of malaria infection. Therefore, it is doubtful if quinine interferes perceptibly with the transmission of the disease. Certainly there appears to be no reason for be-

lieving that it contributed any more to the control of malaria in the South since 1935 than before that date.*

Quinacrine hydrochloride (atabrine) was introduced into general use in the South during the middle and latter years of the decade when the present malaria recession was just getting under way. Its early experimental application as a mass therapeutic and prophylactic among predominantly Negro populations with almost exclusively falciparum malaria was associated with encouraging reductions in spleen, parasite, morbidity and mortality rates.¹⁴⁻¹⁶ Later observations in Panama,¹⁷ led to the conclusions that atabrine was no more dependable than quinine for malaria control purposes when used in treating parasite positives discovered at monthly blood surveys. Critical tests^{18, 19} and general experience in malarious areas during World War II concurred in establishing that this drug, while not much more effective than quinine against vivax and quartan malaria, is virtually a specific against falciparum infection, its use in therapeutic or suppressive dosages resulting in a high percentage of non-relapsing cures of this and no other type of malaria. This unique characteristic plus the temporal association of atabrine and the recent malaria decline qualifies atabrine medication as one of the possible causes of the recession, without defining its actual importance.†

Population migration out of rural areas—Since 1935, there has been a notable migration from rural to urban surroundings throughout the United

States. This was most marked during the first half of the present decade due, presumably, to military induction and to the attractions of higher wages and better living conditions in and near the more populous centers where materials and equipment for Defense and War Industries Programs were being fabricated.

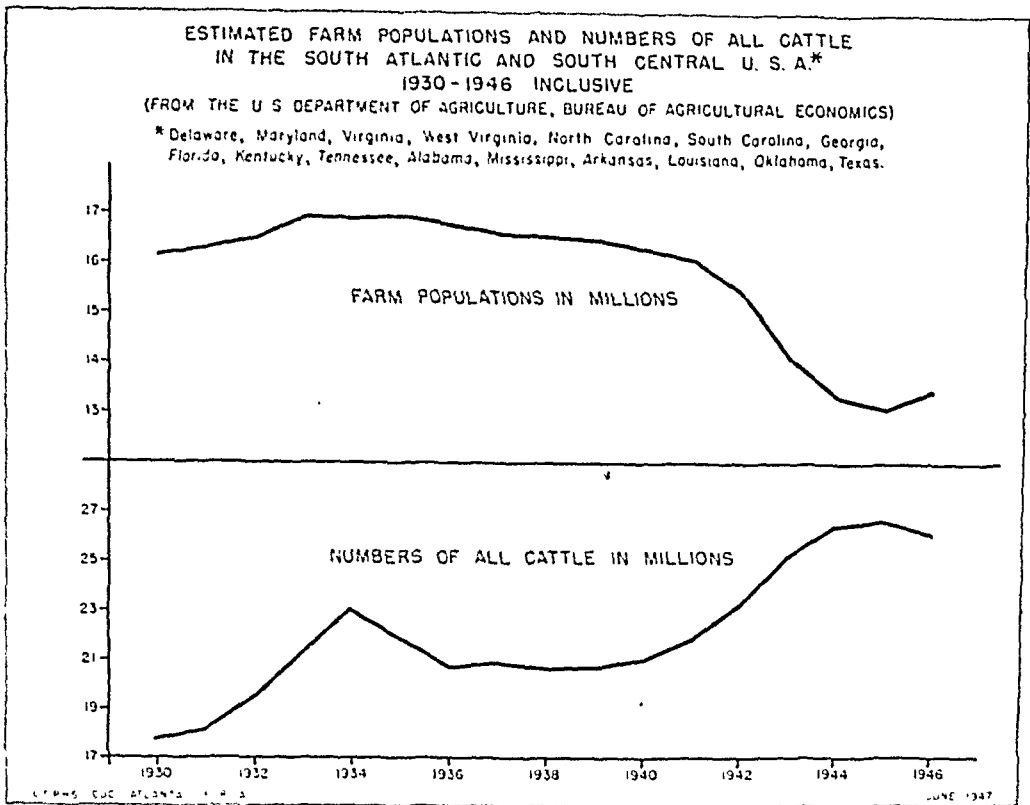
From 1917 to 1940, there was small but steadily increasing progress in the industrialization of the South as northern manufacturers shifted their factories to take advantage of more favorable labor conditions below the Mason-Dixon Line. From July, 1940 to May, 1944, the South received 24.4 per cent of the \$14,000,000,000 authorized by the War Production Board for manufacturing plants and equipment; this does not include the cost of plants whose post-war conversion to peacetime industry is doubtful.²⁰ During the same period, considerable numbers of Negroes travelled to the northern states to escape the effects of a waning cotton economy and with the hope of finding more productive and congenial surroundings.²¹

In many sections of the southeastern quadrant of this country, these events have resulted in transferring people *out* of rural areas where they might have had malaria and *into* urban situations where the chances of acquiring it were negligible. The total extent to which this phenomenon has taken place is not known at present, but some idea of its trend is conveyed by the upper curve in Figure 3, which indicates the progressive reduction in farm populations in the South Central and South Atlantic states from 1935 to 1945, inclusive. Thus it seems probable that a considerable depletion in rural population

* According to Norman Taylor, Director, Cinchona Products Institute, Inc. (personal communication), this country, prior to 1939, used roughly four million ounces of quinine each year, the annual variation being within 10 per cent of this figure. Its consumption "over a period of years" did not increase with the population. There is no way of determining the actual proportion used as an antimalarial in the South but, on the basis of available distribution data, it was estimated at the Institute that about two million ounces were used for that purpose.

† Information regarding the distribution and consumption of atabrine in this country could not be obtained from its principal manufacturer as the output of this product for the last six years has been controlled largely by the Army, Navy, and Public Health Service, and has been subject to use abroad as well as in the United States.

FIGURE 3—Estimated farm populations and numbers of all cattle in the South Atlantic and South Central United States, 1930-1946, inclusive.



has occurred. This may have assisted materially in malaria reduction in the last five or six years.

Anopheline susceptibility—Consideration must also be given to the possibility that changes in anopheline populations may have interfered with the transmission of malaria. Among such hypothetical factors, reduction in mosquito susceptibility to plasmodial parasitism due, perhaps, to environmental or cosmic influences would be of paramount significance if demonstrable. Such a phenomenon might be reasonably expected to manifest itself in insectary-reared as well as wild strains of mosquitoes. There is no published evidence to that effect with reference to the principal transmitting species in this country. Induced malaria for therapeutic and experimental purposes appears to have been transferred from

one person to another by means of mosquitoes with comparable degrees of regularity throughout and prior to the period under consideration.⁹⁻¹² While most of the naturally induced malaria has been transmitted with the Boyd strain of *A. quadrimaculatus*, established in 1932,²² other insectary stocks have been used and wild strains of this species have been brought into laboratories and their infectibility proved.^{12, 23, 24} Furthermore, it was shown in 1947 that native cases of falciparum and quartan malaria in South Carolinian Negroes, with or without symptoms, were readily infective to insectary-reared and wild-caught *Anopheles quadrimaculatus*, even though gametocyte densities were very low in some instances.¹³

Antilarval measures—Has the abundance of this transmitter diminished

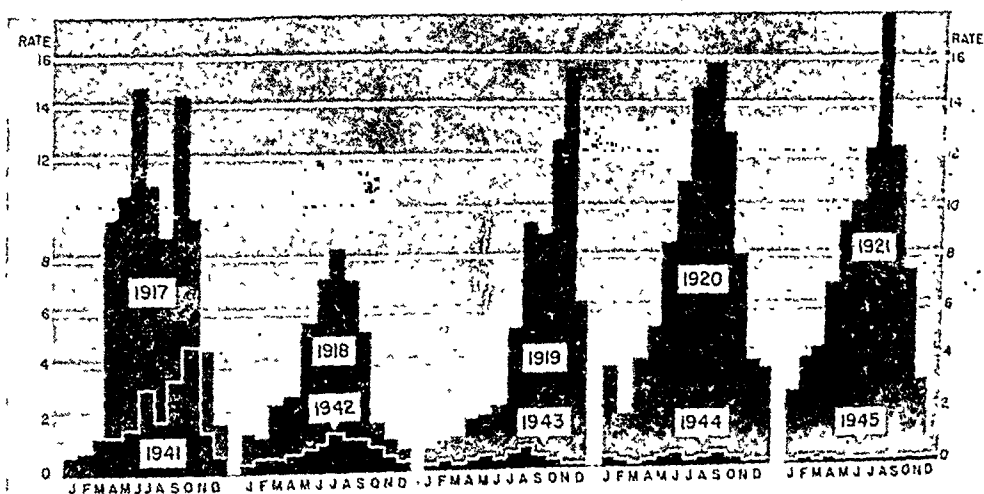
sufficiently during the last twelve years to account for the malaria reduction observed? During this period, efforts of considerable magnitude have been made by federal, state, and local health agencies, and by private interests aimed at reducing anopheline densities, both on a community-wide basis and within homes. Entomological evidence of success as a result of these endeavors is limited; their probable effectiveness must be inferred largely from the nature and scope of their physical accomplishments.

The U. S. Army's continental experience with malaria during World War I was severe enough (see Figure 4) to require environmental control measures around southern cantonments. These activities had to be financed jointly from federal and local resources, thus directing attention to the fact that local governments were unable to bear the costs of malaria control operations which, as then conceived, were mainly antilarval.

Thus, during the depression years which followed, federal relief organizations (Civil Works Administration and Federal Emergency Relief Administration established in 1933, and the Works Progress Administration in 1935) were called upon to supply man power for malaria control purposes. They completed a tremendous amount of drainage in 16 southeastern states. The exact total is uncertain as existing reports of accomplishment^{4, 25} are not in agreement, but from them it appears probable that something in the neighborhood of 32,000 miles of "average-size" ditches were constructed draining 623,000 watered acres. Most of them were dug by hand labor—machine and dynamite excavation accounting for only a minor percentage—and a few hundred miles of the ditches were paved with concrete.

From the standpoint of good malaria control practice, these projects had serious faults. In the fulfillment of relief objectives, operations could be

FIGURE 4—Malaria admissions per thousand men per year for the U. S. Army in the Continental United States during World Wars I and II. Note the reduced military malaria experience in this country during the last World War.



MALARIA ADMISSIONS PER THOUSAND MEN PER YEAR FOR THE ARMY IN THE CONTINENTAL UNITED STATES. WORLD WAR I—WORLD WAR II.

carried out (1) where and only for as long as the numbers of locally unemployed were large enough so that crews could be manned for malaria control drainage as well as for other relief labor projects desired by the community, and (2) where locally provided materials and equipment were available for matching against federal funds. These conditions tended to concentrate malaria control drainage projects in the more populous and wealthy counties, not necessarily the more malarious ones. Justification for locating work units was frequently based on nothing more than lay testimony of past malariousness. Drainage construction was restricted to new works, which meant that existing drainage-ways could not be maintained or improved with relief labor nor could it be used to keep in serviceable condition the ditches which it dug originally. In many though not all instances, local governments have provided for the maintenance of the drainage facilities.

As the Defense Program gathered momentum in 1941, national unemployment declined and many of the WPA Malaria Control Drainage Projects were discontinued except in the neighborhood of military training camps. During 1942, these were taken over by the U. S. Public Health Service and, together with other environmental malaria control operations around areas of military or war industries significance, were continued during the war years as a coöperative works program of the federal and various state health services concerned. Their efforts were coördinated by the Office of Malaria Control in War Areas, headquartered in Atlanta, Ga.

During the period of maximal military training and industrial production, malaria control drainage, filling, and larviciding were accomplished by this organization around approximately 2,200 localities of military concern in 19 different states. Through 1945,

these activities included clearing and cleaning, incidental to larviciding, of 37,000 watered acres and 96,700,000 linear feet of ditches; 5,700,000 gallons of oil and 73,000 pounds of Paris green were used in larviciding 660,486 acres; approximately 10,900,000 linear feet of drainage ditch of varying cross-section were dug (90 per cent of them by hand labor, 5 per cent with dynamite, 3 per cent by heavy machinery, while the other 2 per cent were lined or tiled ditches); mechanical and hydraulic fill amounted to 315,000 cubic yards.

This program was a great improvement over the preceding one from the standpoint of malariologic principle. Maintenance operations could be undertaken as readily as new construction. Local contributions were required only when adjuncts to drainage works such as concrete ditch-lining or culverts, tile, dynamite, etc., were desired. Early in the development of the War Areas Program, the policy was adopted of basing operations on potential malariousness, i.e., presence of infectible species of anophelines, rather than on lay testimony of previous malariousness. Entomologic evaluations were made throughout the progress of the program to check operational accomplishments. These have been summarized in Figure 5 and show (1) that malaria-carrying types of mosquitoes were less numerous within the zones where mosquito control activities, exclusively antilarval until the calendar year 1945, were carried on than in adjacent unprotected areas, and (2) that anopheline abundance in uncontrolled areas was certainly no less; probably more, in 1946 than in 1942 when enumerative observations were commenced. Spleen and parasite surveys were also made for evaluative purposes but were not very meaningful because of their lack of sensitivity in the face of decreasing malaria prevalence. Community health education and information programs

point of public health insignificance the malaria prevalence which existed when construction was begun. It is interesting to note that, due to a combination of uncontrollable circumstances in the early spring of 1945, anophelism in the lower two-thirds of the Valley reached the highest level recorded in twelve years, but without evidence of an accompanying increase in malaria prevalence.⁷

This incomplete catalog of federally stimulated efforts at reducing anopheline production is impressive but the effect of these endeavors on malaria prevalence is hard to appraise. Their application extends over the period of malaria decline, a fact which should neither hastily be dismissed as fortuitous nor taken for granted to have causal significance. That malaria reduction occurred near many of these operation sites as a result of breeding place destruction and antilarval measures is indisputable, but that these areas were sufficiently numerous, extensive, or malariogenically important to produce a coalescent malaria depression throughout the South is hardly credible. Furthermore, malaria has diminished to a greater or lesser degree in areas beyond the influence of the TVA and untouched by WPA or MCWA. Thus, it is evident that other factors in addition to interference with anopheline production have been concerned in this phenomenon.

Measures against adult anophelines—In spite of active educational efforts, demonstration projects,²⁷⁻²⁹ and higher incomes, the amount and quality of domestic insect-proofing has increased significantly in only a few of the rural sections of the South where it would

have its greatest effect as a malaria reductive measure.^{30, 31} Doubtless, this is due to the excessively high ratio of insect-proofing construction and maintenance costs to the value of poorer type houses.^{32, 33}

On the other hand, the use of domestic insecticides has increased prodigiously during the period under consideration. Data concerning the actual amounts packaged and sold are difficult to obtain as these are viewed by dealers as competitive information; however, certain regional distributors (serving the southeastern states) and national manufacturers were willing to disclose production trends in terms of annual percentage increase. According to the estimates of the former, the distribution of these products, commencing with 1931, increased each year by amounts which varied with different concerns from 20 to 40 per cent until 1943, when output was crippled by lack of metal for containers and handsprayers. Compounded at the annual rate of 20 per cent, this would represent an overall increase of nearly $7\frac{1}{2}$ times for this period.

One national producer wrote that the volume of his company's household insecticide distribution in the southeastern states increased 1,404 per cent from 1935 to 1945, but he believes that this was due to the energetic advertising of his concern and that competitive business did not advance to that extent. However, one of his principal competitors supplies the following indices expressing in terms of percentage relationships, based on business done in 1939, the amounts of domestic insecticides distributed by his dealers in 13 southeastern states (figure for 1939 being taken as 100 per cent).

Year	Per cent	Year	Per cent	Year	Per cent	Year	Per cent
1931	20	1935	52	1939	100	1943	160
1932	27	1936	64	1940	85	1944	139
1933	32	1937	75	1941	89	1945	140
1934	42	1938	79	1942	147	1946	56

This manufacturer is of the opinion that the sharp decrease in sales volume during 1946 was due to the large amount of "free" spraying which was done by local and federal government agencies during that year.

These indications, while remarkable, do not tell the whole story because numerous small operators commenced domestic insecticide production during this period, thus adding materially to the total made available to consumers. It is probably conservative to estimate that 10 to 20 times as much household insecticide was used in the southeast during the early war years as in 1931 to kill mosquitoes as well as other domestic insects.

In 1945, the Office of Malaria Control in War Areas embarked on its Extended Program of malaria control. This consisted of the application of residual DDT to the interior surfaces of homes and privies in counties where substantial mortality from malaria* had been reported during the period just before World War II. This was aimed at preventing the dissemination of malaria from home-coming veterans who had acquired infection overseas. From January 1, 1945, to September 27, 1947, nearly 3.2 million house-spraying applications were made in rural areas or small towns in 309 counties. The average number of sprayings per house varied from nearly two in 1945 to not quite one and one-half in 1947, when 875,534 different houses were treated.

Domestic insecticiding with residual chemicals such as DDT appears to be the most feasible single approach to malaria prevention now available in the South, considering the special problems of house construction, the distance be-

tween homes in rural sections, and the economy of the inhabitants. Most anopheline mosquitoes bite only at night and as more people are within their homes than elsewhere during the hours of darkness, it follows that measures which prevent mosquitoes from entering houses or which destroy the insects after they are inside are of transcendent importance in preventing malaria transmission. It is probable that the insecticidal applications, both ephemeral and residual, made within the home in the last 12 years have accomplished more than any other one measure to reduce malaria transmission in the South.

Anopheline deviation — Another circumstance which may have been of considerable assistance in reducing the domestic density of anophelines is the expansion of cattle raising in the southeastern states. The lower curve in Figure 3 shows the estimated cattle population in the South Atlantic and South Central states from 1930 to 1946. Cattle husbandry has increased in the South as cotton cultivation has receded in importance and as rural labor has migrated out of the region. Longer grazing seasons than are available elsewhere in the country, less labor requirements, accessibility to eastern markets, and better protective techniques now available against cattle diseases spread by biting arthropods are said to be factors contributing to this development. The presence of more cattle is believed to be important, malariologically, because *A. quadrimaculatus* has a strong preference for cattle blood.³⁴ As these mosquitoes emerge from their breeding places and seek blood meals, they are less likely to enter human habitations in large numbers if they can satisfy their appetites more conveniently from cattle in the fields or in stables close to houses.

The trends of the two graphs in Figure 3 indicate that the decrease in

* In the calendar year 1946, counties were approved for Extended Program operation if the average annual malaria mortality rate during 1938 to 1942, inclusive, was 10 or more per 100,000 population. In 1947, the base was broadened to include rates down to 5 per 100,000. Counties with evidence of current malaria morbidity were included both years.

the farm population of the South occurred while the cattle population was on the increase. This suggests that the antimalarial influence of these two circumstances may have been compounded by their contemporaneous development.

DISCUSSION AND SUMMARY

Until medical and public health practices in the reporting of malaria cases and deaths are improved to the point of being more dependable measures of the actual morbidity and mortality due to this disease, certain reservations must be entertained concerning its real status and shifts in prevalence. It does appear to be diminishing, however, and on the basis of the foregoing, the following tentative deductions seem to be justified. Certain of these, derived from information collected over broad regional expanses, deserve more searching and precise investigation in restricted study areas to determine the nature and extent of their local impact on the incidence of malaria.

It appears that there has been no essential deterioration in the potentialities of the parasite-host-vector system of malaria transmission in the United States during the last twelve years. The infectivity of the various species of *Plasmodium* capable of parasitizing man and transmitting mosquito remains unimpaired. It seems more likely, therefore, that the malaria recession can be explained in terms of quantitative rather than qualitative changes.

The widespread efforts at areal reduction of anophelism in the South by antilarval measures have depressed and possibly extinguished malaria endemicity in certain localities, but it is doubtful that these programs were primarily responsible for the regional decrease. The reduction of *domestic* densities of anophelines by the use of insecticides, as a result of deviation by cattle, and to a lesser extent by insect-proofing of houses is held to be a more important

and uniformly extensive causal factor.

Other circumstances contributing to the general decline are (1) population movements from rural areas in the South where malaria could be acquired, to urban centers in the South or to other parts of the country where malaria does not occur, and (2) improved anti-malaria medication.

Economic advance has undoubtedly stimulated the development of most of these factors. A depression might be expected to send people out of the cities back to the country where unimproved housing would quickly deteriorate in the absence of maintenance. Money would not be spent for household insecticides and the most effective anti-malarials. Under such conditions, malaria could again become a public health hazard of great prominence.

If malaria can be eradicated in this country and its reintroduction prevented or controlled—and this possibility is viewed as reasonable—^{8, 35, 40} economic depressions could have no malariogenic effect. Malaria prevalence and transmission have reached new lows. Control techniques are more effective today than ever before, though doubtless their efficiency can be still further improved. These considerations constitute compelling motives for taking advantage of our present strong position. They offer a challenge to national, state, and local health agencies to combine in effecting the complete annihilation of the "world's greatest scourge"³⁸ in the United States.

REFERENCES

1. Barber, M. A. The History of Malaria in the United States. *Pub. Health Rep.*, 44:2575-2587, 1929.
2. Boyd, Mark F. A Historical Sketch of the Prevalence of Malaria in North America. *Am. J. Trop. Med.*, 21:223-244, 1941.
3. Ackerknecht, E. H. Malaria in the Upper Mississippi Valley, 1760-1900. *Suppl. Bull., History of Medicine*. Baltimore: Johns Hopkins Press, 1945, 142 pp.
4. Williams, L. L., Jr. The Anti-Malaria Program in North America. A Symposium on Human Malaria. *Am. A. Advanced Sc.*, 1941, pp. 365-371.
5. Faust, Ernest Carroll. Clinical and Public Health Aspects of Malaria in the United States from an His-

- torical Perspective. *Am. J. Trop. Med.*, 25:185-203, 1945.
6. Watson, R. B., Kiker, C. C., and Hess, A. D. A Review of Malaria Studies and Control in the Tennessee Valley in 1945. *J. Nat. Mal. Soc.*, 5:193-205, 1945.
7. Goodwin, Melvin H., Jr. Observations on the Recession of Malaria in an Area of Southwestern Georgia, 1948. (In Press).
8. Provisional data supplied by the Office of the Surgeon General, Department of the Army, National Military Establishment, Washington, D. C.
9. Young, M. D., Stubbs, T. H., Moore, J. A., Ehrman, F. C., Hardman, N. F., Ellis, J. M., and Burgess, R. W. Studies on Imported Malarías: 1. Ability of Domestic Mosquitoes To Transmit Vivax Malarías of Foreign Origin. *J. Nat. Mal. Soc.*, 4:127-131, 1945. See also later publications in this same series by these same and associated authors.
10. Boyd, Mark F. A Review of Studies on Immunity to Vivax Malaria. *J. Nat. Mal. Soc.*, 6:12-32, 1947.
11. Coatney, G. Robert, Cooper, W. Clark, Young, Martin D., and McClendon, Sol B. Studies in Human Malaria. I. The Protective Action of Sulfadiazine and Sulfapyrazine Against Sporozoite-Induced Falciparum Malaria. *Am. J. Hyg.*, 46:81-104, 1947.
12. Alving, A. S., Craigie, B., Jr., Eichelberger, L., Pullman, T. N., Jones, R., Jr., and Whorton, C. M. Pentaquine (Sn-13,276): A New Drug Effective in Prevent-Relapse in Vivax Malaria, 1947. (In Press).
13. Young, Martin D., Hardman, Newton F., Burgess, Robert W., Frohne, William C., and Sabrosky, C. W. The Infectivity of Native Malarías in South Carolina to *Anopheles quadrimaculatus*, 1948. *Am. J. Trop. Med.*, 28(2):303-311, 1948.
14. Seckinger, D. L. Atabrine and Plasmochin in the Treatment and Control of Malaria. *Am. J. Trop. Med.*, 15:631-649, 1933.
15. Winchester, M. E. Individual Chemoprophylaxis Against Malaria. *South. M. J.*, 29:1029, 1936.
16. Winchester, M. E. Atabrine Prophylaxis in Malaria; Report of Third Year's Investigation. *Am. J. Trop. Med.*, 18:625-640, 1938.
17. Clark, Herbert C., Komp, H. W., and Jobbins, D. N. A Tenth Year's Observations on Malaria in Panama, with Reference to the Occurrence of Variations in the Parasitic Index, during Continued Treatment with Atabrine and Plasmochine. *Am. J. Trop. Med.*, 21:191-217, 1941.
18. Fairley, N. H. Chemotherapeutics, Suppression, and Prophylaxis in Malaria. Experimental Research Undertaken by Medical Research Teams in Australia. *Tr. Roy. Soc. Trop. Med. & Hyg.*, 38:311-365, 1945.
19. Boyd, Mark F., and Kitchen, F. F. On the Employment of Quinacrine Hydrochloride in the Prevention of Malaria Infections. *Am. J. Trop. Med.*, 25:307-315, 1945.
20. Thompson, Warren S. Population. *The Growth of Metropolitan Districts in the United States: 1900-1940*. Washington: Gov. Ptg. Office, 1947.
21. Murray, Florence. *The Negro Handbook*, 1946-1947. New York: Current Books, 1947, 392 pp.
22. Boyd, Mark F. Successful Cage Rearing of *Anopheles quadrimaculatus*. *Science*, 76:370, 1932.
23. Boyd, Mark F. On the Susceptibility of *Anopheles quadrimaculatus* to *Plasmodium vivax* after Prolonged Insectary Cultivation. *Am. J. Trop. Med.*, 19:593-594, 1939.
24. Young, Martin D., Stubbs, Trawick H., Ellis, John M., Burgess, Robert W., and Eyles, Don E. Studies on Imported Malarías: 4. The Infectivity of Malarías of Foreign Origins to Anophelines of the Southern United States. *Am. J. Hyg.*, 43:326-341, 1946.
25. *Annual Reports of the Surgeon General of the Public Health Service of the United States*, 1936-1941.
26. *Facts about Major TVA Dams*, 1946.
27. Coogle, C. P. The Screening and Mosquito-Proofing of Tenant Houses. Mississippi State Board of Health, *Bull.* 2, 1928.
28. Meleney, H. W., and Crabtree, J. A. Results from Screening Rural Houses in Lake County, Tennessee. *South. M. J.*, 27:552, 1934.
29. Kiker, C. C. Housing with Special Reference to Mosquito-Proofing for Mosquito Control. A Symposium on Human Malaria. *Am. A. Advance. Sc.*, 1941, pp. 308-315.
30. Watson, R. B., and Maher, Helen C. An Evaluation of Mosquito-Proofing for Malaria Control Based on One Year's Experience. *Am. J. Hyg.*, 34:86-95 (Sec. C), 1941.
31. Watson, R. B., and Rice, Margaret. Further Observations on Mosquito-Proofing for Malaria Control. *Am. J. Hyg.*, 34:150-159 (Sec. C), 1941.
32. U. S. Public Health Service and Tennessee Valley Authority. Malaria Control on Impounded Water. U. S. Gov. Ptg. Office, 1948.
33. Kiker, C. C., and Breedlove, H. E. Mosquito-Proofing for Malaria Control from the Standpoint of Construction and Maintenance Costs. *Am. J. Hyg.*, 34:95-102 (Sec. C), 1941.
34. King, W. B., and Bull, C. G. The Blood Feeding Habits of Malaria-Carrying Mosquitoes. *Am. J. Hyg.*, 3:497, 1923.
35. Sawyer, Wilbur A. A Proposed Program to Prevent the Spread of Malaria in the United States from Infected Individuals Returned from Abroad. *J. Nat. Mal. Soc.*, 3:61-68, 1944.
36. Mountin, J. W. A Program for the Eradication of Malaria from Continental United States. *J. Nat. Mal. Soc.*, 3:67-74, 1944.
37. Russell, Paul F., West, Luther S., and Manwell, Reginald D. *Practical Malariology*. Philadelphia: Saunders, 1946, 684 pp.
38. Simmons, James S. American Mobilization for the Conquest of Malaria in the United States. *J. Nat. Mal. Soc.*, 3:7-11, 1944.
39. Minutes—1943—National Malaria Society. *J. Nat. Mal. Soc.*, 3:151-154, 1944.
40. Andrews, Justin M., and Gilbertson, Wesley E. Blueprint for Malaria Eradication in the United States. *J. Nat. Mal. Soc.*, 1948. (In Press.)

Some Labor Union Enterprises in Public Health Economics

B. A. KOGAN, M.D., DR.P.H.

*Director of Maternal and Child Health, Department of Public Health,
Oakland, Calif.*

PUBLIC health is medical sociology. The broad scope and numerous tools of its practice necessitate specialization. Recently, and belatedly, an old specialty in the field has been newly defined as public health economics. Its rudiments, though inherent in social organization, have until recently been inadequately studied.

Mutual sickness and death benefits were not unknown among the ancient Hebrews, Greeks, and Romans. Many medieval guilds, despite primary religious or economic purposes, included provisions for such benefits in their charters. These primitive efforts were plagued with insolvency. In 1793, however, England saw the first legal restrictions designed to create financial security in friendly societies. More than a century of experience followed during which considerable opposition to increasing government interference developed; the National Insurance Act of 1911, an expression of majority rule, temporarily settled the argument. In this country the course of labor has been altered by basic differences in public health economic history; not the least important of these was the opposition of Samuel Gompers to any form of national health insurance. His social philosophy, in this respect, is essentially comparable to that of Senator Taft. By the mid-thirties, several great American unions were paying old age, death, disability, sick, and other benefits which had de-

veloped fortuitously and were frequently inadequate.

Space does not permit complete discussion of historical factors. The purpose here is to consider some recent efforts made by certain American labor organizations in redistributing the cost and thereby sharing the economic risk of sickness.

The First UAW Medical Research Institute—In June, 1937, an undue incidence of lead poisoning among auto workers, a desire to provide medical care for strikers, and interest in promoting both an industrial health education program and an industrial disease law led the UAW-CIO to open a Medical Research Institute. The purpose was research in the field of occupational disease. Collected data, obtained through worker and plant examinations, were to be used in formulating demands for better working conditions from management and government. Members, suspected of having an occupational disease, were to be referred to the Institute by shop stewards and union committeemen. Therapy and legal medicine were, initially, specifically omitted from the program; the latter limitation was, however, obviated by a new industrial disease law. Union physicians helped members to meet the medicolegal talent of the companies but their major interest lay in the concept that union support of an industrial disease law prompted installation of pro-

fective devices which would reduce industrial disease and injury. Patients requiring treatment were given the names of two physicians from a list supplied by the Wayne County Medical Society.

In 1938, in the midst of a growing program, during which thousands of men were examined and industrial disease and accidents decreased spectacularly, the Institute was discontinued. Unstable financing and lack of intra-union harmony were the causes. Specifically: (1) the financial responsibility for the Institute could not be settled; (2) the Institute had opened just after the union had increased membership from 25,000 to 300,000 and had collected \$327,000 in initiation fees. The layoffs, strikes, and lockouts of 1937 and 1938 decreased collectable union dues despite an increasing membership; (3) the union tended to concentrate available moneys on the Ford organizing drive; (4) the UAW split into UAW-CIO and UAW-AFL factions which resulted in the tying-up, by court order, of all Institute equipment. It took almost two years for the courts to decide which faction had title to the property.

The Second Health Institute of the UAW-CIO—In 1943, in accordance with previous convention resolutions, the UAW-CIO Health Institute was reopened and is now supported by (a) per capita assessments of over 350,000 members, (b) community chest donations, and (c) international subsidies. In its present quarters (the former home of the Edsel Ford family) are offered medical diagnosis by general practitioners and specialists, health education, and personal services. Many interested agencies, such as universities and the Detroit Health Department, are coordinated in the program.

The diagnosticians, using union technical services, such as routine blood and urine examinations, E.K.G., B.M.R., and x-ray are not only able to cut the

expense of diagnosis for a patient but also provide the advantage of earlier diagnosis. Patients are referred elsewhere for treatment; the Wayne County Medical Society assists in this. The most common diagnosis is psychoneurosis; such members are referred to the Personal Service (social case work) division for assistance. Between July, 1946, and June, 1947, only 12.6 per cent of patient visits were related to industrial disease or injury.

The Personal Service Department is occupied with the multiple ramifications of social case work. Vocational rehabilitation, psychiatric referrals, assistance in mental hygiene, cooperation with other referring or assisting agencies are but a few of the major duties of this staff of two trained social workers.

A remarkable health education program provides well attended classes taught by authorities. Health and Safety classes train local leaders to become foci of information for others. They know their machines; such education betters their bargaining position for healthful working conditions. Industrial Psychology is taught to improve intraunion and labor-management relationships. Consumer Health and Physical Education classes ("charm classes") attract female members and wives of male members. A Health and Human Relations course deals with emotional, sociological, and economic problems of women. Swimming and Health Education and Dancing and Health Education designate classes combining athletic activity with health lectures. This department is also responsible for exhibits, press releases, a monthly health pamphlet, mat service, and radio programs.

Member utilization of these services has increased tremendously in the past two years. It is idle to question the apparent values inherent in this public health economic enterprise. Despite obvious limitations (such as the absence

of a treatment program), it today surely justifies its existence. The permanence of the Institute must, however, be considered in the light of UAW-CIO support of a federal health bill, notorious intraunion disputes, and both labor and management threats to employment which inexorably curtail financial support of such ventures. The union has planned a hospital; but strikes cost money, and so do hospitals.

The Union Health Center of the International Ladies' Garment Workers Union—One consequence of a strike in 1910 was the selection of a Joint Board of Sanitary Control to study "sweat shops." The shocking conditions discovered by this group as well as by the U. S. Public Health Service resulted, in 1913, in the establishment of the Union Health Center. It flourished at first but, in the decade following 1922, intraunion disputes (culminating in the defeat of the communists), a catastrophic strike (1926) and the depression, all combined to jeopardize the Center. It was maintained largely because of the self-sacrifice of the idealistic personnel.

Weathering this adversity, the I.L.G. W.U. Health Center has, since the presidency of Dubinsky, grown enormously. A largely female (85 per cent) membership, seasonally employed and less demanding than men regarding wages, is appreciative of a convenient, sympathetic source of competent medical care, most of the cost of which is met by an employer payroll tax. Those few affiliates without prepayment medical services pay but \$1 per service.

This ambulatory clinic offers diagnostic and treatment services suited to the studied specific needs of the membership. In addition, it administers the medical aspects of the various local sickness insurance programs. There were, in 1946, nineteen different sick benefit and eight hospitalization plans; diverse cash benefits for surgery, maternity, convalescence, tuberculosis, and

eyeglasses were offered by a varying number of locals. Active health education, worker rehabilitation, and social work programs are in force. Despite the greatly expanded clinic space and services, there still remains the problem of meeting the ever growing utilization of the membership.

The reasons for this record are apparent. Aside from the advantages to the membership, one must point to the brilliant, often idealistic administration. Pure altruism cannot, however, be an objective criterion in evaluating the permanency of a public health economic enterprise. Moreover, the Dubinsky era of harmony is a personal victory, not reflective of the entire union history; the inevitable termination of his presidency might well be accompanied by familiar destructive discord. The comparatively attenuated basic problem of this union is collective bargaining for better wages, hours, and working conditions; the Center experience may well be used in promoting this function. However, the success of a union enterprise in public health economics can be at the mercy of all the vagaries of labor economics and politics. Social ventures can be a cohesive intraunion force; their stability is weakened in so far as they are a subsidiary, rather than a primary, union function. Finally one must question the stability of an employer payroll tax (gained during a business boom) in an economic depression.

The Dental Clinic of the Chicago Amalgamated Clothing Workers—The then Dean of the Northwestern University Dental School, in an interview in 1928, regarding the newly opened, well equipped and staffed ACW dental clinic, was quoted as follows in a union publication: "The Amalgamated Dental Clinic will serve not only the 25,000 members of the union, it will serve 100,000 because it will take care of the families of these members."

These high hopes failed to materialize.

Examination of overhead (salaries, dental equipment, laundry, magazines) and income (primarily collected from dental fees, sales of tooth paste, toothbrushes and dental floss) reveals that, from inception until mid-1945, the clinic operated under persistent financial deficits. Since competent service at reasonable fees, and not profit, is the primary purpose of the clinic, a strict financial judgment may seem unjust. However, operating losses and gains do provide a concept of the service utilization. By mid-1945 a total of 3,924 patients had been seen, an average of 230 yearly. Less than about 1 per cent of the eligible members and about 0.25 per cent of all eligibles had availed themselves of the service. From October, 1943, to July, 1945 (twenty months of acute dentist shortages), the salaried dentist saw 98 new patients, an average of 4.9 per cent monthly. The employed personnel had dwindled, by mid-1945, to an unassisted dentist; the laboratory was unused.

This public health economic enterprise has failed because (1) the union leadership has not adequately educated the membership regarding the service; (2) the hours and location of the centrally located clinic are inconvenient for the decentralized membership; (3) the fees are not comparably low enough to warrant sacrifice of the individual choice of a dentist; (4) adjustments in dental practice are unavoidably frequent; foci of dissatisfaction in general dental practice are usually lost in a large community; in union practice one patient's dissatisfaction may be spread to an entire local.

Why is the clinic maintained? It is a symbol of intraunion cohesion. In a letter dated July 18, 1945, the manager of the Chicago ACW wrote this writer:

"Our organization is not a business organization, nor is it looking for profit. We have other departments that are not financially sustaining themselves, as our cultural groups,

concerts, and educational work. All these departments are not profitable departments, but are essential . . . we feel that if we can give them the best services for a reasonable cost to whatever members are willing to avail themselves of it, we are protecting and servicing at least that many people with the knowledge that our organizational intentions are to give them more service."

The UAW-CIO and the Blue Cross Plan—The early success of the Michigan Blue Cross Plan is largely due to the UAW-CIO. Although the insurance agreement is between employer and insurance company, union-employer agreements have resulted in the enrollment of over 350,000 members from the Chrysler, General Motors, Packard Motors, Continental Motors, and Briggs companies alone. It is estimated that over 50 per cent of the total Michigan Blue Cross enrollment is comprised of about 225 UAW-CIO groups. The Group Hospitalization Report of February, 1941, by the UAW-CIO Chrysler Committee, in selecting the Blue Cross over the Aetna contract, illustrates the union capacity to override the express recommendation of the employer. The Fruehauf Trailer Company even experienced a strike because of its reluctance to discuss insurance plans with the union.

This vast free advertising agency is recognized by the Blue Cross directors. Five union men, employed by the insurance company, act as trusted advisers for the assured. Their position is analogous to that of union shop committeemen who are paid by industry but work for the union for the common good. The functions of the union member committee of the Blue Cross Plan are: (1) to assist in claim adjustments; (2) to act as an educational buffer between members and insurance company; (3) to present union grievances to the insurance executives; (4) to promote Blue Cross enrollment at local meetings.

These arrangements augment the familiar benefits of the Blue Cross con-

like histologic lesions by sensitization with sulfonilamide. Especially is this true, considered in the light of the Army Air Force experience, where frequent reactions to the sulfonilamides were caused by repeated administration of the drug when given in prophylactic dosage to the Army Air Force personnel. Toxic reactions are few if the drug is withdrawn when the early symptoms of hypersensitivity appear. Severe reactions occur if the drug is administered repeatedly to sensitized individuals. Therefore, in every epidemic the streptococcus should be tested *in vitro* to find out if the epidemic strain is definitely inhibited by low concentrations of the drug. It is of more importance that the drug should be withheld from all persons who are sensitive to sulfonilamide, and that all persons receiving the drug be readily available for frequent examinations by the physician.

Biologic prophylaxis with the use of sera and vaccines has so far proved unsatisfactory. Immunity is type-specific, and polyvalent vaccines are required. The real danger in inoculation of human beings by these organisms is the production of streptococcal tissue hypersensitivity, which may increase the possibility of causing post-streptococcal complications such as rheumatic fever, if and when suppurative streptococcal invasion of the throat occurs.

Antibiotic prophylaxis is expensive and, as yet, impractical. Penicillin therapy at the time of the invasion of the tissues of the throat shortens the illness and has proved to be the best preventive of the post-streptococcal complications and of the reactivation of quiescent rheumatic fever.

If a substance which acts like the salicylates, in a very effective way, can be found, then the sensitizing reaction will be blocked. The hope of investi-

gators working at the present time, is to find a substance which will prevent the antigen of the streptococcus from sensitizing the host, and thus block or prevent the post-streptococcal state.

SUMMARY

1. The epidemiology of rheumatic fever is the epidemiology of the Group A hemolytic streptococcus.

2. Respiratory disease caused by the hemolytic streptococcus predisposes to the post-streptococcal non-suppurative complications.

3. Rheumatic fever is a contact disease, and not primarily due to an inherited susceptibility to the disease.

4. The public health measures for the control of rheumatic fever are similar to those instituted so successfully in the control of tuberculosis.

5. Isolation, control of carriers, air sterilization, and possibly chemoprophylaxis are measures necessary for the prevention of epidemics.

6. The chief problem is the protection against, or the elimination of, infection by streptococci from the whole population.

7. A blocking agent, to prevent the development of the post-streptococcal syndrome, i.e., rheumatic fever, is a logical attack upon the problem.

8. The solution of these problems is the first step in the prevention of rheumatic heart disease, and perhaps in the prevention of the wide-spread vascular diseases, as well.

REFERENCES

1. Armstrong, D. B., and Wheatley, George M., Metropolitan Life Insurance Co.
2. Bureau of Medicine and Surgery, Navy Department, 1944.
3. Cheadle, W. B. Smith, Elder & Co., London, 1900.
4. Holbrook, W. P. *J.A.M.A.*, CXXVI:88, 1944.
5. Levy, R. L., Stroud, W. D., and White, P. D. *J.A.M.A.*, CXVIII:937 (Dec. 11), 1943, and *J.A.M.A.*, CXVIII:1029 (Dec. 18), 1943.
6. Paul, J. R. et al. Metropolitan Life Insurance Co. for American Heart Association, 1943.
7. Rautz, Lowell A. *California & West. Med.*, LXIII, 211 (Nov.), 1945.
8. Rich, A. R. *Bull. Johns Hopkins Hosp.*, LXXI: 123 and 395, 1942.
9. Sampson, John L., et al., *Am. Heart J.*, XXIX, 178 (Feb.), 1945.
10. Wilson, May G. *J.A.M.A.*, CXXIV:1188 (Apr. 22), 1944.
11. Wilson, May G., and Schweitzer, M. D. *J. Pediat.*, April, 1943, p. 468.
- Wilson, May G., and Schweitzer, M. D. *J. Pediat.*, May, 1943, p. 581.

General Reactions of Mothers and Nurses to Rooming-in

Observations Based on Experience in a Four Bed Rooming-in Unit in the Grace-New Haven Community Hospital (University Service) *

EDITH B. JACKSON, M.D.

Associate Clinical Professor of Pediatrics (Psychiatry) Yale University School of Medicine; Attending Pediatrician, University Service of Grace-New Haven Community Hospital, New Haven, Conn.

ROOMING-IN is the term used for the hospital arrangement whereby a mother may have her baby in a crib beside her bed. This paper summarizes the general reactions of mothers and nurses to rooming-in as carried on during the past 11 months on the maternity ward of the Grace-New Haven Hospital in the so-called Rooming-in Unit. The Unit is housed in the maternity ward solarium which has been partitioned off into a four bed, semi-private ward with attached four cubicle nursery and doctors' and nurses' office. The baby's crib is usually by the mother's bedside but may be moved to the nursery at the end of the room as occasion arises. The upper part of each partition is glass with draw curtains, so that there may be visibility or seclusion as desired. The partitions stop three feet short of the ceiling for ventilation purposes. The ceiling and side walls of the nursery are treated with acoustic-celotex to reduce the intensity of sounds and noises. The room is cheery and attractive. The Rooming-in Unit is thus a comfortable division of hospital space wherein four mothers and their new-born babies may be cared for together under unified nursing and medical supervision, and where

each mother may observe her baby to her heart's content and learn to take care of him before she leaves the hospital.

As hospitalization for maternity cases has increased during the last 25 years, many mothers have felt the lack of opportunity to get acquainted with their babies during the lying-in period. They have subsequently admitted feeling panicky and helpless in dealing with the baby immediately after coming home from the hospital. During this same period, some physicians who have had the opportunity to study feeding problems and other behavior disturbances of infants and young children, together with the neuro-psychiatric disturbances of adults, have expressed the opinion that the separate care of maternity and new-born patients in the hospital and the extension of the hospital's rigid schedule into the home has offered a favorable medium for the growth of unnecessary conflict between mother and child. Furthermore, mothers from all sections of the country who have wanted to nurse their babies as a natural maternal process have felt thwarted by the disinterested attitude of the hospital medical and nursing staffs in supporting their wish to nurse. They have felt both puzzled and hurt by their failure to provide what they had reason to ex-

* Presented before the Maternal and Child Health Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 6, 1947.

sider was the best food for their infants. Some physicians (pediatricians, psychiatrists, and obstetricians) listening to such comments and complaints from intelligent parents, have gained a conviction that the hospital's institutional need for regularity and regime has blocked a recognition of the mutual needs of mothers and new-born babies within the hospital.

Since the major part of the education of physicians and nurses is in hospitals, and since approximately 80 per cent of the babies born throughout the United States and 90 per cent of the city born babies are at present delivered in hospitals,¹ hospital practices have very far-reaching effects, and also very profound effects, for they bear the stamp of the acme of medical authority. Physicians, nurses, and parents educated in the hospital to a firm belief, both in the nursery segregation of new-born infants and in strict routine and regularity as a correct procedure for infant care, have had little reason to question either until practical experience or further education or both has taught and convinced them otherwise. There are now throughout the country parents, physicians, and nurses who singly or in groups are expressing other convictions.²⁻⁷ Good hospitals, they are saying, have certain advantages over homes for safety in maternal and new-born care; good homes have certain advantages over hospitals in naturalness and comfort. Protection from infection and protection from discomfort may be equally essential for the baby's happy, healthy development and for the mother's ability to give adequate care to her child. Cannot the advantages of safety and home-like comfort be combined in the hospital for the welfare of normal healthy mothers and infants, and for the more realistic education of parents, physicians, and nurses in the interrelationship of maternal and infant needs?

The Rooming-in Unit on the Univer-

sity Service of the Grace-New Haven Community Hospital is the joint co-operative attempt of the Department of Pediatrics and the Department of Obstetrics and Gynecology of the Yale University School of Medicine, of the Yale School of Nursing, and of the Hospital Administration to answer that question.

REACTIONS OF MOTHERS

In discussing the reactions of mothers we will consider first the reactions of prospective mothers to the idea of rooming-in. During the first 3 months of our work the existence of the Unit was not generally known. We could, therefore, question the expectant mothers in Prenatal Clinic with reasonable assurance of a spontaneous response from them, unbiased by previous hearsay or consideration. Our initial phrasing of the question was as follows:

In our experience we have found that some women think that they might prefer to have the baby in the room with them in the hospital. Other women would rather have their babies in the nursery and brought to them at regular feeding hours. Which would you prefer?

This question was asked only of the mothers who in a preliminary or screening interview had signified their wish to breast feed, since we were studying rooming-in with special reference to the type of woman who wanted help and encouragement from the hospital in undertaking to breast feed her baby. There were many immediate smiling responses to the suggested idea of having the baby close to the mother's bed; there were some incredulous, hesitant, dubious responses, and a few immediate negative responses. Table 1 figures from the first 8 months indicate, however, that of the mothers who looked forward to nursing the baby, more favored the idea of rooming-in than disapproved of it.

As a further check on the reaction of expectant mothers to the idea of room-

TABLE 1

Expectant mothers offered the possibility of rooming-in arrangement.....	235
Wanting rooming-in.....	175
Did not want rooming-in.....	60

ing-in during the last 3 months (from July 1 to September 30, 1947) every mother interviewed in the Prenatal Clinic by a member of the Rooming-in staff has been asked whether she would like to have her baby beside her bed if it were possible. Table 2 figures indicate that more than half of the expectant mothers (whether they wanted to breast feed or bottle feed their babies) are positively in favor of the idea, that a quarter of the mothers are definitely opposed, and the remaining one-fifth of the total group are indifferent.

TABLE 2

<i>Attitude of Expectant Mother</i>	<i>Number</i>	<i>Per cent</i>
Favorable	184	55.0
Unfavorable	88	26.5
Indifferent	59	18.5
	<hr/> 331	<hr/> 100.0

This test of attitude toward rooming-in of all expectant mothers in the Prenatal Clinic was undertaken merely as a poll of opinion because of the increase in the number of spontaneous requests for rooming-in both from clinic and private patients. However, mothers continue to be selected on the original basis of (1) wanting to nurse; (2) wanting rooming-in; and (3) relative normality. Parity, age, race, economic or social status have not, *per se*, been determinants in selection; in these respects selection has been representative. The weighting of the selection in terms of the expectant mother's wish to nurse her baby has probably brought to rooming-in a relatively high proportion of well educated parents. In this connection it is a noteworthy fact that married nurses and wives of graduate students, of medical students, and of medical staff, have

been eager applicants for rooming-in and enthusiastic participants.

The first indications of satisfaction on the part of both mothers and nurses to rooming-in experience appeared promptly. The first group of student nurses assigned to the Rooming-in Unit made a special point of expressing their viewpoint in the following way at the end of their two week assignment:

"We know the mothers like rooming-in. We thought you would like to know the nurses like it, too, and when we have babies this is the way we would like to have them." The spokesman of this group married a few weeks later. She documented the sincerity of her response by applying for rooming-in shortly after she knew she was pregnant.

Some might comment that the first mothers to be cared for in the Rooming-in Unit would of course be pleased and satisfied; they wanted to come, in the first place, and the care and the attention would be particularly attentive under the stimulus of the newness of the venture. However, the enthusiastic response of the mothers has continued month after month. After all, for each successive group of mothers and each successive group of student nurses in the Unit there is the same stimulus of a new and vital experience. During the first 3 months most of the mothers wrote comments in notebooks that were provided for the record of their care of the baby. These comments were all on the appreciative side. We had every reason to believe in their sincerity, since very often practical suggestions were added. For instance, one of the first primiparous mothers called our attention to the fact that it might be better to assume that the baby should spend the first couple of nights in the little nursery at the end of the Unit, and not put the burden of decision on the mother. No mother, she said, would want anybody to think she did not want her baby, even though at the moment she wanted undisturbed

quiet most of all. Other mothers made other suggestions. It was evident that they enjoyed participation in an undertaking that was trying to make the mutual adjustment of mother and new-born a happy experience, for themselves and for their successors.

The same reasons for liking rooming-in appeared over and over again in the comments from different mothers, whether primipara or multipara. They liked to watch the baby, his facial expression, his smiles, his movements. They liked to hear his baby sounds. They did not worry what was happening to him as all multiparous mothers said they did when their former babies were in the ward nursery. They felt secure in having the same nurse take care of the baby who was taking care of them. They liked being able to ask either nurse or doctor questions as soon as questions arose. They learned much in the care of the baby by watching the nurse during the first few days, and gained assurance in taking care of the baby themselves under supervision during the last few days of the hospital period. For the most part, they liked the *ad lib* schedule, because they could observe the easy contentment of the baby. They greatly enjoyed the father's visits, and his participation in holding and learning to care for the baby.

The following appreciative comment on rooming-in, recently received from a mother with her first baby, is typical.

What do I think of Rooming-in? I think it is wonderful. There are a great many observations I could make—all of them complimentary. However, in that case this would become a thesis rather than merely a "list of comments," so I shall simply mention the two most important factors in my impression of this experiment.

My baby girl, Diane Margaret, and I will be going home tomorrow, and I know that if I had not been given the privilege of being in Rooming-in, I would be a nervous wreck tonight. I have often heard the adage that a new mother invariably cries the night before she goes home from the hospital. Well, I can

easily see why. Even though she has read literature on baby care and perhaps attended Mothers' Classes, still she has had no experience in caring for a real live baby. Here in Rooming-in, we new mothers learn first by watching the nurses care for our babies, and then we augment that knowledge with actual experience. Also, we are given answers to all the many important and perhaps some trivial questions that come into our minds as we watch that wonderful little son or daughter.

Our course in Mothers' Classes gave us a great many helpful hints on breast feeding, but in Rooming-in, through the untiring efforts of the nurses and doctors in charge, a mother's desire to nurse her baby finds fulfillment. This is the most important reason why I hope there will be many Rooming-in Units in the new hospital. There are many girls today who sincerely want to breast feed their babies, but they are never given the right start in the hospital, and they find themselves going home with a bottle-fed baby. This situation is a disgrace.

Another great advantage of Rooming-in is that the previously neglected father, who could only see his baby through a glass window, now is given his rightful privilege. He now can watch his baby, hold her, learn to care for her. Consequently, when mother and baby come home, he does not feel afraid or self-conscious, and can be a real help and comfort.

The multiparous mothers, without exception, expressed preference for the rooming-in experience over their previous hospital experience, and stated that they got as much if not more rest in rooming-in as they had had previously; in any event, they said, they felt stronger and more rested at the end of their hospital stay and much more ready to undertake the care of the baby at home. Furthermore, they expressed appreciation for the companionship with other mothers which the Unit afforded. They learned much by observing the other mothers with their babies and exchanging experiences. They became used to the idea that each baby was quite different from every other baby, and that each baby differed in reactions from day to day. They felt they were going home with a baby they really knew, and not with a perfect stranger. Many commented after they had gone

each nurse is able to take care of several mothers and babies throughout the lying-in period and conversely that the mothers have the same set of nurses caring for them throughout their hospital stay. This has been a satisfactory and instructive arrangement for both mothers and nurses. In the first 10 months of operation of the Unit there have been approximately 60 student nurses who have had this experience. Each student has written an evaluation of her obstetrical experience contrasting the experience in the Rooming-in Unit with that on the usual obstetrical ward and nursery service. The obstetrical supervisor⁸ has stated:

Without exception every single student who has been assigned to the Rooming-in Unit has been most enthusiastic about her experience there. Their comments were all in favor of the arrangement. The students say over and over again that this is the first time in their nursing education experience that they have been able to give what they consider ideal care to a patient. I am convinced that this bit of experience, although at the present only 2 weeks in length, is of unexcelled value to the student. She is able to observe every single thing that happens to the mother and the baby and the mother and baby together. She has an opportunity to teach the parents about their new baby. She has an opportunity to explain to them or to answer for them many of the questions that come up in this new relationship. . . . I believe that the nurse giving this care will herself be better prepared both as nurse and as potential mother.

One student writes in contrasting her maternity ward and new-born nursery experience with her rooming-in experience: "It was a sort of race with time that left no individuality for anyone. There wasn't time to wait and see if the baby had taken the breast nor was there time to stop and encourage the mother with the poor nurser, but rather some impatience with the mother who wanted to finish combing her hair or fixing her face at 6:00 a.m. rather than taking the baby. Rooming-in was a great change from the aforementioned. Although we were kept busy, we were not rushed, and there was plenty to do. Having the mother with the baby seemed to make the mother more considerate of the nurse's time. She didn't ask for things to be

done when she could see that the nurse was busy with another mother and baby."

Another writes: "There is a relaxed, peaceful attitude about the Unit which runs without the everlasting clock-control that is found in larger units and especially in the nursery. I did not like working in the nursery or on the ward. In the nursery I felt as though I were running a machine which had to produce freshly diapered babies with a heated formula every 4 hours, and I did not like it on the ward because I felt intensely rushed with beds, baths, meals, and routine postpartum care."

The Visiting Nurse Association of New Haven is represented on the Rooming-in Committee. A cordial working relationship is maintained between the Rooming-in staff pediatricians and the visiting nurses who visit in the homes of rooming-in families through exchange of telephonic reports. As previously indicated, some of the visiting nurses have reported finding rooming-in mothers more independent than other mothers just home from the hospital and more quick to dispense with their practical help. Some of the visiting nurses have found, on the other hand, more time being claimed by rooming-in mothers who want to talk out with the nurse a somewhat complicated family or economic problem in relation to the baby's welfare. Reports on the babies have been generally favorable.

CONCLUSIONS

Procedures in the Rooming-in Unit have met with generally favorable response from both mothers and nurses (and also from staff physicians, fathers, and infants). It has proved to be a helpful educational experience for everyone involved. Multiparous mothers prefer it to the usual hospital procedure because of the help it offers them in getting a good start with the baby, and they therefore recommend it for mothers of first babies. It is too early to evaluate any long range effects. Rooming-in is not applicable to all mothers, and

polio epidemic when it strikes with full force at the heart of a community. For the full impact of an epidemic constitutes a major catastrophe within the stricken area, and an official agency can no more prepare for such an emergency than it can prepare for hurricane, earthquake or flood.

When polio strikes and your public health agency requests assistance, The National Foundation for Infantile Paralysis stands by with the resources of an entire nation at the disposal of the public health officer.

A community that has never experienced an epidemic of infantile paralysis cannot appreciate the resources, local, state, and national, that may contribute to the solution of its emergency situation. The National Foundation has been in the thick of the fight against polio for the past 10 years. The knowledge gained from intensive work in the field in every major epidemic the nation has experienced in the past decade is available to every community.

A polio epidemic calls for the broadest kind of action, based on preparation for such an eventuality in any part of the country. There is no time for governmental red tape, no time for trial and error, no time to train and instruct key personnel. There is time only for a quick shifting of equipment and trained personnel to the epidemic area. Our defense against this disease must be a fluid defense.

Any deficiencies become evident at the very outset of an epidemic. Faced with the necessity of providing adequate resources on short notice, local defenses soon break down under their understandable but, nevertheless, very real limitations. Only the combined efforts of both official and voluntary agencies working hand in hand, and with the financial support of the entire American nation, can be considered a maximum attempt to meet the emergency needs when polio strikes.

There are those who have severely criticised voluntary health agencies in general, and The National Foundation for Infantile Paralysis in particular, for alleged opposition to official health organizations. On the contrary, it is a matter of public record that wherever the National Foundation has contributed its services to the local picture—and the occasions are as numerous as the sporadic flare-ups of polio throughout the nation—it has worked with, and under, the direction of regularly constituted state, federal, and local health departments. Every one of its 2,735 county chapters is prepared to cooperate in every way with public health authorities in providing funds, in recruiting doctors, nurses, and physical therapists, in supplying trained Polio Emergency Volunteers and in securing every type of equipment from respirators and hot pack machines to hospital bedding and wool packs.

Its services know no barriers of state lines as it attempts to fulfil its pledge that no victim of infantile paralysis shall go without the best available care and treatment. Whereas polio is just a small segment of the function of the public health agency, the National Foundation is devoting full time to the conquest of this particular disease. Its services to public agencies do not terminate when the fury of the epidemic has been reduced to normalcy. Rather, with the lessons learned from years of firsthand study, the National Foundation has set about to aid official organizations in the correction of inadequacies that have become evident under the pressure of emergency.

Probably the most serious flaw in the public health program has been the scarcity of qualified workers to carry out the exacting tasks for which these agencies are responsible. Programs of public health demand interested and competent workers, experts in their field who are prepared to put into practice

new methods, new techniques and new standards. Personnel of this type can be obtained only by making special training available to qualified candidates, by financing postgraduate study in public health and by offering scholarships to promising students who are eager to make public health work a career.

The need for capable physicians and nurses, for sanitary engineers, bacteriologists, epidemiologists, statisticians, public health educators, and technicians is a need which has seriously limited the operation of official agencies. Through a series of direct grants to the U. S. Public Health Service and professional organizations, the National Foundation is financing the development of personnel to fill these essential positions. Fully realizing that the conquest of poliomyelitis hinges upon the intensity of the fight against all diseases, we are today strengthening the position of officially constituted organizations by contributing thousands of dollars to the training of public health workers. Let me tell you some of the things that are being done in this respect.

Early in 1946 there existed 1,200 vacancies for physicians and engineers in state and local health departments throughout the country. In a move to encourage widespread interest in public health on the part of physicians and engineers returning from military service, the U. S. Public Health Service applied to the National Foundation for funds to be used in the public health training of personnel recruited to fill these positions. The application was approved in July of last year and a grant of \$228,400 made to provide fellowships for qualified candidates. Up to September 30 of this year 35 awards have been made to sanitary engineers and 18 to public health physicians. Additional applications are under consideration. We feel that the presence in health departments of well trained health officers

and sanitary engineers assures us of maximum efficiency in our efforts to control poliomyelitis. And our support of official agencies does not stop here.

Health education through the facilities of the U. S. Public Health Service has long been hindered by the lack of trained personnel. The well trained health educator, working as a permanent member on the staff of the local health unit, has proved to be of invaluable aid in establishing an overall health program by coördinating the resources of both official and public health agencies within the community. The importance of the rôle played by the health educator has been increasingly recognized by local health officers, many of whom have budgeted funds for the employment of such personnel. But again we face the handicap of an acute shortage of qualified individuals who have a knowledge of both public health and education. To alleviate this situation The National Foundation for Infantile Paralysis has made, since 1944, direct grants to the U. S. Public Health Service totalling \$160,000 to be used for fellowships in public health education. With this support, a total of 58 awards have been made, and many more are needed to meet requirements of expanding health education activities.

The personnel shortage has also been felt severely in public health agencies with regard to orthopedic programs. Supervisory nurses with qualifications in both physical therapy and public health nursing have been most difficult to obtain. The preparation of individuals to fill supervisory posts entails great expense for the agency and for the nurse. In addition, the paucity of teachers of orthopedic nursing has severely limited the development of workers in this field. Only by offering real encouragement to nurses to qualify as directors and instructors of orthopedic nursing courses can we meet the demands of the future.

The National Foundation for Infan-

tile Paralysis is particularly interested in this phase of public health work, for it relies heavily upon the skill of experienced orthopedic nurses to minimize the crippling aftereffects of poliomyelitis and to prevent deformities in its victims. Therefore, since 1940 we have approved a series of grants to the National Organization for Public Health Nursing totalling \$125,950 to train and instruct capable supervisors and directors in orthopedic public health nursing. Up to the present time, 48 scholarships have been awarded, and the National Foundation will continue to support and finance this project which is contributing substantially to the general effectiveness of official health agencies.

Unfortunately, the personnel problem cannot possibly be handled by public health organizations within the limitations of their budgets. The recruiting of qualified individuals is not accomplished in haphazard fashion. For the past 2 years we have underwritten to the extent of \$25,350 the American Public Health Association's field consultation service to state and local health departments in connection with recruitment and selection of personnel and the maintenance of sound personnel procedures.

The same organization was further aided by a 2 year grant of \$10,000 to acquaint city, county, and state health authorities with the importance of the sanitary engineer in maintaining a healthy environment.

It becomes quite evident then that, rather than working in opposition to public health agencies, the National Foundation has maintained a policy of direct assistance in the building of sound, vigorous official organizations, capable of leading the fight against disease within their communities. But it still rests heavily upon voluntary agencies—specialists in their field—to carry on the bulk of the work in combating a specific disease. Every advance that the National Foundation makes against poliomyelitis is an accomplishment in control of all diseases. Every research project carried on with the financial support of the National Foundation is a major effort in the quest for national health. Whether we represent voluntary, private or official health agencies, our goal is the same.

By working hand in hand, by co-operating willingly and energetically, we may look forward to new accomplishments in the service of the American people—and of all humanity.

Coördination of Hospitals and Health Departments

Joint Statement of Recommendations by the American Hospital Association and the American Public Health Association *

THE American Hospital Association and the American Public Health Association have prepared this statement to define the areas in which fuller co-operation and integration of hospitals and health departments may be achieved. The statement is confined to an exploration of these areas and does not concern itself with other aspects of either hospital management or community health organization. It is hoped that hospitals and health departments will find it a useful guide to their attainment of closer working relations in the interests of greater efficiency and improved health service.

Among the foremost institutions which today serve the health of the community is the general hospital. Not only has the hospital developed during the past few decades into the basic institution providing the technical facilities for adequate health appraisal and modern diagnosis and treatment of disease, but it has also become an indispensable workshop for the practising physician. Through its ability to make essential technical procedures available to physicians and other personnel the hospital exercises a strong and direct influence on the quantity and quality of medical and health services.

Because of its important position the general hospital's responsibilities in the

total community health picture have been constantly expanding. In addition to the provision of facilities for medical care of high quality, its functions now include training of medical and allied personnel, medical research, and participation in local public health activities.

Profound changes and advances in the activities of health departments have paralleled this expansion in hospital functions. The achievement and maintenance of ever higher levels of community sanitation is making it possible for health departments to turn increased attention to developing programs to improve individual health through immunization, education, and health supervision; at the same time they have found it essential to provide therapeutic services if communicable diseases such as tuberculosis and syphilis are to be effectively prevented. Health departments have begun to recognize the important public health implications of such major health problems as cancer, heart disease, and other long-term illnesses and to combat them by providing certain facilities to aid in early diagnosis and treatment. In order to secure maximum effectiveness for these campaigns they have begun to develop increasingly closer relationships with hospitals and practising physicians.

Preventive and curative medicine have reached the stage where they are no longer separable, and it is necessary at the present time to bring them together physically and functionally. The close physical and organizational association of health departments and hospitals will

* This report has been approved by the Executive Board of the American Public Health Association on the recommendation of the Committee on Administrative Practice and the Subcommittee on Medical Care. It has been adopted as an official statement of the two associations.

provide a valuable step toward this essential goal.

Hospitals and health departments have a common interest in providing the best possible technical facilities and administrative tools for the further development of both the preventive and therapeutic aspects of medical practice. The expression of this relationship in terms of greater coordination of the activities of hospitals and health departments has already occurred in some communities, but a great deal still remains to be accomplished in this direction.

HOUSING OF HOSPITALS AND HEALTH DEPARTMENTS

Since a considerable increase in the construction of hospitals and public health facilities may be expected in the next few years, it is appropriate that certain advantages of joint housing be pointed out at this time. It is strongly recommended that, wherever circumstances justify and permit, there should be joint housing of hospitals and health departments, and, if possible, the offices of physicians and dentists.

Although coordination of the activities of hospitals and health departments can be accomplished even if they are not closely integrated physically, it is most feasible when there is joint housing of the hospital and health department. The common use of laboratory and clinic facilities, which is difficult to achieve when the two institutions are physically separated, occurs readily when they are housed together. The planning of integrated programs is facilitated by joint housing and their administration is made smoother and more efficient.

Outpost rural areas

The health needs of rural areas which are isolated, thinly settled, and unable to support a general hospital may be met by the construction of outpost health facilities. These facilities would

house the offices of physicians and dentists, diagnostic facilities, the office of the local public health nurse, public health clinics, and in some areas a nursing unit for maternity care and minor illnesses.

The physicians whose offices are located in the outpost facility should be members of the medical staff of the nearest general hospital. Arrangements should be made for transportation of patients from the outpost area to the hospital and for consultation visits by the hospital staff to the outpost facility. Otherwise the outpost personnel may deteriorate professionally owing to their medical isolation or the outpost facility may attempt to undertake functions belonging properly in the general hospital.

Populous rural areas

The establishment of hospitals and public health facilities in many rural areas will require entirely new construction. It is recommended that in these areas hospital and health department facilities be constructed as an integral whole. It is particularly recommended that physicians' offices be included in the new structures so that the time and effort usually expended by private practitioners in shuttling back and forth between office and hospital would be minimized. This arrangement would facilitate laboratory and x-ray examinations of the physicians' patients, prevent unnecessary duplication of expensive technical equipment and make it easier for physicians to consult with their colleagues.*

Many advantages to the public, the health department, and the hospital

* The joint housing of hospitals and health departments has already been effected in a number of areas such as Sonoma, Monterey, and Kern Counties, California, and Washington, Charles, and Wicomico Counties, Maryland. In addition, plans to build combined hospital and public health facilities are under consideration in several counties in California; six districts in Manitoba, Canada; Etowah County, Alabama; Winston-Salem, North Carolina; Schoharie County, New York; El Dorado City, Kansas; and Eaton, Barry, Ionia, Allegany, and Van Buren counties, Michigan.

may be derived from joint housing of hospitals and health departments. A single health and medical center means greater convenience and continuity of service for the public. The pooling of resources resulting from joint housing enables the community to obtain more adequate facilities and better trained personnel than it could otherwise afford.

Through joint housing the hospital achieves greater prestige as the community center for all health and medical activities; it is able to hire a more competent staff by virtue of its increased financial strength and can therefore offer more comprehensive and effective service. Joint housing facilitates follow-up by public health nurses of patients after they leave the hospital, while the medical staff benefits from closer association with public health programs. Furthermore it may stimulate increased public interest in the hospital since more people will visit the institution for health promotion and preventive services rather than as a last resort.

The health officer likewise benefits professionally from more intimate association with physicians engaged in clinical medicine. His health programs receive added impetus from the increased knowledge and interest in public health gained by practising physicians, interns, and nurses. Case finding for public health programs in the hospital wards and outpatient department is facilitated. The health department attains new stature, dignity, and public understanding.

Where the general hospital already exists and health department facilities are needed, it is recommended that the latter be constructed as an addition to the hospital or adjacent to it, and that an understanding be reached between the two agencies concerning joint use of certain facilities in order to avoid unnecessary duplication. This plan, however, may not be practicable in some instances because of the isolated location of the hospital.

While it is administratively easier to combine the rural hospital with health department facilities when both are public institutions, there is little reason why joint housing of voluntary hospitals and public health facilities cannot be achieved.*

Urban Areas

In small cities with one existing general hospital it is recommended that health department facilities be constructed as part of or adjacent to the hospital wherever feasible. It may be more difficult to arrange for joint housing in cities with more than one hospital. Nevertheless, the difficulties are not insurmountable.†

In larger cities public health facilities should, in so far as it is logical and possible, be built as part of or adjacent to general hospitals. Of course this will not be feasible in neighborhoods which do not have hospitals. Where joint housing can be achieved it will have an important effect in improving the coordination and effectiveness of hospital and health department activities.

The cities in which medical schools are located present a special situation. In such cases the principal public health facility should be built on the grounds of the teaching hospital.‡

* In several counties of Maryland, for example, the health department pays rent for that portion of the hospital which it occupies, and the arrangement has proved highly satisfactory.

† In the city of Niagara Falls, New York, which has two voluntary general hospitals, plans are now being considered to construct the principal public health facility adjacent to one of the hospitals and to locate smaller centers at strategic places throughout the city. These plans were formulated with the help of the local medical society and both voluntary hospitals, and received their full approval.

‡ This is the plan followed in Louisville, Ky., where the medical school, teaching hospital, and public health department form a single, integrated medical center. In New York City, five of the municipal public health centers are adjacent to medical schools. The health officers hold faculty positions in the medical schools, and medical students serve clinical clerkships in the public health centers. There is no doubt that considerable advantages accrue to both parties from this arrangement.

PERSONNEL AND ADMINISTRATION

There are many ways in which health department and hospital personnel can work together effectively. In urban areas, for example, coöperative arrangements between hospital social workers and public health nurses can prevent duplication of services and increase efficiency. In rural hospitals and health departments, although medical social workers are not generally employed by the separate institutions, it should be possible to employ a medical social worker to serve both agencies where there is combined housing of the health department and hospital.

In urban as well as rural areas the public health nurse can provide continuity of care for discharged hospital patients by carrying out the treatments recommended by the physician and giving home nursing care and supervision. This is true not only for patients with communicable diseases but for all hospital patients, whether ambulatory or not, who require further home supervision or care. Physicians, hospitals, and health departments should together agree on and carry out simple and effective referral systems.

In many areas the shortage of public health nurses limits the possibilities of this type of service. Nevertheless in some rural communities the public health nurse is able to perform a substantial amount of bedside nursing care. In the cities there has been a significant trend toward the amalgamation of voluntary visiting nurse services with those furnished under the health department program, thereby improving service and increasing the potentialities of physician-hospital-health department coöperation in this field.

There are several ways in which the medical staff of the hospital can contribute to the activities of the health department. Arrangements may be made for members of the visiting staff to conduct specific health department clinics

on a part-time salary basis. Members of the visiting and resident staffs can instruct public health nurses in current medical advances and assist in the health department's educational program by lecturing to community groups. Such service by physicians contributes to the building of a close partnership of physician, hospital, and health department to meet the overall health needs of the locality.

Consideration should be given to broadening the concept of intern or resident training to include a definite period of time spent in a public health department approved for this purpose. This would improve the physician's understanding of the preventive approach to medicine and acquaint him with services available to the public through the health department and other community agencies.

The achievement of closer administrative relationships between hospitals and health departments does not come about automatically but requires careful and continued planning as well as administrative finesse. Where the health department and the hospital are jointly housed but under separate administration, joint conferences should be instituted and definite fields of administrative coöperation outlined to further closer and more harmonious relationships.

In those areas which have a small community hospital and health department the appointment of a single administrator for both organizations may be considered.* There is need for further experimentation in this field.

Closer coördination of the training of health officers and hospital administrators is needed to familiarize health offi-

* In Branch County, Michigan, for example, the health officer is also director of the voluntary general hospital. This arrangement has made it possible to offer sufficient compensation to attract a competent physician. It has also proved highly advantageous in achieving greater coördination of hospital and health department activities and a better quality of administration.

cers with hospital problems in view of their increasing responsibilities for hospital planning, construction, inspection, and licensure, and to develop hospital administrators and health officers who have sufficient understanding of each other's activities to coördinate them effectively. This would also make available personnel competent to direct combined hospital-health department units. Several schools of public health have already recognized the importance of such coördination by requiring one basic course of training for both groups and permitting specialization subsequently in either public health or hospital administration.

PREVENTION OF COMMUNICABLE DISEASE

The control of tuberculosis, venereal disease and other communicable diseases affords numerous opportunities for joint action by hospitals and health departments. Tuberculosis and venereal disease clinics belong properly at the general hospital, not at the city hall or some other non-medical institution. Likewise rapid treatment centers for syphilis should, in so far as possible, be housed in general hospitals rather than organized separately.

With present knowledge of the control of cross-infection there is very little reason for establishing special hospitals for the care of acute communicable disease. With the possible exception of large urban centers such special hospitals are economically wasteful and seldom provide services which meet the total medical needs of the patient. A more rational approach is to use general hospital beds for the care of patients with communicable disease and to obtain the assistance of the health department in developing effective isolation techniques. Such coöperative action will be facilitated if the hospital appoints the health officer to its medical staff as consultant in communicable diseases.

Routine chest x-rays as well as sero-

logical tests for syphilis ought to be undertaken by all hospitals. The interest of the health department in these health protection activities should take the form of substantial financial and technical aid. With such assistance every hospital can become a strategic center in the community attack on tuberculosis and venereal disease.

Close working relationships between general hospitals and tuberculosis sanatoria are necessary to afford sanatoria patients the advantages of modern surgical therapy as well as consultation services. For similar reasons a portion of the newly established hospital beds for tuberculosis should be located in or closely connected with general hospitals.

Laboratory service is essential to communicable disease control as well as to the proper functioning of hospitals. Health departments and hospitals have a vital interest therefore in the planning and development of adequate laboratory service.*

In some states hospital as well as health department laboratories are approved by the state department of health which, in addition, holds an annual educational meeting of laboratory directors and supplies them with current bibliographies on technical subjects. Marked improvement in laboratory standards has resulted from such procedures and they have been well received by hospital laboratory personnel.

PROGRAMS FOR NON-COMMUNICABLE DISEASE

With the progressive conquest of many communicable diseases attention has shifted to other major causes of

* In some of the rural counties of Maryland, the use of a joint laboratory has been found to be advantageous, since the additional financial resources allow the utilization of better trained personnel. In small cities with more than one hospital as, for example, Jamestown, N. Y., it has been found effective to have a single director administer the health department laboratory as well as the several hospital laboratories. This arrangement provides a well integrated laboratory service and enables the community to obtain a director of high caliber.

disability and death. Heart disease, cancer, and mental illness are rapidly becoming recognized as having significant public health implications. The epidemiological study of such diseases—their prevalence and relation to socioeconomic, environmental, and constitutional factors—can shed much light upon their origin, prevention, mitigation, and treatment. The social effects of non-communicable diseases, their chronic nature in many instances, their increasing importance as the population ages and the huge expense involved in their care put them beyond the scope of the individual physician or hospital alone and mark them clearly as among the most important public health problems of the day. Accordingly, there have been renewed attempts to construct adequate systems of morbidity reporting and greater emphasis has been placed on health education as a preventive device in the management of non-communicable disease.

Hospitals provide an effective environment in which to educate the public in health matters.* In addition hospitals are repositories of much valuable information on the incidence of disease which should be studied and utilized in the development of control programs. They occupy an important position in relation to plans for controlling heart disease and cancer and are natural locations for cardiac and tumor diagnostic clinics. The recent development of cancer detection clinics, in which apparently well persons receive thorough diagnostic examinations, promises to encourage greater concentration on this type of preventive activity by the staffs of general hospitals.

It has long been recognized that psychiatry suffers through its isolation from general medicine. Similarly the aver-

age physician, having received little or no training in psychiatry, is handicapped in his ability to recognize, treat or prevent mental disease. The importance of mental illness is indicated by a recent estimate that approximately 1 patient out of every 28 new admissions to general hospitals, and 1 out of every 16 new admissions to outpatient departments presents problems requiring the services of the psychiatrist.

Owing to the passage of the National Mental Health Act a large-scale development of research facilities and clinics for mental hygiene may be expected. In many areas the local and state health departments will be responsible for administering the mental health program and integrating it with other health activities. It will be to the best interests of psychiatry and medicine in general if hospitals welcome the establishment of mental hygiene clinics and incorporate their functions as part of a general hospital service. Large general hospitals should establish psychiatric services for observation and treatment of mentally ill patients and, wherever feasible, the medical staffs of general and mental hospitals should develop liaison in order to provide consultation services to patients of mental institutions and to furnish the patients of general hospitals with skilled psychiatric assistance. In this way a more fully generalized and comprehensive service to the community would be achieved.

MATERNAL AND CHILD HEALTH

Maternal and child health clinics should be easily accessible to the persons served and many must be conducted in communities or neighborhoods which do not have hospitals. Nevertheless, there are numerous instances where the general hospital is easily accessible but is not utilized for such services. This situation, which has arisen from the separate development of hospital and health department facilities, prevents both hos-

* This has been demonstrated by the excellent programs of The Johns Hopkins Hospital in Baltimore and the Shoemaker Clinic in Cincinnati.

pital and health department from operating at their maximum effectiveness in the protection of maternal and child health. Health department prenatal clinics for the adjacent neighborhood should be conducted in the general hospital in order to insure continuity of care, easy transfer of records, and adequate postpartum follow-up. Similar considerations apply to well child and pediatric diagnostic and treatment clinics. The maternal and child health clinics conducted by health departments in areas not easily accessible to hospitals should be affiliated with the central hospital clinics for referral of complicated cases.

Still other opportunities exist for closer relationships between hospitals and health departments. The latter can supply educational literature to hospitals for distribution by physicians to their maternity patients. The state department of health in particular can furnish consultation services by medical, nursing, nutrition, and other staff members. Hospitals can enlist the aid of the health department to prevent outbreaks of infant diarrhea and to develop comprehensive programs and facilities for the specialized care of premature infants, and should cooperate with the health department and practicing physicians in their review of maternal and infant deaths. The health department can assist hospital laboratories to make determinations of the Rh factor by furnishing consultation services, providing typing sera, or actually performing the tests.

All too often the public health nurse receives notice of the birth of a child several weeks after its occurrence and the mother is thereby deprived of her advice and assistance during the period when they are most important. This problem has been solved in some areas through cooperative arrangements by which the health department is informed of the birth before the mother and child leave the hospital. In many communities arrangements have been made with

physicians and hospitals for the public health nurse to see the mother while she is still in the hospital as well as make a preparatory visit to the home, thereby establishing the best possible conditions for adequate home follow-up.

The proportion of home deliveries is still too high in many areas. Hospitals should give serious attention to the provision of sufficient maternity beds to meet the needs of the entire community, particularly for the care of complicated cases.

MEDICAL CARE AND HOSPITAL SERVICES

A number of specialized medical care programs, including those for communicable disease, tuberculosis, venereal disease, and crippled children, are recognized responsibilities of health departments, and it is desirable that they be entrusted with new programs of community medical care which may be assumed by various levels of government. It would seem wise therefore for hospital and health authorities to undertake intensive research on several mutual problems. One of these, for example, is the creation of a satisfactory cost accounting system which will be equitable to both the hospital and the health department.

The experience of the last few years, particularly with the Emergency Maternity and Infant Care program, has established the important principle that the hospital receive full cost for the care of patients for which government assumes full responsibility. This precedent should be followed in all public medical care programs provided that an agreed standard of care is established and there is proper cost accounting.

In approximately three-quarters of the states the state health departments have been given the responsibility for hospital surveys and planning incident to the Federal Hospital Survey and Construction Act of 1946, and it is expected that they will be given similar

administrative responsibilities with respect to the construction phase of the program. This will inevitably encourage much closer relationships between hospitals and health departments than have ever existed in the past.

Hospital licensure laws have already been enacted in most states and with few exceptions the state department of health has been designated as the responsible agency. Much of the activity of the agencies administering such laws is of an educational character, designed to assist hospitals in improving standards of service to the public.

A significant expansion in the number of full-time local health departments as well as in the scope of their activities may be expected in the next few years. Similarly the nation's hospital system will be extended to many areas which now lack adequate facilities and greater emphasis will be placed on the community responsibilities of the general hospital. It is important at this time that hospital and health department administrators plan to achieve maximum co-

ordination through joint housing, cooperative use of personnel, and the development of active programs to safeguard and promote the health of their communities.

Members of the Committee

American Hospital Association

E. D. BARNETT, M.D.
ROBIN C. BUERKI, M.D.
GEORGE BUGBEE*
GRAHAM DAVIS
H. V. HULLERMAN, M.D.*
A. P. MERRILL, M.D.
CHARLES WILINSKY, M.D.

American Public Health Association

JOSEPH W. MOUNTIN, M.D.
V. L. ELLICOTT, M.D.
FRED W. JACKSON, M.D.
BASIL C. MACLEAN, M.D.
NATHAN SINAI, DR. P.H.
V. M. HOGE, M.D., *Consultant*
MILTON TERRIS, M.D.*

* Staff members.

SELECTED BIBLIOGRAPHY

General Relationships

1. Relations Between Health Departments and Hospitals *A.J.P.H.*, 18:290 (Mar.), 1928.

Report of a joint committee of the American Hospital Association and American Public Health Association with results of a study of cooperative relationships in regard to clinics, laboratories and hospitalization of communicable disease.

2. Report of the Committee on Public Health Relations, American Hospital Association. *Tr. Am. Hosp. A.*, 38:104, 1936.

Excellent recommendations for coordinated activities in hospitalization of communicable disease, laboratory service, medical social service, clinics and outpatient departments, maternal and infant care, venereal diseases, cancer, diabetes, tuberculosis, cardiac diseases, mental hygiene, etc.

3. Hospitals and Health Departments. Commission on Hospital Care. *Hospital Survey News Letter*, Aug., 1946.

A brief and concise analysis of the need for closer coordination, with concrete suggestions in regard to personnel, facilities, administrative relationships, and specific integrated programs.

Housing

4. Hospital Survey and Construction Act of 1946.

Text of Public Law 725, 79th Congress and text of regulations issued by the U. S. Public Health Service.

5. The Public Health Center and the Community Hospital. V. M. Hoge. *Mod. Hosp.*, 63: 56 (Aug.), 1944.

Describes the advantages of building combined hospitals and public health centers in rural areas. Includes plans of a 50 bed rural hospital and health center.

6. Hermann M. Biggs' Contribution to the Modern Concept of the Health Center.

M. Terris, *Bull. Inst. Hist. Med.*, 20:387 (Oct.), 1946.

Description of Hermann M. Biggs' health center proposals of 1920, which included hospital and health department facilities in a single center.

7. The Health Center—Adaptation of Physical Plants to Service Concepts. J. W. Mountin, and August Hoenack. *Pub. Health Rep.*, 61:1369 (Sept. 20), 1946.

Discussion of four types of health center plans:

1. Those designed for public health agencies alone
2. Those that combine the hospital and public health agencies
3. Those that provide accommodations for the health department and practicing physicians

4. Those that combine the health department, the hospital, and offices for practising physicians

8. Hospitals. U. S. Public Health Service. Reprinted from *Architectural Record*, Aug., 1945.

Blueprint of a coordinated hospital service plan, including plan suggestions for a 50 bed rural hospital and public health center and an outpost rural health center with 10 bed nursing unit.

9. Better Hospital Care for the Ambulant Patient. Hospital Association of Pennsylvania, Harrisburg, Pa., 1946.

Study of clinic services in Pennsylvania, with comprehensive discussion of the role of hospitals in relation to group clinics, health centers, and civilian rehabilitation.

10. Schoharie County Health Service. New York State Department of Health and the Joint Hospital Board, Sept., 1946.

Detailed report to a county board of supervisors on a combined hospital-health department unit.

Specific Programs

11. The Care of Acute Communicable Diseases in General Hospitals. Commission on Hospital Care, *Hospital Survey News Letter*, Jan., 1946.

A good analysis of the reasons why patients with acute communicable disease should be cared for in general hospitals.

12. Tuberculosis Control. *Hospitals*, Aug., 1946.

A portfolio of information on tuberculosis control prepared in collaboration with the U. S. Public Health Service, with special emphasis on the role of general hospitals and the routine use of admission chest x-rays. Articles on methods, finances, records, etc.

13. Health Education in Hospitals and Out-Patient Departments. Henriette Strauss. *A.J.P.H.*, 35:1175 (Nov.), 1945.

The experience of the Department of Preventive Medicine at The Johns Hopkins School of Medicine in organizing a health education program in the hospital.

14. Education While They Wait. Elisabeth M. Ferber. *Mod. Hosp.*, 66:63 (Apr.), 1946.

The use of motion pictures as a health education medium in the Shoemaker Clinic in Cincinnati.

15. *Hospital Licensing Act*. Council of State Governments, Chicago, Jan. 1, 1947.

A model hospital licensing act prepared by the Council of State Governments in cooperation with hospital, public health, and medical organizations.

American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

May, 1948

Number 5

Editorial Board

REGINALD M. ATWATER, M.D.
Chairman, and Managing Editor

LEONARD GREENBURG, M.D.
PROFESSOR JOHN M. HENDERSON
RALPH S. MUCKENFUSS, M.D.

STUART MUDD, M.D.
RAYMOND S. PATTERSON, Ph.D.
GEORGE ROSEN, M.D.

C.-E. A. WINSLOW, Dr.P.H., *Editor*

AUGUSTA JAY, *Editorial Associate*

PROGRESS IN THE STUDY OF ORGANIC INSECTICIDES

TWO years ago, Dr. F. C. Bishopp¹ reviewed for us the status of DDT as a public health insecticide; and progress in this field has been so rapid that we have asked Dr. J. M. Andrews of the U. S. Public Health Service Center at Atlanta to bring the subject up-to-date, in the Special Review Article of this issue of the *Journal*. The importance of such a review is indicated by the fact that Dr. Andrews cites 134 articles bearing on the subject, most of them appearing within the past two years.

The use of DDT has been brilliantly justified by recent experience, particularly in dealing with malaria, with murine typhus, and with various diseases carried by sandflies. It has been useful in the control of the house-fly, but with certain distinct limitations, which the sanitarian should bear in mind. DDT is not effective against the larvae of house-flies and blow-flies, and certain strains of house-flies appear to develop special resistance against this insecticide in the adult state, a phenomenon analagous to the evolution of drug-resistant strains of various pathogenic microbes. It is clear that fundamental sanitary measures for the control of fly breeding cannot be neglected.

Dr. Andrews reviews suggestive studies of various solvents used with DDT and of new alternative insecticides such as Chlordane and DDD. He notes the importance of guarding against toxic effects, although "DDT when used as an insecticide, with reasonable intelligence and the precautions normal to the use of modern insecticides, is harmless to man and animals." He emphasizes the need for regulating dosage, when insecticides are applied on a large scale over wide unoccupied areas to destroy insects harmful to health, forest trees, or agricultural crops, so as to avoid upsetting the general balance of wild life.

All in all, we believe that this review will be of unusual value to our readers. The use of the new insecticides marks one of the major advances in the history of public health; and it inaugurates a far-reaching change in sanitary practice through the replacement of rule-of-thumb (or rule-of-nose?) nuisance control by scientific sanitation.

REFERENCE

1. Bishopp, F. C. *A.J.P.H.*, 36:593, 1946.

THOMAS PARRAN

THE United States Public Health Service has a history of a century and a half behind it (although for the first part of that period it was called the Marine Hospital Service and performed only the function of providing medical and hospital care for sailors of the Merchant Marine). Hugh S. Cumming, Surgeon General from 1920 to 1936, transformed the organization from a sound but somewhat pedestrian service to a vital and progressive one; and many of the outstanding leaders of the U. S. Public Health Service were brought forward to positions of influence under his regime. "Tom Parran," who succeeded him has presided with wise vision and courageous initiative over the most distinguished era in the history of the Service.

The following brief chronological list of the major new ventures undertaken during the twelve years of General Parran's service (which ended this spring), is an impressive record:

1937. Initiation of a National Research Program on the cause and cure of cancer.

1938. Initiation of a National Program for the control of venereal diseases (in which Dr. Parran's personal leadership was particularly influential in breaking down old prejudices and which has made most fundamental contributions to the administrative application of modern rapid-treatment methods).

1943. Organization of the United States Cadet Nurse Corps, which was of great value in meeting war needs.

1943. Radical reorganization of the structure of the Service, to secure greater efficiency in operation.

1944. Initiation of a National Tuberculosis Control program.

1946. Initiation of a National Mental Health Program, probably the most effective step ever taken in this or any other country; to translate talk into action in this most important and most neglected field of public health.

1947. Actual initiation of a nation-wide survey and construction program to develop essential hospital and health services for neglected areas.

Meanwhile, the outstanding program of research, at the National Institute of Health, has been continued and expanded, so that this Institute represents the most fruitful research agency in the field of public health anywhere in the world. Grants-in-aid to states, local health services, and institutions for expansion of public health work and research have averaged 13 million dollars a year in recent years, while for the same period expenditures by states have increased from 16 to 52 million dollars a year.

Dr. Parran had been released from 1930 to 1936 to serve as Commissioner of Health of the State of New York, where he built up—on the foundation laid by Hermann M. Biggs—one of the most outstanding state health departments in the country. In recent years he has made notable contributions in the field of international health, and presided at the New York conference where the Constitution of the World Health Organization was drafted in 1946. It is as the "S.G." however, that he is most widely known to us. It was primarily for his leadership of the U. S. Public Health Service that he received 16 honorary degrees, and the Sedgwick Medal and the Lasker Award from our Association. With no prejudice to his predecessors who served in less health-minded years, Thomas Parran stands today as the most outstanding Surgeon General of the world's most outstanding national health service. He is a young man of whom we shall hear more in the future.

THE BATTLE OF BRITAIN

THE new British National Health Insurance Act will come into force on July 5, replacing the present National Health Insurance program which on that date goes out of existence. At the present writing, the British Medical Association plans to refuse participation, supported by a two million dollar Fighting Fund (described by the lay press as a "Strike Fund"). Feeling on both sides is bitter. The *British Medical Journal* raises the cry of governmental dictatorship, and frankly appeals to "emotion as the driving force behind reason and action." The *New Statesman* says that the British Medical Association is "seeking to debase" the generous motives which animate the healing art "by arousing emotions which, when they are sincere, are mistaken, and, when they are less than sincere, are a betrayal of the doctor's calling and of the loyalty and affection of his patients."

The conflict is a tragic one; and it is important for us, in the United States, to understand what the shooting is about. Many Americans have been led to believe that it concerns the basic principles of compulsory health insurance; but this is not the case. England has had compulsory health insurance for more than thirty-five years. "All concerned, doctors as well as public, recognize the need for a National Health Service; all accept broadly the structure of the Act in regard to the whole hospital system; all realize that there must be a public medical service based wholly or mainly on capitation fees. This is as it should be; fundamentally this is a good Act; its provisions are better than most previous proposals and it gives to doctors themselves a far larger representation than they did have—on Executive Councils, Appeal Tribunals, Medical Practices Committees, and the rest—in the administration of the Act."¹ The negotiating committee of the medical profession itself pointed out that "such differences as have arisen between the government and the main body of the profession relate not to the objective itself (the establishment of a comprehensive medical service), but to the means proposed to achieve the objective."

The issues which divide the medical profession from the government are four in number:

The first of these, and the one which perhaps bulks largest in discussion, is the provision of the Act which establishes a basic salary of 300 pounds for every physician, to which will be added capitation fees based on the number of families served. It is estimated that a moderate practice should yield a total income of 2,000 pounds. The basic salary is included in the Act to make sure that the young physician just starting in practice shall have at least a minimum income while he is building up his panel practice. The British Medical Association resents this as an "entering wedge" for the principle of salaried service and proposes a higher capitation scale as an alternative.

A second bone of contention is the provision in the Act that practices built up on a panel basis in the future cannot be sold by a retiring physician to a potential successor. (The government has arranged to recompense all physicians for the cash value of practices existing prior to July.)

A third point of conflict is the provision in the Act that if a physician wishes to move to a new area, he cannot take a panel practice in that area without the permission of the committee representing the panel doctors in that area. Private practice for the well-to-do, as well as consulting service by specialists, will be, of

course, entirely free; and the decision whether local panel practice is sufficient to warrant an additional panel practitioner is made, not by any government official, but by the local panel practitioners themselves. A fund of 400,000 pounds is provided for inducements to physicians to serve in "under-doctored" areas.

Fourth, the British Medical Association objects to the fact that the decision of a local executive committee (50 per cent medical) to remove a physician's name from the panel list can be appealed only to a special tribunal composed of a lawyer appointed by the Lord Chancellor, a medical practitioner appointed after consultation with the medical organizations and a third, with experience in local executive committees. A decision of this tribunal unfavorable to the physician concerned may be vetoed by the Minister of Health, but not a decision favorable to him. The British Medical Association demands further appeal to the lay courts.

There have been certain minor points at issue; but these are the four major factors which threaten to produce a "Doctor's Strike" in Britain next July.

No one in this country can fully evaluate the issues involved; but such journals as the *London Spectator* give us a picture of the trend of public opinion in quarters sympathetic with the medical profession. Such opinion is reasonably unanimous in supporting the Minister of Health on points 3 and 4 above (avoidance of excessive competition for panel patients in an "over-doctored" area and prohibition of the sale of public panel practices). The opposition of the British Medical Association to these two provisions seems to have little public support. On the fourth point, right of appeal from the Minister of Health to the Courts on the part of the practitioner removed from a panel, public opinion seems generally to back the new Act; it would seem, however, that a concession on this point to the British Medical Association would not do anyone serious harm.

The first issue listed above, the basic 300 pound salary, would also appear to be properly open for conference and possible reconsideration. The purpose of this provision is an excellent one. Such a salary was included in the report of the Medical Planning Commission, representing the British Medical Association and other medical bodies, in 1942. Yet the present opposition to this basic salary is so strong that its elimination or modification might well be considered.

The *London Spectator* said—before the result of the doctors' plebiscite was known—"It is of cardinal importance that the Act shall come into force on the appointed date, now less than five months distant, and that it shall be worked not by men driven into a corner against their will, but by a body of practitioners determined under conditions which satisfy them to do their best for the health of the nation, as every doctor is doing today. Difficult as the situation is, there is no reason why this should not happen, for sharp though certain outstanding differences may be, none of them is incapable of adjustment. There can be no ultimatum to the doctors; nor can there be one by the doctors. When the result of the plebiscite is known some kind of contact between the Minister and British Medical Association must be reestablished. And the public, for whom this Act was devised and who need it urgently—particularly that large middle class, uncovered by National Health Insurance, on which a long illness or a serious operation falls with such crushing financial weight—must insist that outstanding questions be thrashed out between reasonable men in a spirit of common sense."

REFERENCE

1. *The Spectator* (London), Feb. 13, 1948, p. 184.

THE JOURNAL INDEX

THE last issue of this *Journal* was devoted to books; but to the scientist in any field periodical literature is equally important, and often more difficult to find when you want it. How often have you wondered where you saw that typhoid epidemic described or where that excellent article on health education appeared?

You will find the answers, so far as our *Journal* is concerned in a complete Index of its first 35 volumes (1911-1945). The preparation of this Index by Louise Pickens Tanner and Fred Wilbur Tanner has been a labor of love for which the Association owes these authors a deep debt of gratitude. It covers original communications, editorials, committee reports, and Association news, cross-indexed by subject and author; and occupies 335 pages of text. Here, you can find reference to what Biggs said about tuberculosis in France in 1918, to what Chapin wrote about air and contact infection in 1912, and to Sedgwick's Presidential address in 1913. This volume will be invaluable for our members and for students of public health in every country.¹

REFERENCE

1. The volume may be obtained from The Garrard Press, 119 West Park Avenue, Champaign, Ill., at a price of \$7.00.

Clearing House on Public Health Salary Information

Salaries in State Health Departments

IN February the State and Territorial Health Officers Association released the study of salaries of state public health workers prepared at its request by the U. S. Public Health Service.

The study represents actual salaries paid * state health officers, 9 selected program directors, and 6 occupational groups of public health workers in the employ of state health departments in November, 1947 — medical, nursing, sanitary engineering, sanitation, nutrition, and professional laboratory personnel. The study does not represent a detailed job analysis of positions. It is therefore based on comparable titles which do not always represent comparable levels of responsibility. In spite of its lack of statistical refinements, this study serves a useful purpose in focusing attention on salaries.

Nor does the study indicate desirable salary levels. For practically all titles studied the salaries range widely among the 48 states. The highest salaries paid by a few states may not be within reach of all states, but it is certain that in most instances median salaries or less will not produce substantial responses from applicants.

The data of the study are shown entirely in the form of charts. These are of three kinds: bar charts showing in descending order the amount paid state health officers and bureau directors in 9 categories; bar charts showing salary ranges for 8 groups of workers in rela-

tion to number of persons in each salary class; and tables showing number of workers in the eight groupings in various salary classifications in each state, the states grouped in the U. S. Public Health Service Districts.

State health officer annual salaries range from \$5,000 to \$15,000, but in only 7 states were they as high as \$10,000. These states are in New England, the Middle Atlantic, South Eastern, and Pacific Coast regions. The median was \$7,500 which is also the mode and was paid by 10 states. In 17 states the health officer's salary was less than \$7,000, and in 6 states less than \$6,000. For directors of local health services salaries ranged from \$4,500 to \$9,600.

Of the directors of medical specialties, the director of tuberculosis control activities appears to be slightly in the lead. The range of salaries and the number in certain salary groupings are shown in Table 1 for three groups of medical specialties.

No medical personnel other than state health officers received more than \$9,000 except in one state. One such worker in each of 3 states in 3 different regions was paid less than \$3,600. A total of 133 workers, one-sixth of the number in this category, received less than \$5,000. These salaries were scattered among all regions except the Pacific Coast states.

State directors of sanitary engineering, of whom 47 were reported, were paid salaries ranging from \$4,250 to \$11,000. The median, paid in 3 states, was \$6,000. Nine state sanitary engineers

* Except in some instances in which position was vacant and minimum rate shown in the State Compensation Plan was used.

TABLE 1

	Maternal and Child Health Service	Veneral Disease Control	Tuberculosis Control
Number of States Reporting	47	39	38
Highest Salary	\$7,750	\$9,200	\$11,700
Lowest Salary	4,200	4,200	4,500
Median Salary	6,250	6,000	6,300
Number Receiving			
\$7,500 and over	2	3	6
Less than \$6,000	18	15	11
Less than \$5,000	7	6	4

received \$7,000 or more; 12 received less than \$5,000.

The median salary of the 446 sanitary engineers below the rank of directors was between \$4,000 and \$4,200; 44 per cent of the entire number received less than \$4,000 and one-seventh received \$5,000 or over. Seven persons in this category received \$7,000 or over. Nearly half of the salaries ranged between \$3,600 and \$4,400.

For this group of workers the median was the same in all areas except the Pacific Coast states where it was \$4,200–\$4,400 and the Mountain states with \$4,000. These two areas are less significant because of the small numbers involved.

Sanitation personnel is treated as a separate category throughout the study. In the effort to get a reasonably homogeneous group, veterinarians, entomologists, rodent, bedding, and drug and narcotic inspectors were omitted. Even this group of 1,388 workers represents a wide range of salaries and presumably also of qualifications.

Salaries of this group range from \$1,440 to \$9,200 with both the median and the mode between \$2,400 and \$2,600. Fewer than 1 per cent received more than \$5,000; and one-fourth less than \$2,400. Median salaries for this group vary rather widely for the different regions of the country. Only in the Eastern and Southern states, which employed two-thirds of the reported workers in this category, is the median as low as the national median.

In the Mountain, West North Central, and South West states the median is \$2,600–\$2,800; in the East North Central, \$3,000–\$3,200; and in the Pacific Coast states \$3,200–\$3,400.

This material also shows an interesting relationship between sanitarians and sanitary engineers. For all of the states a ratio of one engineer to three sanitarians is indicated by the figures. The range however is from practically an equal number of engineers and sanitarians in the East North Central states to more than six sanitarians per engineer in the 12 Southern states.

The ratios are shown in Table 2 by the U. S. Public Health Service districts:

TABLE 2

U. S. Public Health Service District	Engineers	Sanitarians	Ratio of Sanitarians To Engineers
Total	446	1,388	3
1	124	278	2+
2,4	102	649	6+
3	92	117	1+
5	20	56	3—
7,9	100	245	2+
8	8	43	5+

Laboratory personnel is divided into directors and one other group limited to professional workers. Forty-five states reported directors of laboratory services with salaries ranging from \$3,600 to \$10,000. The median was \$6,000. Twelve states paid less than \$5,000, and only 6, \$7,000 or more.

Nearly one thousand of the workers other than directors were reported with salaries ranging from less than \$1,400 to more than \$7,400. The median was between \$2,800 and \$3,000 and the

Credit Lines

FURTHER LIGHT ON THE PECKHAM HEALTH CENTER

The Pioneer Health Center in London (otherwise known as the Peckham Health Center) has been discussed in connection with the centennial meetings of the Community Service Society of New York which brought Dr. Innes H. Pearse and Dr. G. Scott Williamson to New York in March. The following notes supplement the information that is available in the volume *The Peckham Experiment—A Study in the Living Structure of Society*, by Innes H. Pearse, M.D., and Lucy H. Crocker, B.Sc., published by Yale University Press, 1945, 333 pp., price, \$3.50. (See *A.J.P.H.*, 34, 10:1103 (Oct.), 1944.

A conversation between the executives of national health agencies and Dr. Pearse brought out the following interesting factors:

Throughout the development of this plan the interest has been focused on insusceptibility rather than on susceptibility to disease. The center of interest is health rather than disease. The family is the unit, for all the thinking and planning and experience has shown that the earlier recognition of various derangements, both physical and psychological, gives a great advantage in prompt action and correction.

Dr. Pearse believes that the causation of disease lies as much in the environment as in the individual.

Being reluctant to invade the homes for case work, the group set up a recreational club to bring the people out on their own volition and to provide a center where the medical services could be carried out. Two thousand families have been included in this service, made up of about 8,000 individuals. A so-called "overhaul" examination was carried on 5 days a week from 2 to 10

p.m. Throughout this examination that which was right in the individual's health was sought rather than that which was wrong. In about 10 per cent of the persons nothing wrong appeared but this 10 per cent that was physically and mentally normal was not necessarily made up entirely of mature and well adjusted individuals.

Of the entire group, about 20 per cent came in with some disease or complaint and experience showed that at least half of these conditions were unknown to the medical profession. In this particular group money was not the primary reason for keeping people away from medical care.

One of the most prominent developments was the improvement shown by women in the capacity to carry on during pregnancy so far as family responsibilities were concerned.

The service made a point, since the family was a unit, not to forget the father of the family, who is usually away at work during the ordinary clinic hours.

A very clever means of admitting only those who were members and whose dues were paid was devised in individual keys for the door which automatically registered the attendance of the individual and would admit him only if his dues were paid. This method was also used in the study inside the center in studies of what is called the "Action Pattern."

A motion picture describing the Pioneer Health Center under the title of "The Center" is available in the United States from the Offices of the British Information Service, 30 Rockefeller Plaza, New York City.

ETCETERA

If you do not see the *Statistical*

Bulletin of the Metropolitan Life Insurance Company regularly, you should. Just as an example, the November, 1947, issue discussed "The Tuberculosis Problem—Retrospect and Prospect," the theme of which is "The time is ripe for an all out war to stamp out tuberculosis in our country," and significantly, "Side by side with these specific measures is the general effort to provide better housing and better living and working conditions generally for the people of our country."

Other articles in this issue are "The Chances of Being Born Alive," which we are told are determined by a variety of factors, among them "order of birth"; another estimates that the cost of the common cold is over a billion dollars a year and thus "must be rated high in the list of enemies of the public health."

The same issue reports a sharp increase in motorcycle accident fatalities, and on the other hand a decline in mortality from toxic goiter.

SOUTHWESTERN MINNESOTA HEALTH DAY

"Health Day" may come to be a technique for organizing communities to meet their health problems. At any rate, a group of six counties comprising the Southwestern corner of Minnesota along with the Southwestern Minnesota Medical Society and its Women's Auxiliary and the Minnesota Department of Health State District Health Unit in that area tried this technique late in February. Representatives of the Minnesota School of Public Health, farm and labor groups, public schools, nursing and welfare agencies, and representatives of the state health department all met in Worthington to discuss "Our Community Health Problems," "Farm and Home Safety," and "Mental Health in Child Development." The six counties participating in this "Health Day" have a total population of about

100,000 and make up one of the State District Health Units. This experiment in coöperation might be a first step in setting up a local district health unit. Further information can be secured from The Division of Public Health Education, Minnesota Department of Health, Minneapolis 14.

DOCTORS CONSIDER THEIR SOCIAL RESPONSIBILITY

"The Plight of the Negro Physician in American Medicine" was the subject of a recent public discussion held at the New York Academy of Medicine under the sponsorship of the Physicians Forum. Speakers were:

Montague Cobb, M.D., Professor of Anatomy at Howard University

Alfred E. Cohn, M.D., Rockefeller Institute for Medical Research

Curtis Flory, M.D., Chairman, New York County Chapter of the Physicians Forum's Committee on Civil Rights in Medicine

It is heartening to see physicians take some responsibility for understanding—and perhaps doing something about—the disadvantaged members of their profession.

"THE ANNUAL," WESTERN BRANCH A.P.H.A.

There has recently come from the press, under the auspices of the Western Branch American Public Health Association, a first issue of *The Annual*, representing a résumé of papers presented at the first post-war meeting of the Western Branch held in San Francisco in May, 1947. This excellent publication was made possible through the contributions of several pharmaceutical houses to the Western Branch.

The five chapters include papers on Preparation for Public Health, on Mental Health and Geriatrics in a Public Health Program, on Public Health Administration, on Housing and Community Planning, and on Communicable Diseases. Included are the

Presidential Address of Karl F. Meyer, M.D., and the address of Thomas Parran, M.D., Surgeon General, U. S. Public Health Service, on Expanding Responsibilities and Opportunities in Public Health. Other contributors are Drs. Charles E. Smith, Harold D. Chope, Edward S. Rogers, Robert H. Felix, Kent A. Zimmerman, Lester Breslow, Alfred M. Popma, Howard West, Florence R. Sabin, Malcolm Merrill, Arthur Ringle, L. J. Lull, J. S. Cull, Raymond V. Stone, Richard K. C. Lee, James H. Steele, W. R. Giedt, G. L. Dunnahoo, and William McD. Hammon. The field of health education was covered by Dorothy B. Nyswander, Ph.D., that of graduate training in the West for nurses by Miss Mary J. Dunn, that of engineering training by Professor Harold B. Gotaas, and housing by Charles L. Senn and Allan A. Twichell.

The officers of the Western Branch are to be congratulated on having produced so commendable a volume in spite of the difficulties. The Publication Committee was under the Chairmanship of Richard A. Koch, M.D., San Francisco.

"CRADLE TO THE GRAVE" SOCIAL SERVICES OUTLINED

If, as has been said, a country may be judged by the way it cares for its children and its aged folk, there is plenty of evidence now available for judgment to be passed on modern Britain.

The evidence has just been summarized in a pamphlet *Social Services in Britain*, produced by the British Information Services, 30 Rockefeller Plaza, New York 20. This summary not only includes welfare schemes for the very young and the very old in Britain, but also the new security measures covering the sick, the unemployed, expectant and nursing mothers, widows, parentless children, the industrial injured, and even the decent disposal of the dead.

In other words it demonstrates Britain's claim to care for its citizens "from the cradle to the grave."

PREVENTIVE MENTAL HYGIENE IN WELL BABY CLINICS

Beginning in October, 1947, the Baltimore City Health Department in its Eastern Health District began a program designed to make preventive mental health a part of the general public health services offered in the well baby and maternity clinics. Before the program was started seminars were held for physicians and nurses to outline preventive mental hygiene possibilities in their maternal and child health work.

This program, together with an "Outline of Mental Hygiene in Maternal and Preschool Child Health for Public Health Nurses" is described in *Baltimore Health News* (25:1-2 (Jan.-Feb.), 1948), which is available from the Baltimore City Health Department, Municipal Building, Baltimore.

DISINFECTING WATER MAINS

"A Procedure for Disinfecting Water Mains," appearing in the February issue of the *Journal of the American Water Works Association*, is a report approved by the A.W.W.A. Board of Directors on September 30, 1947. It suggests both preventive and treatment procedures to minimize the possibility of contamination of a water system. The laying of new systems and repairing of existing ones are also covered.

ENGLISHMAN SUGGESTS A HYGIENIC FORK

The author of *A Hygienic Fork*, I. Gordon, M.D., Edin., Deputy Medical Officer of Health, Ilford, Essex, England, calls attention to the fact that very little change has been made in the design of tableware as a means toward better eating utensil sanitation. He suggests a three pronged dinner fork having tines half the length of those in the con-

ventional fork, with the edges and bases of the prongs bevelled for greater ease in cleaning. This article appears in the August 9, 1947, issue of *The Lancet*, a weekly British medical journal.

BERNARD BARUCH ON MEDICAL CARE

The Committee for the Nation's Health has made available reprints of Bernard M. Baruch's address on *Medical Care for the People of America*. This was recently delivered at a dinner sponsored jointly by the Medical Society of the State of New York, The Coordinating Council of the Five County Medical Societies of Greater New York, and the Greater New York Hospital Association. In this he says "I would not be frank—nor friendly—if I did not add what you know. Voluntary health insurance is not enough." Available from Committee for the Nation's Health, 1790 Broadway, New York 19.

A SURVEY OF OPERATING DATA FOR WATER WORKS IN 1945

The February, 1948, issue of the *Journal of the American Water Works Association* reports on a survey of basic financial statistics of water works systems in the United States. This survey is based on a report of a committee authorized by the Board of Directors of the A.W.W.A. These data were compiled from questionnaires sent to the executives of properties in the United States serving communities of 10,000 or more. Of these, 462 were returned, representing approximately 50 per cent returns. Data for each community on population served, source of water supply, controlling agency, volume of water provided, expenses, and income are included.

PUBLIC HEALTH IN BRAZIL

Several articles on tropical medicine and sanitation in Brazil are contained in the July, 1947, volume of the *Journal of the Servico Especial de Saude Publica*.

Included are data on the incidence and mass treatment of intestinal parasitism in the valleys of the Amazon and Rio Doce Rivers, experiences with DDT and pyrethrum in the control of *Anopheles darlingi*, and a report on the construction of municipal water supplies in the area of the Rio Doce. Also included are a number of keys to the identification of Brazilian anophelines.

The Servico Especial de Saude Publica was created by an agreement between Brazil and the United States, represented respectively by the Ministry of Education and Health and the Institute of Inter-American Affairs. Operations have been continuous since 1942 with particular emphasis on public health practices in the more remote regions of Brazil.

100 YEARS OF PIONEERING

The Community Service Society of New York completes its first century in 1948. By way of celebration it is holding a series of symposia on "The Family in Tomorrow's World." Symposium II on March 17 and 18 concerned itself with "Health and Family Life." Among the speakers were Martha M. Eliot, M.D., President of the American Public Health Association, Professor C.-E. A. Winslow, Editor of the *Journal*, Hugh Leavell, M.D., of the Harvard School of Public Health, W. R. Aykroyd, M.D., of the United Nations Food and Agriculture Organization, and Bailey B. Burritt, Executive Director of the National Health Council, who for 30 years was General Director of the Community Service Society.

The memorial volume published in connection with the centenary celebration is a handsome book entitled *Frontiers in Human Welfare*. It is a thrilling story of the movements this agency, one of the oldest in New York City, pioneered. They are large in number and varied in interest—tenement house reform, milk inspection, visiting nurse

service, social service education, case work standards, nutrition service, old age care, fresh air camps, and a multitude of others.

For information about the published proceedings of the symposia and about *Frontiers* write Community Service Society, 105 E. 22nd St., New York.

WILL DALLAS LEAD THE WAY?

The following editorial appeared in the *Dallas Morning News* for February 23. Is this a harbinger of local government organization in which consolidated health units will lead the way? Whether a flash in the pan or the beginning of a trend, it deserves the consideration of every public official—health and otherwise.

One-fourth of the nation's population is without adequate health service, Dr. Haven Emerson, member of the American Public Health Association, says. He blames lack of funds. There aren't enough funds for all the departments, but the big trouble is too many departments.

The forty-eight states have some 18,000 local health units. That figures out an average of about six departments per county. Dr. Emerson, recognizing the inefficiency in this multiplicity, says 1,200 departments can do the job, or an average of about one health department for every three counties.

Drop Dr. Emerson's criticism right in the middle of Dallas County, and it is apt. We have twice as many health departments as we need. To go further, we have twice as many tax offices and policing agencies as we need. To go further, Texas has twice as many counties as it needs.

Until there is a sensible merger of these services, they are never going to be what they ought to be. As long as we have a county tax office that is king bee in its own sphere and a city tax office in its sphere, the tax payer is going to suffer in his sphere.

Unified control, uniform regulations and enforcement, permanence of policy, and tenure for employees would give Dallas County a public health service that would be the envy of the state.

The day will come, of course, when not only city and county services are consolidated, but the consolidation of services of several contiguous counties will be effectuated. A

boundary will be meaningless when urban centers run into other urban centers. In the meantime, merging Dallas's two health departments is a sensible step toward the efficiency the tax payer deserves.

PIERRE THE PELICAN SERIES

The Louisiana Society for Mental Health, Hibernia Building, New Orleans 12, has produced a series of pamphlets which is being distributed to the mothers of new-born babies, one pamphlet a month for twelve months. These pamphlets are designed especially for the parents of first-born children and are unique because of the simplicity and highly focused interest.

According to Lloyd W. Rowland, Ph.D., the Director of the Society, the reading level is the sixth grade and several unique educational devices have been included. The series has been prepared for "a highly motivated group" and the conversations have been put into a little character invented for the purpose—Pierre the Pelican. He carries the discussion through and gives continuity to the pamphlets and succeeds rather well in keeping the discussion from becoming long-haired. Quiz forms have been cleverly used at the end of each pamphlet.

The series is already being used in West Virginia and certainly the idea will have appeal elsewhere. Among those who have been consulted with reference to the series are Dr. C. Anderson Aldrich, Professor of Pediatrics of the Mayo Foundation; Dr. Milton J. E. Senn, Associate Professor of Pediatrics in Psychiatry at Cornell University Medical College, and Dr. Robert L. Sutherland, Director of the Hogg Foundation for Mental Hygiene at the University of Texas. Specialists from Ohio State University have been used to adjust the language to the proper level. It is gratifying to see an unusual piece of work so well done. It is worth the attention of other state departments of health and of mental hygiene.

FOOD HANDLERS' SCHOOLS

Food Handlers' Schools in Hawaii describes the preparation and actual presentation of a course of instruction for food handlers. Suggestions are given on such subjects as selecting the time of day for classes, location of the school, size of class, extent of records, and literature to be distributed. Discussed also are publicity, program content and methods of presentation, illustrations of charts used, and photographs of laboratory preparations demonstrated as part of the course. This report, prepared by B. J. McMorrow and F. A. Schramm, appears as *Supplement No. 199* to Public Health Reports of the U. S. Public Health Service.

PTA FOLLOWS THROUGH

The April *National Congress Bulletin* of the National Congress of Parents and Teachers, in an open letter to its local presidents from its national president, Mrs. L. W. Hughes, brings its members up to date on the Local Health Services Bill (S. 2189, H.R. 5644, H.R. 5678) sponsored by PTA. Mrs. Hughes summarizes the action of her agency's February Health Conference and suggests how each local chapter may stimulate community health planning. The same issue carries a digest of the Local Health Services bill by PTA's legislative chairman, Mrs. Stanley G. Cook.

ANNUAL REPORTS

Twenty-five Years of Public Health in New Mexico, the report of the first quarter century of the New Mexico's State Health Department, has just been published for the period 1919-1944.

It will be remembered that New Mexico is the only state with a mandatory health district law grouping the state's 31 counties into 10 health districts whose health departments are operated by local boards of health with the coöperation and assistance of the State Health Department. The events

that led up to this mandatory law passed in 1935 can be traced in this 25 year report. In 1921, for example, 5 counties had full-time county health officers, in 1922 three more were added, in 1924 two more. But in 1926 two fell by the wayside and in 1927 another. The doldrums of the early 30's gave rise in 1932 to the first recommendation to restrict the state for health purposes.

In the meantime recurring frequently in the various biennium reports are such comments as "Our record in respect to diphtheria is not one of which we are proud" (1921-1922); "this biennium also witnessed typhoid outbreaks" (1923-1924); "occasional cases of malaria have appeared in two new areas of the state" (1925-1926); "the infant mortality rate is the highest in the United States" (1931-1932); "New Mexico has the highest infant death rate in the United States" (1937-1938).

A final chapter on the present health status of New Mexico points out that the infant death rate is still the highest among the 48 states; that the tuberculosis death rate is among the highest; the death rate from infectious and contagious diseases is three times that of the country as a whole. More than two-thirds of its dwellings have unsatisfactory sewer connections compared to 35 per cent in the entire country. This document should be the bible of things done and still to be done for citizen groups who want to start a movement for better health protective services.

Our hats off to the State Health Officer, James R. Scott, M.D., and his staff for telling the bad news as well as the good. Only in this way can come to pass the hope expressed "that the report on fifty years of public health may delineate the progress toward a more satisfactory status in the field of public health."

"Balance Sheet 1947" is the sub-title of the December, 1947. *Oakland's*

Health. This is the annual summary of the Oakland, Calif., City Department of Public Health. It has a Credit and a Debit section as well as A Job for the New Year—an interesting idea for a brief annual report.

The *1947 Annual Report of the National Social Welfare Assembly* is a brief summary of the activities and developments of the second year of this organization.

The *1947 Annual Report of the Social Security Administration* is the first report since its establishment in July, 1946, under the federal executive reorganization. It includes the report of the Bureau of Old Age and Survivor's Insurance, of Employment Security, and of the Children's Bureau. Along with

the annual report of its companion agencies, the U. S. Public Health Service and the Office of Education, it is an analysis of the social welfare services of the federal government.

Has the Tide Turned? is the 34th annual report (for the year 1947) of the American Social Hygiene Association. It is a good brief and graphic description of the Association's current activities. The title suggests that in 1947 some of the ground lost during the post-war years 1945 and 1946, when the country experienced a spectacular rise in reported cases of syphilis and gonorrhea, was regained. The last year also saw the development of the extensive worldwide service in stimulating social hygiene activities.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted. All books reviewed in these columns may be purchased through the Book Service.

Recent Advances in Public Health
—By J. L. Burn, M.D., D.Hy., D.P.H.
London: J. & A. Churchill Ltd., 1947.
409 pp. Price, \$5.00.

This book is a condensation of the enormous social advances of modern Britain in public health. It does not attempt to present a complete picture of public health progress. While including a broad coverage, even Municipal Foot Health Service and Welfare of the Aged, greatest emphasis is on maternal and child problems. There are detailed accounts of mental health services, the care of unmarried mothers, the handicapped child, including blind, color blind, squint, deaf, speech defects, tonsils, and asthmatic, the diabetic, the rheumatic, and the child with cerebral palsy. The author assumes a broad fundamental background and the book is for the professional public health worker. There are detailed accounts of diphtheria immunization procedures and of tuberculosis mass x-rays. The "social" permeation is seen even in venereal disease control, which emphasizes contact investigation and followup rather than penicillin treatment of syphilis. Reliance on health education, of persuasion rather than compulsion, will make every American health worker appreciate the similarity of our democratic processes.

The presentation includes many classic discoveries and thumb-nail descriptions, such as the famous M'Gonigle report on housing and health, showing that the higher rents of rehousing may deplete nutrition and increase death rates, the superb contributions of Pickles to rural epidemiology, and the unique

Pioneer Health Center at Peckham. One tours the famous Papworth Village Settlement where the tuberculous work in a fashion which would make most American phthisiologists shudder and where, without benefit of BCG, the children of the tuberculous enjoy a remarkable healthy life without being removed from the tuberculous family. There is a summary of the remarkable experience at North and South Shields on the caries-detering effect of optimal fluorine in the water.

The index is very poor, but this is a book to be read in its entirety. This is very easy, for illustrations are profuse and smart, and the phraseology and expressions are just enough different to be very lively. For instance in the section on "Defective Colour Vision," the author remarks on resultant social difficulties, such as "the man who wore a red tie by mistake at his mother-in-law's funeral." In the description of the Recuperation Centres for the care of exhausted mothers we read: "As one mother put it: 'I should never have had the pluck to have all my teeth out at home.'" Even the one gross error in fact arouses only an indulgent smile. In relating the American experience in smoke control, he discusses the experience of St. Louis, Minnesota—"St. Louis was the dirtiest city in Minnesota." Although most references are to British experiences, the "U. S. A." comes in for many, as do Canada, the Continent, Scandinavia, and the U.S.S.R. Each chapter begins with a pungent text and closes with excellent selected references and valuable further reading suggestions.

This is a book which every public health worker in the United States and Canada can read with real profit and genuine pleasure. Burn will personally guide you on a trip through Britain and will frequently surprise you with penetrating observations on your own practices. CHARLES EDWARD SMITH

Atlas of Bacteriology—By R. Cranston Low, M.D., and T. C. Dodds. Baltimore: Williams & Wilkins, 1947. 168 pp. 168 illus. Price, \$8.50.

The purpose of this atlas is to afford students accurate pictures to refer to in illustration of lectures, practical classes, and textbooks.

The pictures are made from color photographs for the most part, giving the source of the material, how it is stained, what it shows, and the magnification. The characters of the microorganisms are not given.

The pictures substantiate the great trouble the authors have taken to insure accuracy and the coöperation and trouble taken by the original publishers (E & S Livingstone, Edinburgh) in meeting the exacting conditions required. This is undoubtedly the best atlas this reviewer has seen, and the selection of material is very good. It will be valuable to anyone who requires an atlas.

The value of the book would have been enhanced by the inclusion of references to the technique of the staining methods used. Minor criticism may be made of three items: the method illustrated on page 63 is Dorner's method and not Fleming's; the gonococcus colony on page 38 is misleading as it must be an old colony rather than a young one; the color of the pigment of "*B. pyocyaneus*" on page 21 is much too blue. E. G. D. MURRAY

The Cerebral Palsied Child and His Care in the Home—By Viola E. Cardwell, R.N. New York: Association

for the Aid of Crippled Children, 1947. 196 pp. Price, \$1.00.

This book is a welcome addition to the literature on cerebral palsy as there is still a paucity of written material on this subject. It is a carefully compiled book, written for the Association for the Aid of Crippled Children.

Although it was primarily intended to be used in staff education for nurses engaged in orthopedic public health nursing, it contains valuable information for physicians, technicians, and others who are beginning to become interested in this highly specialized field. In fact, the layman who has had to cope with the problem in his home will be able to comprehend most of the material and find helpful suggestions in the text.

The book is a practical one as the author has drawn from recognized authorities and workers in the field. Discussed in the first few chapters are the etiologic factors, pathology, prognosis for rehabilitation, and the various clinical forms of cerebral palsy which have been recognized to date. The remaining chapters deal with such important topics as mental hygiene, education, types of treatment, and the place of each in the overall program for the cerebral palsied child. The text also takes up the necessity of recreation and vocational guidance for those not too severely handicapped.

The author also pays tribute to the various societies founded by laymen, particularly those in and around New York City, which have demonstrated to physicians, educators, and technicians the need for programs of specialized care in dealing with this highly technical problem. These few interested parents have aroused long delayed interest in the cerebral palsied child and his many problems.

Replete with pictures and drawings of special equipment needed in the care of this type of handicapped child, it is

which publishes it is made up of 46 learned societies, including the American Public Health Association.

In the 1947 edition of more than 1,100 pages, 146 authors discuss 27 subjects under 7 main headings. The volume is "an elbow companion for everyone interested in contemporary events." It is source material for an appraisal of the age in which we live and an instrument for keeping informed on America, which is the fundamental duty of citizenship.

The article on Public Health, one of seven included under the Medical Sciences under the larger title of "Science: Application and Principles," is written by William R. Willard, M.D., of the Yale University School of Medicine.

A valuable feature of the *Year Book* is a list of periodicals and of cognate societies and research institutions in each of the seven main subjects of the volume.

MARTHA LUGINBUHL

Planning for the Care of the Chronically Ill in New York State—Legislative Document (1946) No. 66A. P.P. 131—By New York State Health Preparedness Commission. Albany: Williams Press, 1946. 85 pp.

This Legislative Commission with many years of study of health and welfare problems behind it has prepared a document which, while directed primarily to conditions in New York State, should serve as a useful guide to procedure and planning in other states.

The Commission was buttressed by strong advisory committees on Planning, Medical Education and Research and Nursing Care. The Commissioners of the State Departments of Health and of Social Welfare were ex-officio members of the Commission.

The report is well organized and readable. It is replete with charts, graphs, and tables. The summary of licensure of nursing homes in 20 states, together

with detailed reporting on planning for the care of the chronically ill in other states (Connecticut, Illinois, Indiana, Massachusetts, and New Jersey) provide useful information.

Under the following headings the findings and conclusions are stated: Convalescent Care, Medical Domiciliary Care, Nursing Homes, Voluntary Homes for the aged.

This report will be helpful to all those who are now facing the problem of providing for the care of the chronically ill in their own homes, hospitals, nursing homes, and elsewhere.

ELLEN C. POTTER

Advances in Internal Medicine. Volume II—Edited by William Dock and I. Snapper. New York: Interscience, 1947. 642 pp. Price \$9.50.

Those who expect this volume to be a year book of internal medicine will be disappointed. The volume consists of thirteen articles, of the review type, dealing with subjects in which advances are being made. The topics include electrocardiography, circulation of blood, penicillin treatment, the Rh antigen, megaloblastic anemias, and nutrition, as well as fields of interest to the internist. The latter include angiography, surgery for hypertension, and lung disease, insect control, and problems related to aviation and deep sea diving.

Well selected, the articles are comprehensive; they are thoroughly done by experts. The volume will be of interest to internists, those who wish to become internists, and those who want to know how and where internal medicine is advancing.

W. A. DAVIS

Food, Nutrition, and Health—By E. V. McCollum, Ph.D., Sc.D., and J. Ernestine Becker, M.A. (6th ed.) Baltimore: Johns Hopkins University, 1947. 146 pp. Price, \$2.00.

This is the sixth edition of a little book that has been well received in the

past and which serves a useful rôle in informing health personnel and interested laymen in modern nutrition. The current edition has been mostly rewritten and includes an account of many recent findings in nutrition. It is by no means a textbook or reference book in nutrition, but it is not intended as such. There are no references and practically no discussion. It is well written and in non-technical language.

In addition to the usual sections on various nutrients there are chapters on certain foodstuffs, diet in relation to anemia, pregnancy, and lactation, weight control, preventive dentistry, etc., and suggestions on conserving nutrients in foods and menu planning. Many of these sections are very brief, amounting to only one or two pages. The reviewer questions the advisability of including in a book of this type any reference to such vague entities as vitamins B₃, B₁, B₅, B₇, etc.

On pages 42 and 43 is a table entitled "Summary of the Vitamins of Known Significance to Humans," which includes vitamin E, pyridoxine, biotin, and vitamin P which, so far as the reviewer knows, have no established rôle in human nutrition. A paragraph on fat and water appears to have been mislaid in the chapter on mineral elements.

There is a need for a book such as this one and it is well written. Public health would be improved if more public health personnel knew what was between the covers of this little book.

FREDRICK J. STARE

American Foundations and Their Fields—Part I—*Edited by William B. Cherin. New York: Raymond Rich and William Cherin Associates, 1947. 58 pp. Price, \$6.00 (4 parts).*

Public health workers will have reason to be grateful to the authors for an up-to-date review of American Foundations and their programs. This represents a sequence of publications

originally presented by the Twentieth Century Fund and more recently by Raymond Rich Associates.

The survey has been broken down into four parts. This volume includes the Foundations' fiscal years ending February 28 to July 1, 1947. Each Foundation has been asked to provide information relating to the date of its establishment, the source of its funds, its purposes, the methods of operation, the direct activities, the financial data, the availability of reports, and the list of officers. It is notable that a considerable number of these agencies which enjoy tax exemption publish no reports and some refuse all information. It would appear to the reviewer that such information as is here presented should be mandatory for all foundations as a condition of the benefits which they enjoy.

REGINALD M. ATWATER

Food Regulation and Compliance. Volume II—*By Arthur D. Herrick. New York: Revere Publishing Co. 655 pp. Price, \$10.00.*

In volume I of this work the author, after briefly recounting the early history of legislation for food control, presented a comprehensive discussion of regulation through labeling requirements. In the first volume as in this second book, the discussion is chiefly limited to the Federal Food, Drug and Cosmetic Act. Some few other topics are given mention, such as the Federal Meat Inspection law and the problem of second-hand and used containers.

This second volume deals primarily with the problems of adulteration and contamination of foods, of control of permitted colors and the methods of enforcement and prosecution, all from the standpoint of the Federal Food, Drug and Cosmetic Act. There is a well written chapter on Insanitary Premises and Processing which will be of special interest to the public health official concerned with food control. In

this part of the book the author shows how the former limited federal control over food products solely by means of chemical and bacteriological tests was weak and ineffective, and now through the new sections of the law giving the Food and Drug Administration authority to inspect plants and provide sanitary standards for production and distribution the federal control has been greatly expanded and enhanced. However, these sections of the federal law become operative (giving authority for plant inspections and setting of sanitary standards) only after it has been established "that proper sanitation is so lacking that the food (a) may become contaminated with filth, or (b) may have been rendered injurious to health."

The book deals fully with the administrative practices and enforcement methods of the U. S. Food and Drug Administration. It is a volume that will be especially valuable to health officials who come in contact with the federal food control activities. The book contains the organization of the U. S. Food and Drug Administration and, in an appendix, provisions of the Federal Food, Drug and Cosmetic Act relating to foods.

SOL PINCUS

Fundamentals of Immunology—
By William C. Boyd, Ph.D. (2nd ed.)
New York: Interscience Publishers,
1947. 503 pp. Price, \$6.00.

The author addresses himself "mainly to students and research workers." At the end of each of the eleven chapters the pertinent material is presented in condensed form as a summary. These brief accounts when read consecutively without reference to the text constitute an excellent picture of the current views of the principles of immunology.

In the full text the author has taken care to introduce each new concept with sufficient elementary explanation to permit the student new to the subject to grasp the ideas. However, the elemen-

tary material is usually brief enough to avoid interference with the use of the text by research workers who wish to find more advanced material.

The eleven chapters include discussions of "cell antigens," "blood groups," "anaphylaxis and allergy," allergy and immunity as regards bacteria, viruses, and parasites, and "laboratory and clinical technic." The subject of skin tests for susceptibility and immunity is treated rather briefly in an appendix to one of the chapters. The bibliographies at the end of the chapters are extensive.

This book is well written. It should accomplish the author's objective of presenting the fundamentals of immunology to students and research workers.

J. C. SNYDER

Medicine for Moderns—*By Frank G. Slaughter, M.D. New York: Julian Messner, 1947. 246 pp. Price, \$3.50.*

Medicine for Moderns is a frank, easily read discussion of the concepts, mechanisms, therapeutic approaches, and hopes of psychosomatic medicine. Written in popular style for educated laymen, it succeeds in avoiding both the extreme sensationalism so common in books of this nature, and the insult of "talking down." Dr. Slaughter's intense enthusiasm, as a convert trained primarily in surgery, leads him into some wishful thinking in relation to the curative and preventive values of personality psychometric testing. The essentiality of individualization warrants somewhat greater emphasis. However, the material is sound and well presented.

Following a brief description of the anatomy and physiology of the autonomic nervous system, the author takes up the more obvious of the psychogenic illnesses: peptic ulcer, spastic colitis, hypertensive disease, asthma, and the like. There is an obvious appeal for popularity in the emphasis placed upon the psychogenic factors responsible for

impotence and frigidity. One misses accentuation of the important fact that all these disorders are characteristically derived from varied and multiple etiologic factors, and that continued anxiety is but one of several influences.

The book can be recommended as background reading for the laity, and may also be of value to those medical professionals who are asymmetrically organicists, insisting that that which cannot be seen does not exist.

EDWARD J. STIEGLITZ

Sports for the Handicapped—By George T. Stafford. (2nd ed.) New York: Prentice-Hall, 1947. 334 pp. Price, \$5.00.

There are few more satisfying fields of endeavor within physical and health education than working with handicapped students or with disabled patients. Stafford, in this exceedingly helpful second edition has pointed the way to a continuous betterment of programs which deal with the atypical. His book will be useful wherever people are concerned about the organic, psychological, and social rehabilitation and compensations of those who must seek to live most with what they have.

Stafford has long believed, and demonstrated, that sports can be adapted to the disabled. Prior to the war physical education departments in colleges and in some high schools were moving in this direction, but not as rapidly as the need demanded. The human wreckage produced by the war gave impetus to experimentation and, through the efforts of people like Stafford, Daniels, Esslinger, Kelly, Elkins and others, a full measure of good was done the disabled by ingeniously adapting sports or creating new ones for these very special purposes.

This second edition presents excellent material for use with the personality or psychologically handicapped, the amputee, the deaf, the paralyzed, those with

faulty body mechanics, malnutrition, circulatory misbalances, and spinal deviations. There are useful suggestions throughout for physicians and physical educationists. It should be read, and used widely. DELBERT OBERTEUFFER

Artificial Pneumothorax in Pulmonary Tuberculosis—By T. G. Heaton, M.B. (2nd ed.) New York: Macmillan, 1947. 292 pp. Price, \$4.50.

The revised edition (1947) of this book presents a concise and selective report of an important part of a system of collapse therapy in phthisiotherapy. The contents are contained in 16 chapters carefully arranged and chosen to lend a proper continuity to the subject. The literature on artificial pneumothorax is enormous and the author's selection and classification of authoritative references represent careful study and timely abstracts. The statistical data are reduced to a minimum consistent with satisfactory explanations of the text. The departure from complicated tables is welcomed by the busy practitioner.

The author's excellent training and experience permit a crystallizing of thought on many controversial points, and his own expressed opinions reflect the good judgment of the careful clinician.

The public health physician interested in tuberculosis prevention and control will find in this book a ready "up to the minute" reference on the latest scientific thoughts about the treatment of pulmonary tuberculosis by pneumothorax. It will be particularly welcome in the tuberculosis division or clinics of the health department, and more especially if such outpatient department service includes post-sanatorium pneumothorax supervision and refill treatments.

It would be unusual indeed if every reader of this book would agree with the author on all debatable points. The purpose, however, is served in presenting

accurate thought-provoking material to serve either as a supplement to knowledge of the subject already gained or to stimulate the reader to obtain further detailed knowledge of pneumothorax therapy beyond the limitations of the book itself.

The reviewer believes that this stimulating book from Canada is a real contribution to the field of tuberculosis therapy and should be read, understood, and made available for reference by all physicians actively engaged in the practice of tuberculosis or in the general field of pulmonary diseases.

JOHN A. CARSWEL

Physiology and Pathology of the New-born—*Compiled by A. N. Antonov, M.D. Monographs of the Society for Research in Child Development. Vol. X Serial No. 41, 1945, No. 2. Washington, D. C.: Society for Research in Child Development, National Research Council, 1947. 217 pp.*

This volume is a publication of the Society for Research in Child Development of the National Research Council. It is a bibliography or index of material on the physiology and pathology of the new-born for the period 1930-1940. A. N. Antonov, M.D., of Leningrad, has made a valuable contribution by compiling this extensive bibliography concerning scientific articles from all centers of the world. At even a glance the reader is impressed with the international interest in the physiology and pathology of new-born infants.

The table of contents shows 38 sections, with such titles as Fetus, The Influence of Pregnancy and Labor on the New-born, Anthropometric Data, Metabolism of the New-born, Congenital Abnormalities and Malformations, Birth Injuries, The Respiratory System, Other Systems, and Infectious Diseases. The book is valuable as reference material.

The large number of scientific arti-

cles on physiology and pathology of the new-born is truly impressive and shows the vast amount of work that was done between 1930 and 1940 preparing the way for further scientific knowledge and its application today.

MARTHA L. CLIFFORD

Industrial Environment and Its Control—*By J. M. Dallavalle. New York: Pitman Publishing Company, 1948. 225 pp. Price, \$4.50.*

This is an authoritative work on industrial hygiene presenting the engineering phases of environmental control in the prevention of occupational hazards, and it is written principally for engineers. However, this book should be read not only by industrial hygiene engineers but also by industrial physicians who need to know the engineering phases of industrial health service and the extent to which the medical service must be backed up by competent engineering if satisfactory results are to be obtained.

The book has a notable preface which clearly states both the aims and scopes of environmental control as well as their limitations. The author discusses the influence of atmosphere, the estimation of atmospheric qualities, and the variations from the normal that constitute health hazards. Vibration, fatigue, illumination, and radiant energy are amply presented.

There is a discussion of the methods of ventilation and the design and construction of ventilating systems, exhaust systems, and dust collection systems, together with the control of bacterial infections.

Finally, there is an appendix which covers briefly regulations, standards, and desirable practices, including brief statements on medical service, first aid, physical examinations, and record keeping.

The author is to be commended on a most worth while book. 'A. J. LANZA

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

- ASEPTIC TREATMENT OF WOUNDS.** Carl W. Walter, M.D. New York: Macmillan, 1948. 372 pp. Price, \$9.00.
- BACTERIOLOGY—A TEXTBOOK OF MICROORGANISMS.** F. W. Tanner and F. W. Tanner, Jr. (4th ed.) New York: Wiley, 1948. 625 pp. Price, \$4.50.
- BASIC FACTS OF HEALTH EDUCATION.** Selected Articles from the Ministry of Health. Bulletins which have appeared in the Pharmaceutical Journal, 1944–1947. London: Pharmaceutical Press, 1948. 193 pp. Price, 7s.6d.
- THE CARE OF THE TEETH. PRE-NATAL AND IN INFANCY.** G. Herbert H. Russell, M.B., Ch.B.L.D.S. Eng. Cheshire, England: John Sherratt & Son. 48 pp. Price, 2/net.
- DETOXICATION MECHANISMS. THE METABOLISM OF DRUGS AND ALLIED ORGANIC COMPOUNDS.** R. Tecwyn Williams, Ph.D. New York: Wiley, 1947. 288 pp. Price, \$5.50.
- FUNDAMENTALS OF HUMAN REPRODUCTION.** Edith L. Potter, M.D. (1st ed.) New York: McGraw-Hill, 1948. 231 pp. Price, \$3.50.
- GIVE YOUR CHILD A CHANCE.** Lenore Turner, New York: Georgian Press, 1948. 170 pp. Price, \$1.50.
- GOOD HEALTH IS GOOD BUSINESS.** A Joint Subcommittee Report—Planning Pamphlets No. 62. Washington, D. C. National Planning Association, 1948. 44 pp. Price, \$.25.
- HEALTH OF ARC WELDERS IN STEEL SHIP CONSTRUCTION.** Waldemar C. Dreessen, Hugh P. Brinton, Robert G. Keenan, Thalbert R. Thomas, Edwin H. Place and James E. Fuller. Washington: Supt. of Documents, 1947. 200 pp. Price, \$.55.
- INTRODUCTION TO HUMAN PHYSIOLOGY.** William D. Zoethout, Ph.D. St. Louis: Mosby, 1948. 424 pp. Price, \$4.00.
- LABORATORY EXPERIMENTS IN PHYSIOLOGY.** W. D. Zoethout, Ph.D. (4th ed.) St. Louis: Mosby, 1948. 263 pp. Price, \$3.00.
- THE MARYLAND MEDICAL CARE PROGRAM.** Report of the Staff of the Subcommittee on Medical Care, Committee on Administrative Practice, American Public Health Association. Howard M. Kline, Ph.D., Milton Terris, M.D., Cozette Hapney and Nathan A. Kramer. New York: American Public Health Association, 1948. 151 pp.
- MENTAL HEALTH IN MODERN SOCIETY.** Thomas A. C. Rennie, M.D., and Luther E. Woodward, Ph.D. New York: The Commonwealth Fund, 1948. 424 pp. Price, \$4.00.
- MILK PRODUCTS.** W. Clunie Harvey, M.D., and Harry Hill (2nd. ed.) London: H. K. Lewis & Co., 1948. 343 pp. Price, 30s net.
- NATIONAL CONFERENCE OF SOCIAL WORK 1947, PROCEEDINGS OF THE.** Selected Papers—74th Annual Meeting, 1947. New York: Columbia University Press, 1948. 512 pp. Price, \$5.00.
- NEW YORK CITY'S BABY BOOK.** New York: Department of Health. 136 pp.
- PAMPHLETS THAT PULL.** Alexander Crosby. New York: National Publicity Council, 1948. 33 pp. Price, \$1.00.
- PATHOLOGY OF TUMOURS.** R. A. Willis, D.Sc., M.D. St. Louis: Mosby, 1948. 992 pp. Price, \$20.00.
- PHYSIOLOGICAL EFFECTS OF TIME SCHEDULE WORK OF LUMBER-WORKERS.** Acta Physiologica Scandinavica, Stockholm, 1946. Distr. by Affärssekonomi, Stockholm 3, Sweden. 137 pp. Price, Swed. Crowns, 12:-.
- PRINCIPLES OF MEDICAL STATISTICS.** A. Bradford Hill, D.Sc., Ph.D. (4th ed.) London: The Lancet Limited, 1948. 252 pp.
- PSYCHOBIOLOGY AND PSYCHIATRY.** Wendell Muncie, M.D. (2nd. ed.) St. Louis: Mosby, 1948. 620 pp. 70 illus. Price, \$9.00.
- RECENT PROGRESS IN HORMONE RESEARCH.** Vol. II. Edited by Gregory Pincus. New York: Academic Press, 1948. 427 pp. Price, \$8.00.
- SAFETY FOR THE HOUSEHOLD.** National Bureau of Standards Circular 463. Washington, D. C.: U. S. Govt. Ptg. Office, Supt. of Documents, 1947. 191 pp. Price, \$.75.
- THE SCIENTIFIC PAPER. HOW TO PREPARE—HOW TO WRITE IT.** Sam F. Trelease. Baltimore: Williams & Wilkins, 1947. 152 pp. Price, \$2.00.
- THE STUBBORN WOOD.** Emily Harvin. New York: Ziff-Davis, 1948. 365 pp. Price, \$3.00.
- U. S. GOVERNMENT MANUAL 1946.** Division of Public Inquiries Government Information Service. Bureau of the Budget. Washington, D. C.: Supt. of Documents. Govt. Ptg. Office. 708 pp. Price, \$1.00.
- VETERINARY HELMINTHOLOGY AND ENTOMOL-**

- ogy. H. O. Monning, B. A., Dr. Phil., B.V. Sc. (3rd ed.) Baltimore: Williams & Wilkins, 1947. 427 pp. Price, \$9.00.
- VITAMINS AND HORMONES. Vol. V. Advances in Research and Application. Edited by Robert S. Harris and Kenneth V. Thimann. New York: Academic Press, 1947. 478 pp. Price, \$7.50.
- WESTERN BRANCH ANNUAL—AMERICAN PUBLIC HEALTH ASSOCIATION. A Resume of Papers Presented at the First Post-war Meeting. Berkeley, Calif.: Western Branch, A.P.H.A. 95 pp. Free.
- YOU AND YOUR DOCTOR. Benjamin F. Miller, M.D. New York: McGraw-Hill Book Co., 1948. 183 pp. Price, \$2.75.
- Mary Lee Brown, R.N. Boston: Harvard School of Public Health, 1947.
- THE GRANT FOUNDATION, INC. Report from the Inception of the Foundation November 2, 1936, to October 31, 1947. New York: The Grant Foundation, Inc. 16 pp.
- THE INSTITUTE OF INTER-AMERICAN AFFAIRS. Food Supply Division—A Summary Report 1942-1947. Washington, D. C.: Inter-American Affairs, 1947. 88 pp.
- METROPOLITAN HEALTH COUNCIL. Annual Report Year Ending February 29, 1948. Columbus, Ohio: Metropolitan Health Council. 11 pp.
- SOCIAL SCIENCE RESEARCH COUNCIL. Annual Report 1946-1947. New York: Social Science Research Council. 91 pp.
- STATE AND TERRITORIAL HEALTH OFFICERS AND THE U. S. PUBLIC HEALTH SERVICE, 46th Conference of. Washington, D. C.: Social Security Building, 1947. 77 pp.
- WISCONSIN COOPERATIVE SCHOOL HEALTH PROGRAM. Thrd Annual Report to the W. K. Kellogg Foundation and the Wisconsin Education Association 1946-1947. Wisconsin: State Department of Public Instruction and State Board of Health. 34 pp.

THE FOLLOWING REPORTS HAVE BEEN RECEIVED

- CLEVELAND'S HEALTH. Annual Review 1946. City of Cleveland: Department of Public Health and Welfare.
- AN EVALUATION OF METHODS FOR INTEGRATING PUBLIC HEALTH IN THE BASIC CURRICULUM OF SCHOOLS OF NURSING IN GREATER BOSTON.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, Ph.D.

"More About Our Ignorance"—Would you like to see a paper that, by example, tells you how to prepare a readable report in addition to passing on some information to you? Then search out this particular British health journal. The paper is about the much written up colds research they have been carrying on with human volunteers.

ANDREWS, C. H. The Common Cold. M. Officer 79, 6:55 (Feb. 7), 1948.

Incidental Intelligence—Butylacetanilide repels ticks for 10 days and works against chiggers, too—just in case you wish to protect yourself against either of these pests. You dip exposed clothing in a solution, it seems.

BRENNAN, J. M. Field Tests with Tick Re-

pellants. Pub. Health Rep. 63, 11:339 (Mar. 12), 1948.

Largely Undeserved Praise—If you would like to enjoy a mild case of swelled head, read this Britisher's account of his visit to America last fall. He saw everything that was good and nothing that was bad, apparently. I cannot forego just one quote: "Almoning, or as it is called in America, medical social work is developing apace, and a chair in this subject has been established at the University of Yale."

DALEY, A. Impressions of America. Public Health. 61, 5:77 (Feb.), 1948.

Muscles and Emotions—Fitness seems to be the ability to perform the

tasks of daily living without undue fatigue, and the qualities making this possible are those of the total personality for physical and psychologic factors cannot be disassociated. This definition works pretty well whether applied to athletes, laborers, sedentary workers, the handicapped or the aged. Measuring fitness is a complicated procedure not lightly to be attempted.

DARLING, R. C., *et al.* Physical Fitness. J. A. M. A. 136, 11:764 (Mar. 13), 1948.

Thirty Million Hungry Children—Says our President—back from a tour of Europe—the greatest need of children everywhere over there is MILK and more MILK. Someone should tell this to our statesmen who refuse us the margarine that would release for these children some of the surplus milk now being churned into unneeded butter.

ELLIOT, M. M. The Need of the Children. Survey Graphic. 37, 3:140 (Mar.), 1948.

Children First in Every Country—We have widespread evidence in Europe, this British reporter writes, of the unrest, bitterness, disease, and destitution existing among those who suffered as children in the early war years and are now approaching manhood. But the record is not all black, he concludes.

ELLIS, R. W. B. Effects of War on Child Health. Brit. M. J. 4544:239 (Feb. 7), 1948.

Of Human Interest—There isn't much here but what there is, is 22 Karat. Good public speakers never forget, the professor says, that "people are interested in people." Send out speakers, he advises, who can make people laugh, but he doesn't tell you where to get them.

HANNA, M. Good Public Relations Requires Good Public Speakers. Am. J. Nurs. 48, 3:163 (Mar.), 1948.

This Hits Babies Hardest—Crowd-

ing, flies, improper excreta disposal, and bad personal hygiene all were associated with diarrheal disorders caused by *Shigella* infection. But water, milk and other foods did not seem to be implicated.

HARDY, A. V. and WATT, J. Studies of the Acute Diarrheal Diseases. Pub. Health Rep. 63, 12:363 (Mar. 19), 1948.

Silver-Lining Department—Here is a striking bit of economics passed along to you for what it is worth; the average stay in hospital is now a third of what it was three decades ago, and it costs twice as much per day. An illness that used to cost the victim \$150 now costs him \$100 for his hospitalization.

MACLEAN, B. C. The Hospital as a Community Health Agency. Pub. Health Nurs. 40, 3:115 (Mar.), 1948.

After Twenty Years—Physical defects discovered in New York State school children dropped in incidence, during the past two decades—except dental defects. They increased.

MAXWELL, C. H., and BROWN, W. P. The Age-Incidence of Defects in School Children, Their Changing Health Status. J. Sch. Health 18, 3:65 (Mar.), 1948.

Thought-for-the-Month — Trickling down from on high comes the rain of life-giving subsidies—from federal treasuries to states and from states to the communities—to support competent local health services. What is needed in return is a welling-up from below—from local workers to state commissioners to federal officers—of grassroots advice to avoid arbitrary and bureaucratic rulings that may lower the effectiveness of this productive partnership.

MERRILL, M. H. Federal-State-Local Relationships in the Financing of Local Health Services. Pub. Health Rep. 63, 8:244 (Feb. 20), 1948.

In Union There is You-Know-What—America's professional men and

women are sharing neither the profits of business nor the bargaining power of labor, this authority says. The A.N.A. is demonstrating how better incomes can be secured without sacrificing professional ethics or resorting to demeaning tactics. Is this assertion of any interest to you?

NORTHURP, H. R. Collective Bargaining and the Professions. *Am. J. Nurs.* 48, 3:141 (Mar.), 1948.

Warning Against Clock-Training
—Even though you are an engineer or a technician or a statistician, and even though you have no babies of your own, you should read this paper. As the first discussant says, "It shows that material

can be presented in simple language and yet be of the highest scientific value." And that, Brother, is something you and every one of us jargoneers needs to learn.

SPOCK, B. Common Behavior Disturbances in the First Two Years of Life. *J.A.M.A.* 136, 12:811 (Mar. 20), 1948.

To Measure Under-Reporting —
Promising to be the first of a series of discussions on the adequacy of local morbidity reporting practices and ways to increase completeness, this paper gives some hint of the present weakness and variables.

WEST, M. D. Morbidity Reporting in Local Areas. *Pub. Health Rep.* 63, 11:329 (Mar 12), 1948.

THE 76TH ANNUAL MEETING

Boston, Mass., November 8-12, 1948

Hotel Reservation Form

The hotels listed below have rooms available for Association delegates at the rates indicated. Please note that NO RESERVATIONS WILL BE ACCEPTED DIRECTLY BY HOTELS. Make your reservation through:

The Convention Bureau, Boston Chamber of Commerce, 80 Federal Street, Boston 10, Mass.

Hotels	Singles	Doubles	Twin Beds	Suites
Bellevue	\$4.00-\$6.00	\$6.00-\$8.00	\$7.25-\$10.00	\$12.00-\$15.00
Bostonian	3.00- 4.50	5.00- 6.50	5.00- 7.00	8.00- 10.00
Bradford	4.00- 6.00	6.00- 7.00	6.50- 8.00	12.00- 14.00
Braemore	4.40- 6.60	6.40- 9.90	6.60- 9.90	9.90- 25.00
Continental	3.50- 4.00	6.60	7.00	8.00- 25.00
Copley Plaza	4.50- 6.60	7.75- 8.80	8.80- 10.00	15.00- 25.00
Copley Square	4.00- 5.00	6.00	7.00	10.00- 14.00
Gardner	2.50- 5.00	4.00- 6.00	4.00- 6.00	7.50
Hemenway	3.00- 3.85	4.40- 5.50	4.40- 5.50	None
Kenmore	4.00- 6.00	6.50- 8.50	6.50- 8.50	10.00- 12.50
Lenox	3.75- 5.00	5.50- 6.50	7.50	10.00- 16.00
Manger	3.85- 5.50	5.00- 7.50	5.50- 7.50	None
Minerva	3.00- 5.00	4.00- 6.00	5.00- 7.00	5.00- 8.00
Myles Standish	3.85- 6.50	5.50- 7.50	6.50- 7.50	6.50- 15.00
Parker House	4.00- 6.50	6.25- 8.50	7.50- 10.00	14.00- 16.00
Puritan	4.40- 6.60	6.60- 8.80	9.90	13.20- 17.60
Sheraton	4.00- 4.50	7.00- 8.00	7.00- 8.00	7.00- 16.00
Somerset	5.00- 9.00	7.00-11.00	7.00- 11.00	10.00- 20.00
Statler	4.00- 9.50	6.50-12.00	8.50- 14.00	17.50- 27.00
Touraine	4.00- 6.00	6.00- 9.00	7.50- 9.00	14.00- 16.00
Vendome	3.75- 7.00	5.50- 8.75	6.50- 8.75	10.00- 15.00

MAKE ROOM RESERVATIONS EARLY

APPLICATION FOR HOTEL ACCOMMODATIONS AMERICAN PUBLIC HEALTH ASSOCIATION

76th Annual Meeting and Meetings of Related Organizations, Boston, November 8-12, 1948

(Note that the Meeting opens Monday, November 8, at 9.30 A.M.)

Please make hotel reservation as indicated below:

Give three choices of hotels.

Hotel 1st Choice; Hotel 2nd Choice; Hotel 3rd Choice

.... Room with Double Bed at \$. per day for persons

.... Room with Twin Beds at \$. per day for persons

.... Room for three people at \$. per day for persons

.... Single room at \$. per day

.... Suite at \$. per day for persons

ARRIVING, NOVEMBER Hour LEAVING: NOVEMBER Hour

Please print (or type) names and addresses of all occupants including persons making reservation.

NAME STREET ADDRESS CITY STATE

.....
.....
.....

Name

Street Address

City State

MAIL TO: The Convention Bureau, Boston Chamber of Commerce, 80 Federal St., Boston, Mass.

RESERVATIONS WILL BE HELD UNTIL 6:00 P.M. ONLY, UNLESS
THE HOTEL IS NOTIFIED OF LATE ARRIVALS

Lake, N. Y., Bacteriologist, V.A. Hospital, Sunmount, N. Y.

S. O. Brooks, P. O. Box 1763, Monroe, La., Public Health Technologist, State Board of Health

R. Davis, Nevada City Hospital, Nevada, Mo., Technician, Davis X-Ray and Clinical Laboratories

Rafael del Valle-Sarraga, P. O. Box 3305, Santurce, Puerto Rico, Chief, Bureau of Chemistry, Dept. of Health of Puerto Rico

Wesley L. Green, 1321 New Hampshire, Lawrence, Kan., Milk Sanitarian, Lawrence-Douglas County Health Dept.

Bernardo Pena-Garcia, Creole Petroleum Corp., La Salina, Cabimas, Zulia, Venezuela, S. A., Creole Clinic Laboratory Technician I

Mary Ramirez-Puente, 300 G. Benitez St., Santurce, Puerto Rico, Student of Medical Technology

Theodore N. Staudt, 212 Mellett Bldg., Canton, Ohio, Owner, T. N. Staudt Medical Laboratory

Merlin L. Trumbull, M.D., 899 Madison Ave., Memphis, Tenn., Director of Laboratories, Baptist Memorial Hospital

Sylvia M. Vargas-Negron, 415 Tavarez St., Santurce, Puerto Rico, Student of Medical Technology

Flora T. Villalon-Quinones, M.D., Concordia 202, bajos, Habana, Cuba, Adscripto in Microscopia y Quimica Clinica, Havana Univ.

Vital Statistics Section

Grace Cook, Quain & Ramstad Clinic, Box 480, Bismarck, N. D., Chief Medical Record Librarian

Claine S. Cramer, M.P.H., 2352 Eutaw Place, Baltimore 17, Md., Statistician, Baltimore City Health Dept.

Catherine F. Hunt, 40 Plattsburg Court, N.W., McLean Gardens, Washington, D. C., Biometrician, U.S.P.H.S.

Mildred Miller, 405 Johnstown Road, Beckley, W. Va., Senior Clerk, Raleigh County Health Dept.

Vivian Pessin, M.A., 310 E. 12th St., New York 3, N. Y., Senior Statistician, N. Y. City Health Dept.

Charles G. Roswell, LL.B., 145-92 192nd St., Jamaica 5, N. Y., Asst. Director, United Hospital Fund of New York

Robert C. Schmitt, A.M., 203 Dillingham Bldg., Honolulu 16, T. Hawaii, Research Statistician, Public Health Committee of the Chamber of Commerce of Honolulu

Herbert Seidman, 2170 New York Ave., Brooklyn, N. Y., Junior Statistician, American Cancer Society

Jesus Villar-Salinas, M.D., Federico Vial 9, Santander, Spain, Jefe, Institute Provincial de Sanidad

Engineering Section

James P. Anderson, 218 E. 1st St., Long Beach, Calif., Sanitarian, City of Long Beach

Thomas D. Curran, 14901 Terry Ave., Detroit 27, Mich., Sanitarian II, Wayne County Health Dept.

Arturo del Valle Milan, Concordia 97, Mayaguez, Puerto Rico, Sanitary Inspector II, Public Health Unit

W. Walter Kimsey, 318 E. Amherst Drive, Burbank, Calif., Director of Health Services, City of Burbank

Edgar E. C. Powell, 10340 Wadhurst Rd., Edmonton, Alberta, Canada, Health Inspector, City of Edmonton

George W. Rowntree, 28 E. Boulder, Colorado Springs, Colo., Sanitarian, City-County Health Unit

John F. Smith, City Hall, Room 37, Worcester 8, Mass., Asst. Chief Health Inspector, Dept. of Public Health

George H. Sumner, 106 Underhill Ave., Hicksville, N. Y., Junior Public Health Engineer, Nassau County Health Dept.

Enrique S. Vilella, M.S., Los Angeles 2002, Ocean Park, Santurce, Puerto Rico, Sanitary Engineer, University of Puerto Rico, Student Health Service

Industrial Hygiene Section

Juan Alberto Gonzalez, M.S.C.E., 1317 Loiza, Santurce, Puerto Rico, Sanitary Engineer, Dept. of Health

Hubert S. Kline, 37 Pointview, Dayton 5, Ohio, Industrial Hygiene Engineer, Frigidaire Division, General Motors Corp.

Alberto P. Ruiz-Hernandez, 7a Calle del Tepeyac 320, Colonia Industrial, Mexico, D.F., Oficial Sanitario de 3a, Oficina de Especializacion Sanitaria

Eugene L. Walsh, M.D., 911 Forest Ave., Evanston, Ill., Asst. Supervisor of Medical Service, International Harvester Co.

Food and Nutrition Section

Gladys Kinsman, Ph.D., 401 S. Lafayette, Denver 9, Colo., Nutrition Consultant, State Dept. of Public Health

Jane Nowak, M.S., 12835 Steel Ave., Detroit 27, Mich., Nutrition Consultant, State Health Dept.

Vivian M. Wecker, 6 Angier Circle, Auburndale, Mass., Chief, Food Clinic, Beth Israel Hospital

Robert R. Williams, D.Sc., 405 Lexington Ave., New York 17, N. Y., Chairman, Williams-

Epidemiology Section

- Mary A. Fyala, M.D., R.D. 1, Vestal, N. Y., Resident Physician, Philadelphia Hospital for Contagious Diseases
- Samuel J. Hawkins, State Health Dept., Charleston, W. Va., Epidemiologist, Venereal Disease Control, U.S.P.H.S.
- Dwight L. Lichty, D.V.M., 55 Shattuck St., Boston 15, Mass., Student, Harvard Univ., School of Public Health
- Dr. Juan Morata-Canton, Edificio Julita Calle Cristina Esq. Salud, Ponce, Puerto Rico, District Medical Supervisor, Dept. of Health

School Health Section

- Esther F. Bradford, R.N., Taylor University, Box 467, Upland, Ind., School Nurse
- David R. L. Duncan, M.D., 2415 S. Madison St., Denver 10, Colo., Examining Physician, Denver Public Schools
- Herbert Levy, 1567 Union St., Brooklyn 13, N. Y., Laboratory Instructor, New York University
- Dr. Natesaier Purshottam, The Hindu, Mount Road, Madras City, India, United Nations Fellow, Ministry of Health, New Delhi, India
- Bertha B. Seitock, R.N., M.A., 204 E. 36th St., New York 16, N. Y., Student, New York Univ.
- Erlene Thornburgh, 2256 Ceres Ave., Whittier, Calif., School Nurse, East Whittier School District

Dental Health Section

- Donald W. Gullett, D.D.S., 211 Huron St., Toronto, Ontario, Canada, Secy., Canadian Dental Assn.
- Maurice P. Trahan, D.D.S., 1127 Maison Blanche Bldg., New Orleans, La., Dental Consultant, City Health Dept.

Unaffiliated

- Robert K. Anderson, D.V.M., 1235 E. 12th Ave., Denver, Colo., Public Health Veterinarian, Denver City-County Health Dept.
- Angel M. Ayala, M.D., Sol St., Anasco, Puerto Rico, Medical Officer, Dept. of Health
- Rosa Baez, M.P.H., 38 Lucas Avadeo St., Ponce, Puerto Rico, Public Health Technician
- Francis O. Bates, Roper Hospital, Lucas & Calhoun, Charleston, S. C., Superintendent
- Nora Beauchamp, Box 124, Mayaguez, Puerto Rico, Health Technician
- Howard E. Bishop, Robert Packer Hospital, Sayre, Pa., Administrator
- Ephraim M. Bluestone, M.D., 150 E. 210th

- St., New York 67, N. Y., Director, Montefiore Hospital
- Madison B. Brown, M.D., 1312 Ramblewood Road, Baltimore 12, Md., Asst. Director, Johns Hopkins Hospital
- John W. Brownlee, LL.B., 128 Merchants Row, Rutland, Vt., Exec. Secy., Vermont State Medical Society
- Guy W. Brugler, M.D., 300 Longwood Ave., Boston 15, Mass., Administrator, Children's Medical Center
- Felicidad R. Catala, M.S., Box 124, University of Puerto Rico, Rio Piedras, Puerto Rico, Social Worker
- James R. Clark, 121 DeKalb Ave., Brooklyn 1, N. Y., Director, The Brooklyn Hospital
- Charles T. Dolezal, M.D., 3395 Scranton Rd., Cleveland 9, Ohio, Superintendent, Cleveland City Hospital
- J. Albert Durgom, 31 Clinton St., Newark, N. J., Exec. Director, Hospital Service Plan of N. J.
- Ramon Fernandez-Marina, M.D., Rio Piedras, Puerto Rico, Director, Insular Psychiatric Hospital, Government of Puerto Rico
- Sarah H. Hardwicke, M.D., Strong Memorial Hospital, Rochester 7, N. Y., Asst. Director
- James L. Houser, P. O. Box 2637, Boise, Idaho, Public Health Representative, Venereal Disease Control, U.S.P.H.S.
- Charles E. Kohler, U. S. Public Health Service, Box 3788, San Juan, Puerto Rico, District 6, Entomologist
- Maxwell E. Lapham, M.D., 1430 Tulane Ave., New Orleans 13, La., Dean, School of Medicine, Tulane Univ.
- William S. McNary, 234 State St., Detroit, Mich., Exec. Vice-President, Michigan Hospital Service
- Carl M. Metzger, 888 Delaware Ave., Buffalo 9, N. Y., Exec. Director, Hospital Service Corp. of Western New York.
- Richard O. Parker, Peoples Bank Bldg., Canton 2, Ohio, Exec. Director, Hospital Service Inc.
- Hilary A. Schroder, P. O. Box 1798, Jacksonville, Fla., Exec. Director, Florida Hospital and Medical Service Corp.
- Harold C. Stephenson, 5 Hopper St., Utica, N. Y., Managing Director, Hospital Plan, Inc.
- Merrell L. Stout, Womens Hospital, Baltimore 17, Md., Director, Hospital for Women of Maryland
- Virginia Trantum-Pereyo, Cerra 632, Santurce, Puerto Rico, Student, School of Tropical Medicine
- James D. Vagneur, D.V.M., 1846 N. 17th St., Grand Junction, Colo., City Veterinarian

The Committee on Administrative Practice will plan for occasions during the 76th Annual Meeting of the Association in Boston, November 8-12, when Dr. Buck's friends will have an opportunity to greet him.

Succeeding Dr. Buck as the Association's Field Director is Roscoe P. Kandle, M.D., M.P.H., who was associated with Dr. Buck during 1946 and who left the Association staff to become Director of the Bureau of Preventable Diseases with the New Jersey State Department of Health in Trenton. Dr. Kandle is well equipped to carry on. With him is associated Robert E. Rothermel, M.D., M.P.H., as Assistant Field Director. Both Dr. Kandle and Dr. Rothermel are currently engaged in a survey of the State of Pennsylvania at the request of the Pennsylvania State Department of Health and Governor Duff.

GIFT TO COMMITTEE ON CHILD HEALTH
At the first meeting of the Associa-

tion's new Committee on Child Health in New York on March 20, announcement was made of a gift of \$300.00 from the residual funds of the Association of Women in Public Health.

The Association of Women in Public Health, first organized in 1920, voted to disband late in 1947 and to join forces fully with the American Public Health Association. Its Treasurer, Dr. Susan M. Coffin, referred to the gift as a "humble dowry" presented at the time of what Dr. C.-E. A. Winslow termed her Association's "marriage with the American Public Health Association."

The new Committee on Child Health at its first meeting explored areas of cooperation with such agencies as the American Academy of Pediatrics, the Children's Bureau, the National Institute of Health, school health organizations, and the Association's Standing Committees on Professional Education, Research and Standards, and Administrative Practice.

offices and laboratory. Salary for man with degree in public health \$7,500 plus 8¢ per mile travel. Write City-County Health Department, Safety Building, Eau Claire, Wis.

Supervising Nurse with certificate in public health nursing. Salary range \$260-\$300. Car furnished. Provision for vacation, sick leave, retirement benefits, permanency. For further particulars write Charles A. Neafie, M.D., Director, Department of Public Health, Pontiac 15, Mich.

Supervisor of Public Health Nurses. Baltimore County Health Department. Urban, suburban, and industrialized areas. Generalized service; director, four supervisors, 36 field nurses. Degree and experience required. Salary \$3,100 to \$3,600; for special preparation in child hygiene, venereal disease, mental hygiene, or orthopedics, \$3,600 to \$3,900. Retirement plan; 1 month vacation; 5 days a week. For use of personal car, an allowance of 7¢ per mile. Write to Dr. William H. F. Wartnen, Health Officer, Baltimore County Health Department, Towson 4, Md.

Public Health Nurses for attractive rural area in northern Michigan within short distance of several urban centers. Opportunity for supervised experience and university study. Salary excellent, dependent upon experience and qualifications; systematic increments, 40 hour week, liberal travel allowance. Write Director, Eaton County Health Department, Charlotte, Mich.

Wanted for City Health Department. Midwest. **Public Health Physician.** Salary \$370 to 415 per month plus \$30 per month for using his own car.

Epidemiologist, (Physician), salary \$410 to \$455 per month plus \$30 per month for using own car. Both these positions require a license to practice medicine in Ohio or ability to obtain such license if selected for the position.

Senior Bacteriologist, Public Health Laboratory Service. (Male or female.) Salary \$420 to \$520 per month.

Write Box A-9. Employment Service. A.P.H.A.

Public Health Staff Nurses for Linn, Yamhill, and Union Counties. Applicants must have had at least one year in approved program of study in Public Health Nursing. Under Merit System. Salary range \$2,700-\$3,300 plus travel allowance. Address correspondence to: Dr. Harold M. Erickson, State Health Officer, Portland 5, Ore.

Community Health Educator for Midwestern city. Demonstration program under joint sponsorship of city health department and a local voluntary agency. Program will eventually be absorbed by the official agency. University center. Challenging opportunity of demonstrating value of health education to community. Write Box A-13. Employment Service. A.P.H.A.

Public Health Nurse: Generalized public health nursing program in progressive official agency in rural-suburban area adjoining Washington, D. C. Beginning salary \$2,400. Trainees accepted. Fifteen day vacation and sick leave, 35½ hours per week. Mileage allowed for use of personal car. Write Director of Nurses, Montgomery County Health Department, Rockville, Md.

Director with supervising experience in public health nursing to direct newly re-organized visiting nurse association in industrial city of 22,000. Salary, car allowance and other details upon request. Write Box A-14. Employment Service. A.P.H.A.

Full-time Health Officer, town of 26,000, convenient to medical and cultural centers, salary \$6,000 plus mileage. Write: Chairman, Board of Health, Milford, Conn.

Public Health Nurse. Salary range \$2,640-\$3,120 (probably more beginning July 1). One year of postgraduate public health nursing training. Generalized service. Merit system and good personnel policies. Write: Division of Public Health Nursing, Kern County Department of Public Health, P. O. Box 120, Bakersfield, Calif.

Alaska Territorial Department of Health. Health Education Consultant wanted. Salary range \$4,104-\$4,644; minimum requirements college degree and one year graduate work in public health. Experience: one year full-time paid employment in public health education plus additional one year employment in any of allied fields. Write Box 1931, Juneau, Alaska.

Hearing and Vision Consultant. Minimum of two years' practical experience in hearing and vision programs; college graduate plus one year graduate training in psychology, speech, or related field with studies of handicapped children; \$3,360 to \$4,260. Civil Service status. Retirement. Permanent. Apply to: Harold M. Erickson, M.D., State Health Officer, Oregon State Board of Health, 1022 S.W. 11th Ave., Portland 5, Ore.

Qualified Public Health Nurse for itinerant work in tuberculosis in areas without local public health nursing services. Beginning salary \$230 per month with \$100 expense account. Furnish own car. Write: Public Health Nursing Section, State Dept. of Public Health, 515 Majestic Building, Denver 2, Colo.

Graduate in Bacteriology with some background in chemistry and experience in field of sewage and water research or treatment. To take charge of section in newly organized research project, Eastern U. S. Salary \$3,200-\$4,200 depending upon qualifications. Write Box A-11. Employment Service. A.P.H.A.

Nurses are needed for public health work in Texas. The program is conducted under a Merit System. Compensation range for Sr. Public Health Nurses from \$2,277 to \$2,553 per month. Compensation range for Jr. Public Health Nurses from \$2,001 to \$2,415. Compensation for War Emergency Nurses from \$1,725 to 2,139. In addition to above salary; possible provision of approximately \$600 car allowance annually. Write Box A-12. Employment Service. A.P.H.A.

District Health Officer. Two positions opened in progressive areas. Salary \$7,440 to \$9,120 per annum, plus traveling expenses. Applicant should possess three years of experience in professional medical work and one year graduate study in public health. Address inquiries to Arthur L. Ringle, M.D., State Director of Health, 1412 Smith Tower, Seattle, Wash.

Public Health Nurses. Several excellent positions available in full-time health departments in attractive areas in State of Washington. Salary range \$2,640 to \$3,360 per annum, plus traveling expenses. Applicant should possess one year of experience in public health work and one year of graduate study in public health. Address inquiries to: Anna R. Moore, R.N., Chief, Public Health Nursing Division, 1412 Smith Tower, Seattle, Washington.

City Health Commissioner for New England city; 55,000 population. Progressive city. Excellent environment. Salary \$6,000. Reply in detail. Mayor's office, City Hall, Pittsfield, Mass.

Veterinarian for modern (quality) milk control program. Beginning salary \$3,120, annual increments. Car furnished. Position provides for vacation, sick leave, retirement benefits, permanency. For further particulars write Charles A. Neafie, M.D., Director, Department of Public Health, Pontiac 15, Mich.

Pathologist, certified by American Board of Pathologists. Salary commensurate with ability and experience. Excellent opportunity. Large addition under construction. Write in detail to Superintendent, South Side Hospital, Pittsburgh, Pa.

Three openings for **Public Health Nurses** in Santa Cruz County. Salary \$248-\$260 monthly. General services in rural area. Must furnish own car, mileage paid. Apply to: Charles C. Gaus, M.D., Santa Cruz County Health Department, 21 Front Street, Santa Cruz, Calif.

Openings in Public Health Department, New Mexico

Public Health Nursing Consultant	\$325-\$420
Public Health Nurse-Midwife Consultant	325- 420
Public Health Nursing Supervisor	250- 325
Public Health Nurse-Midwife	225- 290
Public Health Nurse	200- 260
Graduate Nurse	170- 200

Write to: Merit System Council, Box 939, Santa Fe, N. M.

Sanitary Engineer or Sanitarian, recent graduate, with engineering or science degree. Generalized sanitation program. City of 50,000 population. Car allowance. Vacation, sick leave and retirement benefits. Starting salary \$3,600 per annum. Communicate with J. Burris Perrin, M.D., C.P.H., Health Officer, City of La Crosse, Wis.

Dental Hygienist. City of 50,000 population, twenty-four schools. Dental clinic. Starting salary \$2,900 per annum with vacation, sick leave and retirement benefits. Communicate with J. Burris Perrin, M.D., C.P.H., Health Officer, City of La Crosse, Wis.

Neuropsychiatrist with pediatrics training to direct child guidance program being conducted by private foundation on state-wide basis, New Mexico. Must be diplomate of his board. Also assistant to Director, some general qualifications. Salaries at general level paid for similar services in comparable locations. New Mexico Health Foundation, 819 East Central, Albuquerque, N. M.

Health Officer for six county unit in Northeast Colorado with offices in Sterling. Estimated population of district 59,000. Budget provides for personnel of 16. Minimum salary \$6,000 plus travel, and may be increased depending upon qualifications of applicant. Write Dr. Paul R. Hillebrand, Brush, Colo.

Physicians Wanted

The Tennessee Valley Authority announces openings for well qualified physicians. Training and experience in Public Health and Employee Medical Services are desirable. Salaries are based on 40 hour week schedule with periodic within-grade increases. Retirement, annual and sick leave benefits are provided. Interested candidates should write the Tennessee Valley Authority, Division of Personnel, Knoxville, Tenn.

Graduate Assistantships in Bacteriology

Candidates must enroll in Graduate School. Eight credit hours of graduate work leading to master's or doctor's degree permitted per semester. Stipend \$1,000 for the academic year. Approximately 12 hours of laboratory teaching or preparations required per week. Send application for admission to Dean of Graduate School. Send personal data, transcript, and recommendations to Chairman of Department of Bacteriology, University of Michigan, Ann Arbor, Mich.

Examinations for Permanent Corps, U. S. Public Health Service

Examination for appointment to the Regular Corps of the U. S. Public Health Service for the grades of Assistant Sanitary Engineer and Senior Assistant Sanitary Engineer will be held in June, 1948. About 15 appointments are to be made. Application forms and additional information can be obtained from the Surgeon General, U. S. Public Health Service, Washington 25, D. C. Applications must be filed with the Surgeon General prior to June 1, 1948.

Applicants for the Assistant grade must be at least 21 years old and U. S. citizens, must possess a degree in engineering and must have had at least 7 years of education (exclusive of high school) and professional training or experience at least 2 years of which shall have been of a professional nature in public health or a related field.

An applicant for the Senior Assistant grade must meet the requirements for the Assistant grade and have in addition 4 more years of education and professional training or experience. A total of at least 6 years shall have been of professional training or experience in public health.

The starting yearly salary, with dependents, for the Assistant grade is \$3,811 and for the Senior Assistant \$4,351.

Laboratory openings requiring professional training and experience in State Health Department, East.

1. Research Microbiologist
2. Principal Biochemist
3. Senior Sanitary Chemist
4. Dairy technologist

Write Box A-15. Employment Service. A.P.H.A.

Qualified Director of Public Health Nursing program within Department of Nursing Education in College of Arts and

Sciences in Eastern University. Annual salary \$5,000. Write Department of Nursing Education, University of Rochester, Rochester 3, N. Y.

Public Health Nursing Education Director, leading to Director of Nurses position within a year. Salary \$275-\$300; good experience and background.

Also, opening for Public Health II, \$230 beginning salary.

Write: Director, Weld County Health Department, Court House, Greeley, Colo.

POSITIONS WANTED

Academic position as Professor of Bacteriology or Preventive Medicine. Ph.D.; M.D. expected in spring, 1948. Sixteen years' experience in teaching and research (7 years as Professor of Bacteriology). Many publications including textbook of bacteriology for medical students. Write Box Ph-2. Employment Service. A.P.H.A.

Statistician-Administrator. Ten years' professional experience. Completing assignment in nation-wide health survey as chief of staff of 40-80 professional and

clerical personnel doing following operations: coding, IBM tabulations, computations, analyses, etc. Intensive training in statistics, mathematics and accounting. Write Box St-1. Employment Service. A.P.H.A.

Physician, Woman, New York University graduate 1945, M.P.H. expected May, 1948; interested in position in or outside the U. S. Predominant interest communicable disease control. Write: Box Ph-3. Employment Service. A.P.H.A.

Engineer, ASCE, June; B.S., Public Health Eng.; M.S., Sanitary Eng.; desires to develop idea for "Model Communities" as adapted to rural areas in Southern Asia; South America. Interested in employment with organization or gov-

ernment engaged in redeveloping existing communities with regard to housing, sanitation, water supply, and general municipal facilities. Experienced overseas and domestic; single; 24. Write: Box E-3. Employment Service. A.P.H.A.

Advertisement

Opportunities Available

WANTED—(a) Several well qualified public health physicians and dentists for appointments to Germany, Austria, and Italy; headquarters of organization in Paris. (b) Assistant director; crippled children's commission; Middle West; \$7,000-\$8,200. (c) Director of medical and health service, national organization; duties consist of administering and planning medical service of eastern area; physician with administrative experience in public health required. (d) District health officer; duties consist of directing county health department and developing program; \$7,400-\$9,100; Pacific Northwest. (e) Public health officer; Korea. (f) Director of health service; 2,100 students; position carries faculty rank; town of 5,000 located short distances from several university centers; Middle West. (g) Director; city (200,000 population) health department; capable organizer required; Southwest; \$10,000. PH5-1 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

WANTED—(a) Health educator; middle western city of 40,000; \$4,500-\$5,000. (b) Health educator to take charge of mobile unit and conducting health program in cancer; graduate nurse preferred; Middle West. (c) Public health statistician and, also, health educator; county department of health; Southern California. (d) Sanitary engineer to direct department serving population of 7,000,000; experience in water and malarial control required; M.A. degree and public health background essential; South America. (e) Assistant director of health education; municipal health department; West. (f) Sanitary chemist, B.S. degree in chemistry with four years' experience or Ph.D. in biochemistry; interesting position; health

department of modern community in Southwest; would be connected with new hospital and research institute. (g) Health educator to direct division of county community fund and council of social agencies; newly created position; \$4,000. PH5-2 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

WANTED—(a) Public health nurse with Master's degree and minimum of six years' experience to direct program in public health nursing connected with department of education, eastern university; appointment carries rank of assistant professor; eleven month year; \$5,000. (b) Public health nurses for assignments in Europe; will work from Paris headquarters assigned to Germany, Austria, or Italy; well-rounded background in public health nursing required; \$4,000-\$5,000, transportation plus per diem covering differential in cost of living. (c) Student health nurse; young women's college; Pacific Coast. (d) Supervisor of nurses; health department of public school system; Bachelor's degree required; Middle West; \$4,000. (e) Student health nurse; coeducational college, 1,800 students; well equipped infirmary of 64 beds; private apartment available; \$3,600. (f) Industrial nursing consultant; duties consist of inspecting plants; dealing with management; public health training and industrial experience required; considerable traveling; headquarters in Chicago. (g) School nurse; fashionable residential town located short distance from Chicago; opportunity for continuing studies; unusual opportunity. PH5-3 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

Opportunities Wanted

Young dentist; three years, general practice; four years, director, public school dental clinics of large middle western city; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Young public health specialist; recently received Master's degree in Public Health; state university; has had several years' experience as assistant, department of bacteriology, state department of health; for further information, please write Burneice Larson, Director, Palmolive Building, Chicago 11.

Public health nurse; B.S., M.A. degrees, public health nursing; six years, supervisor, state department of health; three years, maternal and child health nursing consultant; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Sanitary engineer; Bachelor of Science in Civil Engineering (major: Sanitary Engineering), Master's in

Public Health Engineering; ten years, director, department of engineering, state department of health; duties include responsibility for entire environmental sanitation in public health engineering program for a population of over million; for additional information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Health educator; Ph.D.; six years, health educator nationally known organization; three years, health educator in industry; teaching experience; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health physician; medical degree, eastern university; M.P.H. Johns Hopkins; 17 years' experience in public health field; during war held important assignment abroad; now director of health, city of 100,000; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

NEWS FROM THE FIELD

WORLD HEALTH ORGANIZATION

"Ever since it was proposed at the San Francisco Conference of 1945 and endorsed by the State Department, this country has taken an active part in the creation of a World Health Organization. We were represented at a preliminary health conference held in Paris in 1946 and later in the same year at the definitive International Health Conference which was held in this city by the representatives of sixty-eight nations and which decided that a World Health Organization was to be established as soon as twenty-six nations had signified their approval. Meanwhile an interim commission, with offices in Geneva and New York, has been demonstrating what such an organization can accomplish, one conspicuous example being the aid rendered in controlling a recent cholera epidemic in Egypt which threatened to involve the whole Near East. Last year the Senate passed a bill which would have made the United States a member of the World Health Organization and which was approved by the House Committee on Foreign Affairs.

"Despite this history, despite the support given to a World Health Organization by the American Public Health Association and virtually every public health authority, the Rules Committee of the House has seen fit to table the Senate's bill. No reason for an action which was taken behind closed doors. Twenty-two nations have already signed the covenant of the World Health Organization, and four more will do likewise in six or eight weeks. This means that an organization will be created, but that the United States will not be a member. The Rules Committee of the House owes the public an explanation.

If it has any good reason for failing to approve the action of the Senate that reason ought to be presented. This country has always been a leader in supporting international efforts to control the spread of disease. At a time when most of continental Europe is undernourished and tuberculosis and other infections are increasing the United States cannot afford to give up that leadership and assume the role of an indifferent observer."—*New York Times*, Mar. 20, 1948.

1948 NORTH CAROLINA WATER WORKS OPERATORS' SCHOOL

The 1948 North Carolina Water Works Operators' School will be held June 7-11 at the University of North Carolina. This school is sponsored by the North Carolina Water Works Operators' Association and the North Carolina Section of the American Water Works Association and is conducted cooperatively by the School of Public Health and the Institute of Government of the university.

Students will be divided into 4 groups according to background, training, and present interest. Instruction will be given in 20 subjects, many of them common to 2 or 3 groups. Not only will technical problems such as filtration, chlorination, corrosion, water quality, hydraulics, and others be discussed but also records, personnel, and legal problems.

As in former years, the school is open both to North Carolina water plant personnel and to residents of neighboring states.

The final schedule of instruction and other information may be secured from Assistant Director, Institute of Government, Chapel Hill, N. C.

THE RETIRING AND INCOMING SURGEONS GENERAL OF THE U. S. PUBLIC HEALTH SERVICE



THOMAS PARRAN, M D, Surgeon General of
the U. S. Public Health Service,
1936-1948

1917-1948, Commissioned Officer in the Regular Corps, U. S. Public Health Service, serving until 1930 in 14 states on public health research and administrative assignments; 1930-1936, Commissioner of Health, New York State; Fellow of the American Public Health Association, and its President in 1937; 1939, winner of the Association's Sedgwick Memorial Medal "for distinguished service in public health"; 1947, winner of the Lasker Award of the Association "for outstanding contributions to the national health and to the World Health Organization"; 1946, Chairman of United Nations International Health Conference in New York City and Chairman of the U. S. delegation.



LEONARD A. SCHEELLE, M D, Surgeon General
of the U. S. Public Health Service,
April 6, 1948

Commissioned Officer in the U. S. Public Health Service, 1934; Health Officer, Queen Anne's County, Md., 1936-1937; Special Fellow, Memorial Hospital, New York, 1937-1939; Officer in Charge of the National Cancer Control Program of the National Cancer Institute, 1939-1942; Assignments with the Public Health Branch, Military Government, U. S. Army, for which he was awarded the Legion of Merit and American Typhus Medal, 1943-1945; Assistant Chief, National Cancer Institute, 1946-1947; Assistant Surgeon General and Director of the Cancer Institute, 1947; Member of the American Public Health Association since 1937.

SECOND N.T.A. RESOLUTION ON LOCAL HEALTH UNITS

The following resolution was passed by the Board of Directors of the National Tuberculosis Association at its meeting on March 19:

The National Tuberculosis Association re-emphasizes its policy that tuberculosis services, to be most effective, should be integrated with general community health facilities and to that end urges its state and local affiliates to work toward the establishment of adequately financed and adequately staffed local health services.

The National Tuberculosis Association endorses the principle enunciated by representatives of 65 national citizens' organizations in a meeting at Princeton, N.J., on September 10, 1947, to the effect that vigorous steps be taken to obtain complete coverage of all states and all communities by local full-time health units under competent professional direction.

The National Tuberculosis Association offers its coöperation to the National Health Council in this program.

The National Tuberculosis Association further endorses in principle the need for federal legislation and assistance to states to complete the coverage of their respective populations and areas with full-time local health units under professional direction.

An earlier resolution of the N.T.A. urged its state and local affiliates to co-operate in developing local official health services as a necessary prerequisite to effective local tuberculosis control activities.

INTERNATIONAL POLIOMYELITIS CONFERENCE

The First International Conference on Poliomyelitis in New York City, July 12-17, was announced briefly in the February *Journal* (p. 252).

More detailed plans are now available. Ten world medical and research authorities on poliomyelitis have been named presiding officers for the plenary sessions. These presiding officers and subjects include:

Oswaldo P. Campos, Clinical Orthopedic Surgeon, Hospital Jesus, Rio de Janeiro, Brazil, "The Importance of Poliomyelitis as a

World Problem"; Rustin McIntosh, Professor of Pediatrics, Columbia University, "Poliomyelitis: The Early Stage"; Robert Kno-Song Lim, Surgeon General, National Defense Medical Center, Shanghai, China, "The Management of Poliomyelitis: The Early Stage"; Arthur Steindler, Professor of Orthopedic Surgery, State University of Iowa, "Poliomyelitis: The Convalescent Stage"; Arvid Wallgren, Professor of Pediatrics, Royal Caroline Medical Institute, Stockholm, Sweden, "The Management of Poliomyelitis: The Convalescent Stage"; Carlos S. Ottolenghi, Docente Libre de Ortopedia, Buenos Aires, Argentina, "The Management of Poliomyelitis: The Late Stage"; James E. Paullin, Professor of Clinical Medicine, Emory University, "Bulbar Poliomyelitis"; Pierre L. LePine, Director of Laboratories, Pasteur Institute, Paris, "Immunology and Chemotherapy in Poliomyelitis"; Harry S. Mustard, Commissioner of Health, New York City, "The Public Health Aspects of Epidemic Poliomyelitis"; and Thomas Parran, Surgeon General, U. S. Public Health Service, "Poliomyelitis Throughout the World."

The Conference is being held under the auspices of the National Foundation for Infantile Paralysis with the coöperation of 23 United States government agencies and scientific societies, among them the American Public Health Association.

Conference headquarters have been set up in the Waldorf Astoria Hotel, New York City.

INSECT CONTROL IN RETROSPECT

This announcement will be too late to be of any great benefit to health workers in the field. However, it may tend to indicate trends which are taking place in insect control activities. Within almost a week, notices were received of two conferences for pest control operators; the first, that of the New York State Pest Control Association held at Cornell University, March 29-30, and second, that of the 12th Annual Purdue Pest Control Operators Conference held at Purdue University, April 5-9. Anyone who may be interested in programs or methods of organization should write

to Charles E. Palm, Entomology Department, Cornell University, Ithaca, N. Y., for the former, and to Professor J. J. Davis, Agricultural Hall, Purdue University, Lafayette, Ind., for the latter.

WATER EMERGENCY PUBLICITY MATERIAL

The Mathieson Alkali Works has prepared and distributed to state health officers in areas likely to be affected, a packet of material designed to advise the public of necessary emergency health measures in the event of floods. Included in the packet are releases for use in newspapers before, during, and after a flood. There are similar releases for radio broadcasts and a bulletin for posting in public places. Also included are recommendations concerning typhoid inoculations, treatment of water for drinking and cooking purposes, handling of contaminated food and food containers, disinfecting wells in flood areas, and clean-up of buildings after floods. A list of distributors handling chemicals which might be in demand during flood emergencies is also contained in the packet. For further information, write to Mathieson Alkali Works, Inc., 60 East 42 Street, New York 17, N. Y.

NEW ENGLAND MEETING

The annual Massachusetts Public Health Conference and the New England Health Institute will be held at the University of Massachusetts, at Amherst from June 16 to 18, 1948. Among the speakers at this three day session are:

Martha M. Eliot, M.D., President, A.P.H.A.
Leonard A. Scheele, M.D., Surgeon-General,
U.S.P.H.S.

Ira V. Hiscock, Sc.D., Professor of Public Health, Yale University

Hugh R. Leavell, M.D., Professor of Public Health Practice, Harvard University

V. A. Van Volkenburgh, M.D., Assistant Commissioner, New York State Department of Health

Charles F. Wilinsky, M.D., President-Elect A.P.H.A., will preside, and the New England state health commissioners will participate.

All members of the A.P.H.A. are invited and ample dormitory accommodations are available for all who wish to attend.

HEARING ON LOCAL HEALTH SERVICES BILL

The Committee on Interstate and Foreign Commerce of the House of Representatives held a hearing on the Local Health Services Bill (H.R. 5644 and 5678) on April 8. Five members of the committee were present and heard testimony in favor of the bill from Mrs. L. W. Hughes, President of the National Congress of Parents and Teachers, James R. Miller, M.D., member of the Board of Trustees of the American Medical Association, Vlado A. Getting, M.D., President of the State and Territorial Health Officers Association and Haven Emerson, M.D.

The only opposing testimony, based on a fear of further federal centralization, was given by H. B. Anderson, Secretary of the Citizen's Medical Reference Bureau. He testified that he represented a membership of 1,000 members who had not previously been consulted, but would approve his action at a later date.

No hearing has yet been held on the identical Senate bill providing for federal grants-in-aid to state health departments earmarked specifically for the development of local health units on the basis of an overall state plan. The Chairman of the Senate Subcommittee on Health of the Committee on Labor and Welfare is Senator H. Alexander Smith of New Jersey.

PREVENTIVE MEDICINE TO THE FORE

At the Health and Family Life Symposium of the Community Service Society of New York, on March 18, Bailey

B. Burritt, the retired Director of the Society and Executive Director of the National Health Council, announced a project for the study of 200 families who live in one of New York City's neighborhoods to learn "what preventive and health maintenance services would be effective and practical." This service would utilize many of the techniques learned by the Peckham experiment in England. This experiment and its results were discussed at the same meeting by Dr. Innes Pearse, medical director.

Among other current activities, in exploring the possibilities of preventive medicine, is the University of Minnesota's project whereby 300 St. Paul and Minnesota volunteers in the prime of life are being examined periodically for 10 years by clinicians in order chiefly to note the factors that account for high blood pressure and for hardening of the arteries.

In New York City, the Health Commissioner, Harry S. Mustard, M.D., has appointed C. Ward Crampton, M.D., Chairman of an advisory committee on geriatrics. New York State has a joint legislative commission on problems of aging.

GRADUATE FELLOWSHIPS IN COMMUNITY NUTRITION AT THE UNIVERSITY OF TENNESSEE

The College of Home Economics of the University of Tennessee offers several one year graduate fellowships in Community Nutrition of \$1,200 and free tuition. The program, leading to the degree of Master of Science in Community Nutrition, includes three-quarters of work in residence at the university and one-quarter of supervised field work in a health agency. Candidates are trained for positions as nutritionists with health and welfare agencies.

Academic requirement for admission is a baccalaureate degree in home economics with a major in foods and nutrition, or its equivalent. Two years of

experience such as teaching, extension work, Farmers Home Agency work, hospital, or other food service or equivalent, are required. Interests and ability of the candidate are considered in accepting students for training.

Application blanks and further information may be obtained from the College of Home Economics, University of Tennessee, Knoxville.

FIRST NATIONAL SANITATION CLINIC

The first National Sanitation Clinic will be held at the University of Michigan, June 21-25 with the coöperation of the National Sanitation Foundation. Approximately 250 participants will divide themselves into 12 clinic groups for intensive deliberations on as many subjects related to food sanitation. In general each group will include 6 representatives from public health and 6 from industry, 2 co-chairmen, and from 2 to 5 consultants.

The stated purpose of the clinic is to discuss various phases of environmental sanitation control—with particular reference to foods—in an effort to arrive at a statement of principles, methods of procedure, equipment, etc., that are acceptable to public health officials and to industry. It is hoped that the agreements reached in this group may be approved by both public health officials and industry as reasonable goals and guides in food sanitation.

DR. HILLEBOE MAKES TRIP TO EUROPE

Herman E. Hilleboe, M. D., New York State Commissioner of Health, spent the last half of February on a trip to Europe, going first to Geneva, Switzerland, where he represented the United States in a four day discussion of worldwide tuberculosis control with members of the Expert Committee on Tuberculosis of the Interim Commission of the World Health Organization.

In addition, Dr. Hilleboe had a one day conference on tuberculosis control

with Rome public health physicians, made a three day study in Athens of the mass BCG vaccination program now in progress in Greece, and examined the research work currently being conducted by the State Serum Institute of Denmark in Copenhagen. There a coöperative research project was formulated to be carried on by the Serum Institute and the New York State Health Department's Division of Laboratories and Research.

TEXAS PUBLIC HEALTH ASSOCIATION

The Texas Public Health Association held its Annual Meeting in Houston February 22-25. This meeting was the largest ever held, with a total attendance of 575.

The out-of-state speakers included Pearl McIver, R.N., Martin A. Frobisher, Jr., D.Sc., Charles B. Frasher of the A.P.H.A. Merit System Service, Albert E. Bailey, Ph.D., James A. Doull, M.D., and Ira V. Hiscock, Sc.D., who led a panel on Public Health Administrative Practices.

The new officers of the Texas society are:

President—Austin E. Hill, M.D.

President-elect—W. R. Ross, M.D.

1st Vice-President—B. A. Young

2nd Vice-President—Belle Blackwell, R.N.

Executive Secretary—Earle W. Sudderth

A.P.H.A. UNDERTAKES STATE STUDY IN PENNSYLVANIA

Norris W. Vaux, M.D., Secretary of Health for Pennsylvania, has recently announced a survey of public health activities of Pennsylvania by the Committee on Administrative Practice of the American Public Health Association.

In commenting on this study, Dr. Vaux said:

The Pennsylvania Department of Health has had a long and honorable history. Its activities through the years have expanded with increasing knowledge in the techniques of preventive medicine and in the control of disease.

This expansion has been so rapid and diverse that there has been little opportunity to pause

and take stock, an essential practice for every organization that wants to know its present status and what future direction it should take.

With this thought in mind, Governor Duff, and I, believe that a thoroughgoing evaluation of the Commonwealth's public health administration which will measure structure and activities against currently accepted public health procedures and practice will be of value in strengthening the resources of the Department and in assuring it of an administrative structure soundly conceived and adequately operated.

With the Governor's approval, therefore, the Department of Health has requested the American Public Health Association through its Committee on Administrative Practice, which has conducted many local health studies, to survey the public health activities of Pennsylvania.

Important among the aspects of this survey will be the efficiency, extent, and effectiveness of (1) the state Department of Health; (2) local health services to communities; and (3) the relationship of the state voluntary health agencies to the state and local health services.

A representative committee of public minded and influential citizens, now being appointed by Governor Duff, will serve in an advisory capacity and Dr. Vaux has expressed the hope that this committee will be an effective instrument for implementing the survey's recommendations.

N.T.A. POLICY ON BCG VACCINATION

The Executive Committee of the American Trudeau Society, the medical section of the National Tuberculosis Association, recently adopted a statement of policy with respect to BCG vaccination against tuberculosis. Because such vaccination does not provide complete protection against tuberculosis its use for the general population is not recommended until further controlled studies are conducted.

The Society's recommended policy is for BCG vaccination of members of groups constantly exposed to tuberculosis if they have a negative reaction to the tuberculin test. The person with a positive reaction, indicating that he has had a primary tuberculosis infection

and his body has built up a degree of acquired immunity, probably does not benefit from BCG vaccination. For the present, therefore, BCG vaccination is recommended for doctors, medical students and nurses, hospital and laboratory personnel in contact with the tuberculosis bacillus, individuals unavoidably exposed to tuberculosis in the home, and patients and employees of mental hospitals, prisons, and other custodial institutions.

The Society warns against placing complete reliance on BCG even for these groups and points out that proper precautions should be taken to minimize or prevent "undue hazardous exposure of hospital patients and personnel and members of a household if an infectious patient is under treatment in the home."

PERSONNEL AND SERVICES OF LOCAL HEALTH UNITS

The U. S. Public Health Service through the Records and Reports Unit of the Bureau of State Services has just published a report of public health resources in local full-time health jurisdictions, including state districts. The number of personnel in 4 categories is analyzed according to whether they meet the minimum standards set up by the Subcommittee on Local Health Units in its report, *Local Health Units for the Nation*.

The report also gives detailed information on public health clinic service available in local jurisdictions receiving federal-state financial aid.

The report, prepared by Evelyn Flook and Arthur P. Gill, is available from the Bureau of State Services, U. S. Public Health Service, Washington 25, D. C.

FIELD TRAINING IN PUBLIC HEALTH ENGINEERING

The Michigan Department of Health announces summer field training opportunities to individuals desiring experience in public health engineering work.

The program will be similar to one conducted by the department last year.

Graduates or undergraduates of recognized professional schools with training in one of the branches of public health (engineering, dairy science, food technology, bacteriology, etc.) will be accepted. Undergraduates must have completed their junior year of study. Assignments will be to county health departments with special facilities for the training. Stipends of \$150 per month will be paid each candidate by the W. K. Kellogg Foundation. Veterans are entitled to the federal subsistence allowance while in training. Work will start about June 14 and continue to the middle of September.

Additional information can be obtained from John M. Hepler, Director, Bureau of Engineering, Michigan Department of Health, Lansing.

MARKLE FOUNDATION MEDICAL SCHOLARS

With the avowed purpose of relieving the current shortage of scientists equipped to carry on and teach research, the John and Mary R. Markle Foundation of New York recently announced a "Scholars in Medical Science" program. A total of \$400,000 has been allocated to support, for a 5 year period, 16 doctors carrying on research in a variety of medical subjects in 16 different universities.

100 YEARS OF A.A.A.S.

Planning has begun for the centenary celebration of the founding of the American Association for the Advancement of Science. Chairman of the Centennial Policy Committee is Dr. Harlow Shapley, Director of the Harvard Observatory. The keynote of the meeting, to be held in Washington, D. C., September 13-17, is "One World of Science." Preliminary plans call for technical symposia, 4 or 5 concurrently each morning, for free afternoons to visit the scientific and cultural institutions of Washington,

and for non-technical broad surveys of current progress in important fields of science for the evenings.

NATIONAL HEART INSTITUTE PROPOSED BY SENATE BILL

On February 25, Senators Ives, Bridges, Murray, and Pepper introduced the bi-partisan bill S2215, which would establish a National Heart Institute under the U. S. Public Health Service. It would provide greatly increased federal support of research in and control of cardiovascular diseases. The bill differs only slightly from the Keefe and Smathers bills introduced in the House in January.

U. S. PUBLIC HEALTH SERVICE 1949 BUDGET

The Washington Report on the Medical Sciences, a weekly newsletter concerning medical and public health matters, reports liberal grants to the U. S. Public Health Service by recent action of the House Appropriations Committee. The overall 1949 budget approved for the Service was \$173,230,500, an increase of 30 per cent over the previous year. Seventeen million dollars was approved for venereal disease control. Because the committee was impressed with the BCG studies conducted by the Public Health Service, over 9 million dollars was appropriated for tuberculosis control, two-thirds of which is for grants-in-aid to state and local health departments.

The National Institute of Health was granted its full request of \$13,570,000, plus an additional \$100,000 for peptic ulcer research. More than half of the institute's appropriation is for research grants to hospitals, clinics, universities, and other organizations.

The Institute's funds for cardiovascular studies were increased from half a million in 1948 to \$1,382,500 in the 1949 appropriation of the House. The cancer appropriation of \$14,000,000

was renewed plus an additional \$8,000,000 recommended for grants-in-aid for planning, land acquisition, and building of research centers.

A new item of a million and a half dollars was recommended for nation-wide demonstrations in schools of the effectiveness of sodium fluoride in preventing tooth decay.

PERSONALS

Central States

C. A. ABELE, formerly Director of the Country Dairy Inspection Section of the Chicago Health Department since 1940, has recently become Director of Public Health Research of the Diversy Corporation, also of Chicago. Mr. Abele organized and served for 20 years, the Bureau of Inspection for the Alabama State Department of Health. He is a referee on the Committee on Standard Methods for Dairy Products, A.P.H.A.

CORINNE EDDY, M.D.,† was appointed Health Officer for the DeWitt-Piatt County (Illinois) Health Department with offices in Clinton on January 1. Dr. Eddy was formerly Director of the City-County Health Department, Lincoln, Neb.

DONALD M. HARRIS, M.D.,* became Health Officer of the newly organized full-time Health Department of Gary, Ind., on February 1. According to the *Monthly Bulletin* of the Indiana State Board of Health he is "the first formally trained full-time health officer (local) in Indiana." He had previously served in local health units in Iowa, Michigan, and Nebraska.

J. P. OWENS, M.D., has been named to succeed E. H. SCHOENLING, M.D., as Hamilton County, Ohio, Health Commissioner. Dr. Owens has been a practising physician in Cincinnati chiefly interested in industrial medicine.

Eastern States

WENDELL R. AMES, M.D.,* former Health Commissioner of the Cattaraugus County, N. Y., Health Department, has been appointed Deputy Health Commissioner for Preventable Diseases, including tuberculosis control of the new Buffalo City-Erie County Health Department.

CHARLES S. CAMERON, M.D., recently a corps member of the U. S. Naval Medical Corps, has been appointed Medical Director of the American Cancer Society, New York, N. Y. Dr. Cameron is a Fellow of the American College of Surgeons.

J. ELLIOTT HALE,† formerly Director of the Industrial Hygiene Division of the Bureau of Health, Maine State Department of Health and Welfare, has taken up new duties as Superintendent of the Kennebec, Me., Water District.

GEORGE E. LAUBACH, licensed Health Officer in New Jersey, became Health Officer of the City of Elizabeth on January 15. He had previously been Health Officer of Dover.

EARL LUDLAM, D.D.S., has succeeded J. M. WISAN, D.D.S.,* as Chief of the Division of Dental Hygiene of the New Jersey State Health Department. He has been Assistant Director of the division for the past 10 years. Dr. Wisan resigned to become Director of the Division of Health Education of the American Dental Association whose headquarters are in Chicago, Ill.

CLINTON P. MCCORD, M.D., of Albany, N. Y., has been appointed as Consultant in Psychosomatic Medicine in the New York State Department of Health, preparatory to the launching of a state-wide educational program related to emotional factors in disease. Dr. McCord has been practis-

ing neuro-psychiatry and analytic psychiatry for the past 35 years and is a Diplomate of the American Board of Neurology and Psychiatry and Consultant to the Albany Society for Advancement of Psychosomatic Medicine.

WILLYS M. MONROE, M.D.,† will become Health Officer of Greenwich, Conn., on July 1. He has been Health Commissioner of Pittsfield, Mass., since 1923 and served in both world wars, returning from recent military service with the rank of lieutenant colonel.

PHILIP S. PLATT,* Director of Lighthouse of the New York Association for the Blind spoke on voluntary health agencies at the annual meeting on April 15 of the Hartford, Conn., Tuberculosis and Public Health Society.

WILLIAM REINER-DEUTSCH, M.D.,† Director of Industrial Testing Laboratories and Technical Director of the National Brewers' Academy and Consulting Bureau, New York, N. Y. has been elected corresponding member of the Société de Biologie de France.

ELIZABETH P. RICE, formerly clinical professor of the social aspects of medicine at the Yale School of Medicine, New Haven, Conn., and assistant professor of the social aspects of nursing at the Yale School of Nursing, has been appointed the first Social Service Worker to the Faculty of the Harvard School of Public Health, Boston, Mass., as part of a new program to study the role of family life in the health of children. Miss Rice will commence a study of the preventive aspects of social work.

HELEN E. WEAVER, R.N.,† has been appointed as Consultant in Nursing Activities, the National Society for the Prevention of Blindness, New York, N. Y. Miss Weaver was formerly Consultant Public Health Nurse of the Division of Venereal Disease Con-

* Fellow A.P.H.A.

† Member A.P.H.A.

trol, New York State Department of Health, Albany.

SIDNEY I. WOLFSON,[†] has resigned as assistant to the District State Health Office, Freehold, N. J., to become Health Officer of Dover.

MARGARET POND ZEALAND was appointed nutritionist of the New Jersey State Health Department in February. Mrs. Zealand formerly served as dietitian in several hospitals in New York City.

Southern States

HAROLD V. DARNELL, B.Sc., has been appointed as assistant to ROBERT P. FISCHER, M.D.,* Secretary of the American Pharmaceutical Association, Washington, D. C. Mr. Darnell has been Executive Secretary of the Indiana Pharmaceutical Association since 1939.

ESTHER M. FINLEY,* Senior Assistant Nurse Officer of the U. S. Public Health Service, Washington, D. C., has been appointed Director of the Public Health Nursing Program for the Kanawha-Charleston Health Department, W. Va.

JOSEF JORDAN WEISSKOPF, M.D.,[†] recently appointed Surgeon in the Reserve of the U. S. Public Health Service, was called to active duty as of April 30. Since January, 1945, he has been Chief, Planning Branch, Medical and Sanitation Supplies Division, UNRRA.

Western States

NEW MEMBERS OF THE FACULTY AT THE SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF CALIFORNIA, SAN FRANCISCO, ARE:

JACOB YERUSHALMY, Ph.D.,* as Professor of Biostatistics. Dr. Yerushalmy was formerly Principal Statistician, Division of Tuberculosis, U. S. Public Health Service. He recently

returned from Denmark where he served as Consultant in the tuberculosis control program.

EDWIN H. LENNETTE, M.D., Ph.D., who recently became the director of the Virus Laboratory, California Department of Public Health, has also been appointed Lecturer in Public Health. Dr. Lennette was a member of the Field Staff of the International Health Division of the Rockefeller Foundation until 1946 when he became Chief of the Medical Veterinary Division of the War Department.

DAVID FROST, M.D.,[†] became the first full-time Health officer of the City of Alameda, Calif., in February, 1948. He was formerly Chief of Venereal Disease Control in the Oakland Health Department.

Other Areas

ROBERT H. MARKS, M.D.,[†] Chief of the Tuberculosis Bureau of the Hawaii Territorial Department of Health, has announced his resignation, effective February 26. He returns to the mainland as Medical Director of Jefferson Sanatorium, Birmingham, Ala.

LUIS M. MORALES, M.D., former President of the Medical Association of Puerto Rico, was elected a member of the Council of the National Committee on Mental Hygiene at the organization's recent annual meeting in New York.

Deaths

EDWARD THOMAS DEVINE, Ph.D., known in social work and reforms, died in Chicago on February 27, at the age of 80.

HAROLD GILBERT MCGEE,* Charter Fellow of the Engineering Section of the Association, and Director of the Municipal Research Bureau of the Akron Chamber of Commerce since 1923, died at his home in Hudson, Ohio, on February 13. Besides being a tax and

* Fellow A.P.H.A.

† Member A.P.H.A.

finance expert in his early career he had also been Sanitary Engineer in the Michigan State and Jackson City Board of Health, and in the Ohio State and Lucas County boards. He was the author of numerous articles in engineering and public health journals as well as reports on municipal, school, county, and state budgets.

CONFERENCES AND DATES

- American Association for the Advancement of Science. Centennial Meeting. Washington, D. C. September 13-17.
- American Congress of Physical Medicine. Hotel Statler. Washington, D. C. September 7-11.
- American Dairy Science Association. University of Georgia, Athens, Ga. June 14-16.
- American Dental Association. Chicago, Ill. Week of September 12.
- American Dietetic Association. Boston, Mass. October 18-22.
- American Hearing Society. National Conference and Annual Meeting. Pittsburgh, Pa. May 19-23.
- American Home Economics Association. 39th Annual Meeting. Minneapolis, Minn. June 21-24.
- American Hospital Association. 50th Anniversary Convention. Atlantic City, N. J. September 20-24.
- American Library Association. Atlantic City, N. J. June 13-19.
- American Occupational Therapy Association. Hotel Pennsylvania, New York, N. Y. Sept. 7-11.
- American Public Health Association—76th Annual Meeting. Boston, Mass. November 8-12.
- American Public Works Association. Boston, Mass. October 17-20.
- American Red Cross. San Francisco, Calif. June 20-24.
- American Society for the Study of Sterility. Fourth Annual National Session. Chicago, Ill. June 21-22.
- American Society of Planning Officials. New York, N. Y. October 11-13.
- Biennial Nursing Convention — American Nurses Association, National Organization for Public Health Nursing, National League of Nursing Education. Chicago, Ill. May 31-June 4.
- Canadian Public Health Association. Vancouver, B. C. May 18-20.
- Civil Service Assembly of the United States and Canada. Ottawa, Canada. October 4-7.
- Colorado Public Health Association. Savoy Hotel, Denver, Colo. May 21-22.
- Conference of State and Provincial Health Authorities. Chicago, Ill. June 25-26.
- Connecticut Public Health Association. New Haven, Conn. May 12.
- First International Poliomyelitis Conference. Waldorf Astoria. New York, N. Y. June 12-17.
- Florida Public Health Association. Panama City, Fla. October 7-9.
- Fourth International Congresses on Tropical Medicine and Malaria. Washington, D. C. May 10-18.
- Georgia Public Health Association. Savannah, Ga. May 10-12.
- Indiana Public Health Association. Indianapolis, Ind. June 2-3.
- International Congress on Mental Health. London, England. August 11-21.
- International Federation of Housing and Town Planning. Zurich, Switzerland. July 20-26.
- Iowa Public Health Association. Annual Meeting. Burlington, Iowa. May 27-28.
- Massachusetts Public Health Association. Amherst, Mass. June 16-18.
- Missouri Public Health Association. Hotel Chase, St. Louis, Mo. May 12-14.
- National Association of Sanitarians. Portland, Ore. June 7-9.
- National Education Association of the United States. Cleveland, Ohio. July 5-9.
- National Gastroenterological Association. New York, N. Y. June 7-10.
- National Tuberculosis Association. Annual Meeting. New York, N. Y. Week of June 14.
- New England Health Institute. Amherst, Mass. June 16-18.
- New Mexico Public Health Association, Las Cruces, N. M. May 20-22.
- New York State Association of Milk Sanitarians. Buffalo, N. Y. September 22-24.
- Society of American Bacteriologists. Minneapolis, Minn. May 10-14.
- Tennessee Public Health Association. Andrew Jackson Hotel, Nashville, Tenn. May 3-5.
- Utah Public Health Association, with Western Branch A.P.H.A. Salt Lake City, Utah. May 25-27.
- Western Branch, American Public Health Association. Salt Lake City, Utah. May 25-27.
- West Virginia Public Health Association. Prichard Hotel, Huntington, W. V. May 27-28.

**ECONOMICAL
SANITIZATION
of MILK UTENSILS**



with the



B-K
REG. U. S. PAT. OFF.
PLAN

You won't find a sanitation program today that is much simpler than the B-K Plan... at such low cost. You will get results with it, if you follow the easy directions. But remember—no system can produce these results without a certain amount of cleaning and good old fashioned elbow grease.

The B-K Plan stresses, after use, first the rinsing of utensils and equipment in cold water and then the scrubbing in hot water containing soapless General Manual Kleanser. Before milking, rinse milking machines, and utensils, and wipe cow's udder and teats with efficient, inexpensive B-K solution. These simple steps have helped many average-size farms get surprisingly low counts.

B-K* Chlorine-Bearing Powder contains 50% available chlorine. It speedily sanitizes dairy utensils and reduces the number of bacteria that result in poor quality... thermodurics and others. General Manual Kleanser loosens milk solids and really cleans.

Farm operating costs remain high... and past experience shows that milk prices are sometimes reduced without a proportionate lowering of costs. Recommend the simple, economical B-K Plan and you will help both farmer and city milk supply.

Literature explaining the role of bacteria in milk and their control is available for farmers. Programs of education also on request. Send for them—by writing to B-K Division, Pennsylvania Salt Manufacturing Company, 1000 Widener Building, Philadelphia 7, Pa.

*Reg. U. S. Pat. Off.



The Role of **IODINE** *in Clinical Diagnosis*

- Diagnosis is the art or scientific process by which a disease is recognized. Success or failure in establishing a correct diagnosis depends in large measure on the use of reliable, safe and efficient clinical and laboratory procedures.
- Iodine compounds occupy a unique position as indispensable aids in providing X-ray evidence that is informative and most frequently complete. They supply the ideal contrast media for many diagnostic procedures—including bronchography, cholecystography, pyelography and myelography. Without these compounds, an accurate diagnosis might be difficult or impossible to make.
- Likewise in the fields of prevention and therapy, few medicaments serve such useful and varied purposes as Iodine with its many compounds and derivatives.

**IODINE
EDUCATIONAL
BUREAU, Inc.**

120 BROADWAY, NEW YORK 5, N. Y.

American Journal of Public Health

and THE NATION'S HEALTH

Volume 38

June, 1948

Number 6

Air Pollution*

Engineering Section

SINCE the field that might be considered by this committee is large, it was believed advisable to restrict the scope of this year's report to one phase of the air pollution problem; namely, atmospheric pollution. The report does not include air pollution in enclosed spaces except as they may affect the outside atmosphere. It also seemed advisable in this initial report to limit its scope to certain available information on the source, character, and effect of atmospheric pollution and to some information on the methods of control.

Broadly speaking, atmospheric pollutants include smoke, dust, gases, vapors, fumes, and mists that may be present in the air and that create a nuisance, adversely affect animal or plant life, or cause property loss or damage.

Smoke and dust are no doubt the most widely recognized atmospheric contaminants. Investigation of atmospheric pollution in many cities, including the fourteen large cities in the United States surveyed¹ by the U. S. Public Health Service (1931-1933), have recorded the conditions that exist in some urban communities in the United

States and have brought out certain fundamental relations that are of importance in organizing and carrying out smoke and dust abatement programs.

Ely² has pointed out that "the so-called smoke abatement problem divides itself into two parts, the smoke problem and the dust problem. The smoke problem, i.e., smoke stacks, is one of combustion and it is always possible with proper equipment and design to stop a smoking stack. The other problem, that of dust and dirt, is a matter of air pollution, and its solution depends on many factors." It should be realized that the smoke stack, even when not smoking, may be the source of fly ash and dust, particularly in the case of pulverized coal furnaces with ineffective fly ash catchers.

In reference to dustfall due to substances other than smoke, the Chicago Association of Commerce in a report on air pollution points out the importance of "refuse in alleys, dust in the streets and vacant lots, dirt on rooftops, and material from tires, clothing, shoes, buildings and all other things that 'wear' as a result of busy city life. At times even soil from farms hundreds of miles away is important." Another form of dust particle that should not be overlooked is the pollen which, in certain concen-

* Report of the Committee
COMMITTEE ON AIR POLLUTION
Organized 1946.

trations, is responsible for allergic reactions in susceptible individuals.

To these more common forms of smoke and dusts, present to some extent in the air of practically every community, must be added the gases, fumes, vapors, and mists, originating particularly from industrial establishments, that are present in some communities as atmospheric contaminants in sufficient concentration to produce a nuisance, cause property loss, and in some cases affect the public health.

While the presence in the atmosphere of any of the contaminants mentioned may conceivably have health implications, it has always been difficult, and in many instances impossible to demonstrate actual damage to health.

Stead³ has included in the industrial contaminants that cause nuisances: (a) inert smokes and dusts, (b) mucous membrane irritants, and (c) malodorous substances.

Smokes that result from the combustion of fuel contain soot, fly ash, and unburned or partially burned fuel. Smoke alone, for example, in excessive quantities is disagreeable, discomforting, and of economic significance, but the evidence so far collected has not been able to establish a definite relationship between smoke and health.

The discharge into the atmosphere of dusts from industries such as smelters, cement plants, rock crushers, sand blast plants, and roofing plants, and of some of the organic dusts may, however, have health implications.

Mucous membrane irritants emitted from industrial plants include respiratory irritants such as sulfur dioxide, chlorine, and phosgene, and eye irritants such as acrolein, butadiene, chloroform, and hydrogen sulfide. The discharge of irritating gases into the atmosphere in objectionable quantities will naturally cause serious complaints.

Malodorous substances may originate from a variety of industries and other

sources including rendering plants, tanneries, soap factories, glue plants, oil refineries, sewage disposal plants, internal combustion engines, etc. Stern⁴ points out that "the chemical groups most frequently responsible for unpleasant odors are the sulfides, disulfides, mercaptans, thiocyanates, isocyanides, compounds analogous to the foregoing of selenium or tellurium, and aldehydes" and that "many of these substances are recognizable as malodorous at less than 0.1 p.p.m., some at as low as 0.0000001 p.p.m."

Various methods and techniques have been devised for locating and studying the source, distribution, and effect of atmospheric pollution. Unless the source and distribution of the contaminant can be determined by direct observation, the discovery of the origin of atmospheric contaminants may be a difficult one requiring the exercise of highly specialized technical skills. The "Report Submitted to the Trail Smelter Arbitral Tribunal," *Bulletin 453*, U. S. Bureau of Mines,⁵ is an illustration of the exhaustive technical investigation that may be necessary to determine the damage resulting from the discharge of SO_2 from a smelter under the meteorological conditions that existed in the area surrounding this plant.

A number of devices such as electrostatic and thermal precipitators, impinging apparatus, filters, and atomizers, have been developed for the sampling of dust and bacteria in air. These devices are described in various publications. Probably the most common measure of smoke density is the Ringelmann⁶ chart, which is used as a guide in the enforcement of many smoke ordinances.

To establish proof as to the distribution from a given source of such common substances as smoke or fly ash, a number of methods have been used or suggested. One method consists of adding radioactive salts to the smoke

stream in a stack and recovering the radioactive components in the area under observation. Another method described by Sinatt⁷ is the identification of cenospheres, which are hollow spheres that are produced when certain solid fuels are burned at temperatures above 600° F. in a limited air supply. If deposits of these cenospheres are recovered from the area of complaint, they constitute evidence of the source of the trouble.

An indirect effect of smoke and dust is the diminution of sunlight and the increase in fogs, clouds, and haze. Fogs accentuated by smoke and dust add to certain hazards associated with motor and airplane transportation. This hazard has been considered in connection with the location of some important airports in this country. Studies have been reported by Drinker⁸ on methods for eliminating fogs at airplane landings, but these have apparently not yet reached a practical stage.

The health hazards associated with the release of radioactive substances into the atmosphere have aroused world-wide interest. In times of peace some of the actual and potential sources of these radioactive atmospheric contaminants are plants producing plutonium, uranium, and radioisotopes, and possibly to some extent laboratories conducting experiments with radioactive substances. Studies⁹ have been made on the possibilities of the release of radioactive dusts and gases from atomic energy plants, and progress has been made in developing methods for health protection against atmospheric contamination from such plants. Much information on this subject is not yet released for publication.

The control of pollens responsible for allergic reactions in certain individuals has been given more attention in the past few years. Various methods have been tried to control hay fever pollen-producing plants, including cutting the

plants before they blossom, and chemical treatment. Among the chemicals recently used for the destruction of these plants, especially ragweed, which is a most important member of the hay fever producing group, is dichlorophenoxyacetic acid commonly known as 2,4-D. This is a synthetic plant hormone which disturbs plant growth and eventually destroys the plant. The chemical is usually applied in the form of a spray but may be dusted. A large number of communities are reported to have used 2,4-D, among them the City of New York.

Sol Pincus has made the following brief statement for this report concerning the use of 2,4-D by the New York City Health Department:

In 1946, it was estimated that 10,000 acres were infested with ragweed in the five boroughs. It was decided that the use of the new chemical, 2,4-D, dichlorophenoxyacetic acid, would be the most economical method to control ragweed in New York City. Starting very late in the season, we were able to control the growth of 3,000 acres of ragweed, which contributed probably to the unusually low atmospheric pollen concentration during the ragweed season. It was a cooperative program. Equipment and personnel were contributed by the cooperating departments with the Health Department coordinating the work, furnishing the technical direction, chemicals and supplies.

At the close of the 1946 season, a survey was conducted by the Police Department which resulted in 85 Precinct maps showing the locations and areas of ragweed growth in the city. These maps served as guides in the preparation of plans for the 1947 campaign.

It was estimated that 8,000 acres had to be treated in 1947. We obtained six high-pressure power spraying units from the War Assets Administration, two skid-mounted decontaminating units from the U. S. Public Health Service, and various supplementary equipment from the War Assets Administration.

Public and private vacant properties were treated alike without making a charge to the private owners. During the 1947 season, it is estimated that approximately 4,000 or 4,500

acres will be sprayed. It has been adjudged that one application of the chemical is sufficient to kill the ragweed or prevent the pollination and seed production.

A spray solution containing 1,000 p.p.m. of 2,4-D was used. This was applied at the rate of approximately 300 gal. per acre. The sodium and ammonium salts of 2,4-D were used. The cost of the chemical was approximately \$1.25 per lb., and the cost for the area sprayed including labor and use of equipment and chemicals, was approximately \$11.00 per acre, in 1946. Figures for 1947 are not yet available.

It was noted that the area sprayed during July and August of 1946 showed very little or no growth of ragweed during the 1947 season.

Many neighboring communities have instituted similar programs in reduction of ragweed pollen. This department cooperated in making available our experiences and also in giving a training course under New York University direction to health officers and other officials of these communities.

While encouraging results have been obtained in the elimination of hay fever pollen-producing plants in certain areas where regulatory measures are in effect, the control of pollens from outside areas still remains a problem. Investigations have shown the long distance that pollens may travel under meteorological conditions favorable to their migration. The question, however, of the kind and the concentration of hay fever-producing pollens, regardless of their source, becomes an important factor in dealing with any situation.

Various methods have been developed for sampling and counting air-borne pollen and for computing the results of such examinations in terms of pollen concentrations in the atmosphere. Dahl and Ellis,¹⁰ after a study of the methods for computing pollen concentrations state that "those which utilize volumetric factors derived from Stokes' law are less accurate than those methods which employ a unit area basis," and that "it is to be desired that reports should include a record of the amount of pollen per unit of area of the exposed

slide, whether volumetric data are computed or not."

The measurement of gases and vapors emitted from various sources presents serious difficulty when low concentrations are encountered, because the lower limit of most chemical methods is around 1 p.p.m. by volume. Some instruments, however, have been developed that are helpful in this connection. The Thomas Autometer¹¹ is one apparatus which will collect its own samples and measure and record concentrations of sulfur dioxide and sulfur trioxide as low as 2 parts per billion. This machine has also been developed to measure separately the concentration of other gases, including hydrogen sulfide, carbon disulfide, ethyl mercaptan, and thiophene. The method, at a higher operating temperature, is also applicable to chloroform, carbon tetrachloride, ethylene chloride and chlorobenzene.

Whipple¹² in 1921 pointed out many of the fundamentals in regard to odors and their relationship to odor nuisances in a discussion on odors and their travel habits.

The measurement of odors from various sources is attended by many difficulties. Various methods^{4, 13-15} that employ the sense of smell of the observer have been devised for evaluating the intensity of odors. Odor scales^{4, 16} indicating threshold odor concentrations and tables showing the concentrations and characteristics of various readily perceptible substances in air have been prepared.

Hemeon and Hatch¹⁷ point out that "osmometry is in need of research cultivation; we know little about it. Moreover, the subject of odors is inextricably entangled with psychological factors which although usually foreign to chemist and engineer cannot be ignored. The facts of olfactory fatigue and revivification by periodic variation in concentration are relevant, as is the

law expressing the logarithmic relation between sensory response and the magnitude of stimulus—i.e., concentration of the vapor or gas.”

The instrumental measurement of odors presents a difficult problem, however, because odors are due to the perception of molecules rather than a response to conditions. Some attempts have been made to develop physical methods of measurement, such as the work of Dyson,¹⁸ who used the Raman shift for this purpose. Apparently, however, no practical method has so far been devised, and there is need for research in this field.

A large amount of technical work has been undertaken on methods to prevent atmospheric pollution from smoke, dust, gases, vapors, and fumes.

Probably the greatest amount of attention has been focused on smoke control, since this kind of air pollution is obvious and attracts public attention. Fuels and combustion equipment and methods have been studied. As a result detailed information is available on the construction and operation of nearly all types of fuel burners to improve or correct combustion difficulties.

Extensive studies have been made on the polluting substances released from stacks and the dilution that may be anticipated under varying meteorological and other environmental conditions. Investigations of the U. S. Bureau of Mines¹⁹ indicate that factors of dilution of the polluting material at given points of travel can be computed with rough accuracy for a given horizontal distance if the stack velocity and wind velocity are known.

The importance of meteorological and other environmental studies should not be overlooked in selecting new plant sites, especially where gaseous waste disposal problems are anticipated.

Meteorological factors are involved both in the creation and in the solution of atmospheric pollution problems. For

example, there are the disturbing effects of temperature inversion, which cause a natural rise of atmosphere containing contaminants when the earth's surface is warmer than the air, but produce the formation of a so-called “lid,” holding pollution down near the earth's surface, when the earth is colder than the air.

The control of industrial dusts, gases, vapors, and fumes at the source also presents difficult technical problems. However, considerable progress has been made in their solution. Hemeon and Hatch¹⁷ mention among the available control methods the following: “scrubbing and absorption towers for vapors and gases, especially acid gases, various types of dust and fume collectors, and miscellaneous chemical processes such as combustion of organic contaminants or neutralization in conjunction with scrubbing.” In some cases the use of raw materials free from objectionable impurities may eliminate the difficulties, while in others the utilization of the contaminant in the manufacture of a useful by-product may provide a solution. These authors mention the substantial body of experience in gas cleaning in industry, much of which has not been applied to atmospheric pollution control. They emphasize the need for “further research and field study, particularly with respect to the collection of dust and fumes, to provide basic information on stack gas cleaning equipment and other control measures especially for small plants.”

Many large and small cities in the United States have recognized the problem of atmospheric pollution and have passed ordinances regulating smoke or smoke and dust, while some of the large cities have a relatively complete coverage of the important atmospheric contaminants. No attempt has been made in this report to make a nation-wide survey of the administrative control of atmospheric pollution. However, for illustrative purposes, information was obtained

on control practices in three large cities; namely, New York, St. Louis, and Los Angeles, which have organized control programs.

Control of atmospheric pollution in New York City* is an activity of the Bureau of Sanitary Engineering of the Department of Health under the general supervision of the Sanitary Engineer Director of the Bureau.

A special force of smoke inspectors has been organized consisting of one supervising inspector and six field inspectors. The regular district inspectors (approximately 70) take care of the routine complaints of smoke, odors, fumes, etc. The special smoke inspectors make investigations involving larger plants, utilities, harbor craft, etc. They also make surveys of air pollution in areas of greatest intensity of smoke discharge. The supervising smoke inspector checks over the work of the regular district inspectors in air pollution.

The district inspectors, in groups of five are given an intensive course by the supervising smoke inspector in methods of investigating and controlling air pollution. The course takes about six weeks.

Eleven committees have been organized to cooperate with the Health Department. These committees represent: (1) real estate and industry, (2) railroads, (3) utilities, (4) harbor craft, (5) solid fuels, (6) fuel oils, (7) public health aspects, (8) laws and legislation, (9) plant operation, (10) city departments, (11) public cooperation. The committees have met in most instances monthly with the Commissioner of Health and the Director of the Bureau of Sanitary Engineering.

Monthly sootfall collections have been made for the past five years from 13 locations, mostly in areas of high smoke

discharge. These monthly samples have been analyzed for solids and ash in both the water-soluble and water-insoluble components of the sample. The results obtained, when compared with those of previous periods, give a rough estimate of the increase or decrease in smoke discharge over wide areas of the city.

In comparison with the sootfall records obtained during a WPA air pollution survey in 1936, recent results show that there was a large increase in sootfall during 1943 and 1944, which has subsequently lessened considerably. The increase during the war period was concurrent with a tremendous overloading of coal-burning power plants.

A great amount of rehabilitation of fuel-burning plants and installation of soot collectors has been accomplished during the past two years. The large electric companies have made significant improvements at their generating plants at a cost of millions of dollars. A number of the industrial plants, hospitals, and mercantile establishments also have improved their fuel-burning equipment and put in soot collectors.

A detailed program for the extensive training of janitors and superintendents has been prepared and will start in the fall of 1947 in some of the Board of Education high school buildings.

At the same time that the janitors and superintendents are acquainted with methods of firing furnaces and preventing smoke and odor complaints, they will be given instruction in rodent and vermin control and in the sanitary maintenance of buildings.

A program for future extension of this work has been drawn up and will include the addition to the department of a mechanical engineer—an expert in smoke control work, two assistant engineers, and a number of field inspectors. This expansion is now awaiting the allotment of funds by the city authorities.

* Information concerning New York City was furnished by Sol Pincus, Senior Sanitary Engineer, New York City Health Department.

St. Louis* has attracted considerable national attention because of the extent of its air pollution problem and the efforts made to control it. These efforts, principally due to the anti-smoke ordinance and its enforcement, appear to have produced a definite and permanent improvement. This is particularly true of sootfall, visible smoke, and volatile sulfur compounds in the air caused by combustion of solid fuels.

The city, being located close to the Southern Illinois high-volatile bituminous coal fields, uses such fuel in great quantity. The anti-smoke ordinance secures the control of the pollution of air from such fuel use by a multiple approach:

1. It prohibits the use of high-volatile bituminous fuel except in mechanically-fired furnaces and power plants.
2. It requires the air- or water-washing of all high-volatile bituminous fuels to reduce sulfur compounds.
3. It sets certain limits for fly ash emission which invariably require collector installations on powdered-fuel power plants.
4. It has the usual and necessary measures of promoting proper firing, registration of new heating installations, maximum density and duration limitations for smoke emission and a qualified inspection force.

Enforcement of the anti-smoke ordinance is the responsibility of the Commissioner of Smoke Regulation who directs a division which is a part of a Department of Public Safety. The Health Division, a part of the Department of Public Welfare, works closely with the smoke control office and has assisted in providing some technical assistance, particularly along the lines of laboratory and air analysis techniques.

Most of the present air pollution problems center in fly ash emission from plants permitted to postpone collector installations due to wartime equipment

shortages and such emission from large plants near to but outside the city limits and, therefore, beyond the city's legal jurisdiction. Some smoke and chemical odor problems occur at times due to such materials being carried over the city from the highly industrial area just to the east of the city, in Illinois.

The remaining air pollution problems are, in general, not city-wide but rather limited to local neighborhoods, and are due to isolated industries producing objectionable dusts, fumes, or gases. Almost invariably, these cannot be demonstrated to be either a health hazard or a public nuisance (involving property damage over a considerable area). At present, the city charter and ordinances give power to the Health Commissioner to declare and abate public nuisances (after hearings). Those air pollution situations which come within this category can be and have been controlled by this legal means. The Health Division has extensive air sampling equipment and experienced personnel in its Industrial Hygiene Section. Through these means, it is able to locate responsibility and recommend and enforce corrective action.

The inadequacy of present laws for air pollution problems not of public nuisance proportions is recognized. Plans are now being made for the formulation of an overall air pollution control ordinance. Provision for an adequate and qualified staff is also planned.

The Los Angeles* air pollution control problem differs from that of most eastern cities. No coal is burned; instead gas is used by all homes and by most apartment buildings and hotels. In summer most industrial power plants are operated by gas, while in winter large power and heating installations employ oil burners.

The greatest accumulation of smoke

* Information concerning St. Louis was furnished by John Buxell, Engineering Director, St. Louis Health Division.

* Information concerning Los Angeles was furnished by Charles L. Senn, Engineer-Director, Sanitation Bureau, City Health Department.

and other air pollution is associated with hot summer weather when visible smoke production is at a minimum. This is due to the occurrence of extreme temperature inversions coupled with an almost complete absence of wind and turbulence.

A city ordinance places certain responsibilities for air pollution control on the Los Angeles Health Department. The Air Pollution Control Division of the City Health Department is one of the divisions of the Sanitation Bureau. The division personnel consists of a director, four inspectors and a clerk-stenographer. One inspector is responsible for collecting samples and for studies of industrial fumes and gas nuisances. A second devotes his entire time to railroad smoke control. A third is concerned principally with the control of smoke from Diesel trucks. The fourth inspector is assigned to the harbor district which includes the two major oil refineries which are located in the city.

Most of the control work is based on the use of the Ringlemann chart and on organoleptic tests. The facilities of an industrial hygiene laboratory are available. Samples are collected with electrostatic precipitators and two scrubbing devices. The main laboratory effort has been directed toward attempting to isolate the particular chemical that acts as a lacrimator, since eye and throat irritations are the principal causes for complaint by citizens.

The present status of the organization of the Department of Health is somewhat questionable because of newly enacted state legislation. An amendment to the State Health and Safety Code sets up a state-wide control system concerning smoke, dust, obnoxious gases, and industrial waste fumes discharged into the air. The act provides for the creation of smoke abatement districts that would be under the direct supervision of county boards of super-

visors, whose authority would supersede that of an incorporated city except where local ordinances are stricter than the state law.

It is obvious that the engineer must play an important part in the control of air pollution. The position of the engineer in this field and the knowledge necessary to function satisfactorily were discussed by Phelps and others²⁰ in a symposium on "The Role of the Engineer in Air Sanitation," of the American Society of Civil Engineers, 1941.

DISCUSSION

The control of atmospheric pollution is an administrative and technical problem that can be solved by engineering means. While there is no epidemiological information that will permit evaluation of the public health significance of many of the recognized air contaminants after they have been discharged into the atmosphere, their importance from the standpoint of the comfort and general welfare of the public and the individual involved cannot be overlooked.

The pollution of the atmosphere by dust, smoke, fumes, gases, vapors and mists as well as by pollen, should engage the attention of health departments at all levels of government, and qualified engineers should be called upon to meet health department responsibilities in this field of environmental sanitation.

The organization of the necessary administrative and technical activities in a health department will be governed to some extent by the facilities that can be made available. Trained professional personnel and technical facilities are required if air pollution is to be abated.

Since other departments of government too are concerned, directly or indirectly, with this problem, a coordinated program of activities is indicated.

There is an obvious need for research on many technical phases of atmospheric

control, especially on the meteorological factors affecting atmospheric pollution, methods for the instrumental measurement of odors, methods for the collection of dusts and fumes from industries, and methods for the control of air-borne pollen.

H. A. WHITTAKER, *Chairman*
JOHN BUXELL
G. M. FAIR
B. H. JENNINGS
SOL PINCUS, C.E.

Advisers:

C. P. YAGLOU, *Industrial Hygiene Section*
A. D. LANGMUIR, *Epidemiological Section*
STUART MUDD, *Laboratory Section*

REFERENCES

1. Ives, James E., et al. Atmospheric Pollution of American Cities for the Years 1931 to 1933. U. S. Public Health Service, *Pub. Health Bull. No. 224*. Washington, D. C., Gov. Ptg. Office, 1936.
2. Ely, S. B. Dust and Its Relation to Smoke. *Proceedings, Smoke Prevention Association of America, Inc.*, 1946. pp. 7-11.
3. Stead, F. M. Study and Control of Industrial Atmospheric Pollution Nuisances. *A.J.P.H.*, 35:491-498 (May), 1945.
4. Stern, A. C. Atmospheric Pollution Through Odor. *Heat & Vent.*, 41, 11:53-57 (Nov.), 1944.
5. Dean, R. S., and Swain, R. E. Report Submitted to the Trail Smelter Arbitral Tribunal. U. S. Bureau of Mines, *Bull. 453*. Washington, D. C.: Gov. Ptg. Office, 1944.
6. Monnett, Osborn. Smoke Abatement. U. S. Bureau of Mines, *Technical Paper 273*. Washington, D. C.: Gov. Ptg. Office, 1923.
7. Sinatt, F. S. The Formation and Structure of Cenospheres. *J. Soc. Chem. Ind.*, 47:151-155, 1928.
8. Drinker, Philip. Atmospheric Pollution. *Indust. & Engin. Chem.*, 31:1316-1320 (Nov.), 1939.
9. Bale, W. F. Health Protection in the Production and Use of Atomic Energy. *Occup. Med.*, 2:1-7 (July), 1946.
10. Dahl, A. O., and Ellis, R. V. The Pollen Concentration of the Atmosphere. *Pub. Health Rep.*, 57: 369-376 (Mar. 13), 1942.
11. Thomas, M. D., et al. Automatic Apparatus for Determination of Small Quantities of SO₂ in Air. *Indust. & Engin. Chem., Anal. Ed.*, 15:287-290 (Apr. 15), 1943.
12. Tribus, Louis L. Odors and Their Travel Habits. *Tr. Am. Soc. Civ. Eng.*, 85:378-427, 1922. Discussion by George C. Whipple, p. 392.
13. Katz, S. H., and Talbert, E. J. Intensities of Odors and Irritating Effects of Warning Agents for Inflammable and Poisonous Gases. U. S. Bureau of Mines, *Technical Paper 480*. Washington, D. C.: Gov. Ptg. Office, 1930.
14. Fair, G. M. On the Determination of Odors and Tastes in Water. *J. New England Water Works A.*, 47:248-272 (Sept.), 1933.
15. Fair, G. M., and Wells, W. F. The Air Dilution Method of Odor Determination in Water Analysis. *J. Am. Water Works A.*, 26:1670-1677 (Nov.), 1934.
16. DallaValle, J. M. Evaluation of Odor Nuisance in the Manufacture of Kraft Paper. *Pub. Health Rep.*, 54:35-43 (Jan. 13), 1939.
17. Hemeon, H. C., and Hatch, T. F. Atmospheric Pollution. *Indust. & Engin. Chem.*, 39:568-571 (May), 1947.
18. Dyson, G. M. The Scientific Basis of Odour. *Chem. & Ind.*, 57:647-651 (July 9), 1938.
19. McElroy, G. E., et al. Dilution of Stack Effluents. U. S. Bureau of Mines, *Technical Paper 657*. Washington, D. C.: Gov. Ptg. Office, 1944.
20. Phelps, E. B., et al. The Role of the Engineer in Air Sanitation. A symposium. *Tr. Am. Soc. Civ. Eng.*, 106:9 134, 1941.

Course on Financial Problems in the Nursing Field

A short course on Financial Problems in Schools of Nursing, Hospital Nursing Services and Public Health Nursing Agencies, 2 semester hours, will be given July 12 through 23, 1948, in the Division of Nursing Education, Indiana University, Bloomington, Ind.

This course is especially designed for directors of basic nursing curricula, directors of hospital nursing services, and directors of public health nursing

agencies. It should also be of interest to board members of public health nursing agencies, hospital administrators, and college and university administrative officers who are concerned with basic nursing curricula.

Information and application forms may be secured by writing Mrs. Eugenia K. Spalding, Director, Division of Nursing Education, Indiana University, Bloomington, Ind.

The Sanitary Engineer in Hospital Construction and Maintenance*

A. H. WIETERS, F.A.P.H.A.

Director, Division of Public Health Engineering and Industrial Hygiene, State Department of Health, Des Moines, Iowa

THE greatest hospital construction program in the history of this country was launched with the passage (by the 79th Congress) of the Hospital Survey and Construction Act (P.L. 725). This act authorizes an annual appropriation of \$75,000,000 for each of five years for grants-in-aid for the construction of hospital facilities. The program is to be administered largely by the states under the general supervision of the U. S. Public Health Service. One of the provisions in the act requires the states participating in the program to regulate the operation and maintenance of the hospitals built with federal aid.

Only a few states previously regulated construction and operation of hospitals, but now, for the first time, the construction, maintenance, and operation of most hospitals will be under state regulation. In about three-fourths of the states, the health department will be the administering agency.

A comprehensive nation-wide inventory of existing hospitals and survey of needs for hospitals in the United States in 1945 revealed not only a great shortage of adequate hospital facilities, but also a serious maldistribution of existing facilities. Thus, a large segment of the total population finds itself with no hospital facilities readily available. Furthermore, the inventory revealed that many of the existing services failed to

provide acceptable hospital care by any reasonable modern standard because of grossly inadequate physical plants and staffs. Consequently another large segment of our population lacks satisfactory hospital facilities.

Time will not permit, nor is it within the scope of this paper, to discuss these needs. Suffice it to say that the objective of the present program is to assist the several states to survey their needs for hospitals, to develop plans for construction of facilities for furnishing adequate hospital services for all the people, and to construct such hospitals.

Many professional skills must be combined in the development of construction plans for a modern hospital. The hospital is more than a building. It is a workshop and, as such, the building layout and the type and arrangement of equipment must be carefully planned so that the entire facility will function effectively and economically. The hospital and its equipment are the tools used by the physicians, the nurses, and allied technical hospital personnel in caring for the sick.

Obviously, those responsible for operating the hospital must have a voice in the functional planning. Equally important are the engineers and architects who translate the functional plan into a working drawing and a finished facility. The final plan must be the result of close teamwork of those representing the various and highly technical skills involved.

* Presented before the Engineering Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 9, 1947.

In the operation and maintenance of a hospital, again teamwork is essential for successful and economical service. All of the engineering problems encountered in ordinary building operation, plus many additional ones, must be solved. These are made the more difficult in that even short lapses in operation of any of the equipment or appurtenances cannot be tolerated and much maintenance must be carried out while the plant is in full operation.

The sanitary engineer should be a member of such a team. While sanitary engineering principles have long been applied in hospital construction and maintenance, the sanitary engineer has not been closely identified with hospitals to any great extent in the past. A few large architectural firms specializing in hospital design have formerly employed sanitary engineers; however, most architects do not have sanitary engineers on their staffs. In only a few of the states have architectural plans been subject to review by sanitary engineers. Likewise, in but few of the states and larger cities has the sanitary engineer been called upon to contribute his services in the operation and maintenance of hospitals.

Most of the principles of hospital sanitation are the same as are applied to other types of buildings; however, the hospital is unique in that many of the occupants are potential, if not known, active carriers of disease. Therefore, faulty design, breakdown, or lapse in proper use and operation of equipment is fraught with greater danger of spread of disease than would be the case in other buildings. Also the occupants are, for the most part, in a weakened condition and thus are more susceptible to ill-effects from faulty environment than are occupants of other buildings.

As previously stated, in both the design and operation of a hospital, the functional as well as the architectural and engineering phases must be coördi-

nated for efficiency and economy. The sanitary engineer is in a unique position by training and experience to serve in a liaison capacity between those doctors, nurses, hospital administrators, and others responsible, on the one hand, for operating the hospital, and the engineers and architects responsible for design, construction, and equipping of the hospital on the other.

What is the extent of the sanitation problems in hospitals? Complete morbidity statistics would be the best criterion for the evaluation of sanitation problems. Unfortunately such data are very incomplete. It is known that there are numerous recurring outbreaks of diarrhea and skin infections among infants in hospitals, of food poisoning, and of cases of cross-infections which are never reported to health authorities. It is also known that many of these cases of disease result from faulty environment. That potential hazards, readily recognized by sanitary engineers, are commonly found in hospitals is indicated by many surveys that have been made. In existing buildings, serious defects in plumbing have been very common. According to a recently published report, food sanitation in the hospitals in one of our largest cities was rated lower than in the public restaurants in the same city, and in the latter was far from satisfactory. Crowding, lack of sufficient good equipment, and unsatisfactory working spaces and equipment are known in many cases to be more responsible for breaks in technique which result in spread of disease than incompetence of employees.

The sanitary engineer is largely concerned with the sanitary features of structures and equipment and their maintenance and operation. However, these are so closely related to functional and other features of design that a distinct line of demarcation cannot be drawn. The layman, and even other professional engineers, too often do not

seem to realize that the sanitary engineer is basically trained in fundamental engineering principles in common with other professional engineers in addition to his training in public health.

Many phases of professional engineering are involved in hospital design, construction, maintenance, and operation, and more than one specialty is frequently required in the design of a piece of equipment. For example, a dishwashing machine may be designed by a mechanical engineer. However, there are important sanitary implications in the design, the installation, and the operation of such a machine which must be considered in the interest of public health.

The services of the sanitary engineer in hospitals should be utilized in two ways: (1) in design, maintenance, and operation of facilities and equipment which comes more or less within the scope of his usual activities, many of which, however, have special significance in the hospital; (2) in coöperating with the medical and allied professions, in further study of potential health hazards in the environment of the patient about which little is known.

In the first category, the following items may be enumerated:

Site—Many future sanitary problems of maintenance and operation can be avoided by proper site selection. Availability of an adequate, safe water supply, proper drainage, and means of safe and economical disposal of sewage and wastes are very important factors in site selection. Insect breeding areas, sources of noise, smoke, and dust in the immediate area must be given careful consideration.

Sewage disposal—Where no sewer system is available, sewage disposal may be a particularly troublesome problem. Because of the potentially infectious nature of the sewage from a hospital, a high degree of treatment and special precautions are necessary. Large volumes of laundry and cleaning wastes may complicate the treatment problem. Operation and maintenance of these facilities likewise require special knowledge, usually not possessed by hospital operating personnel.

Plumbing—Because of a relatively large quan-

tity of infectious material which is introduced into the drain system, plumbing is of special importance. Many special fixtures used in hospitals, and which are not in common use elsewhere, are inherently dangerous unless adequately protected. These factors make precautions against backflow doubly important. Relatively large amounts of water are used in hospitals and peak demands are high. To assure adequate and uninterrupted pressures in all parts of the building under all operating conditions requires very careful design. For the same reason, drains must be carefully planned.

Food Handling—While general sanitary principles in the storage, preparation, and handling of food and the cleansing and disinfection of utensils apply, opportunity for contamination is so great and effects may be so disastrous that unusual precautions are necessary.

Garbage and Waste Disposal—The hospital has the usual problem of the proper disposal of ordinary kitchen garbage and rubbish. Also the handling and sanitary disposal of contaminated and infectious material, which is peculiar to hospitals, presents a problem.

Lighting—In addition to the hygienic and safety aspects of general lighting, special lighting in certain areas, such as surgery, dispensary, formula room, etc., is imperative. Uninterrupted lighting in certain areas is a must item.

Heating and Ventilation—In addition to general heating and ventilation, several areas within a hospital require special consideration.

Laundry—Although commercial laundering practices are quite well standardized, and in modern practice effective germicidal action is incidental to thorough cleansing, the handling of soiled laundry requires special attention.

Sterilization Equipment—Possibility of contamination of the water supply or of the contents of sterilizers is extremely important and the very nature of this equipment makes it difficult to construct sterilizing equipment which is fully protected. Also unless the equipment is meticulously operated and maintained, complete sterilization results will not be uniformly obtained.

General Sanitation—There are many other considerations which will facilitate general cleanliness and good housekeeping, such as floor and wall construction of durable, easily cleaned material, and adequate and conveniently located hand washing and toilet facilities for employees. Insects and rodents often constitute serious problems in hospitals, and control measures, both as to construction and operation, are of great importance.

In a second category, of first importance is the study of the spread of disease from patient to patient, from patient to employee, or the reverse, within the hospital. While this is primarily the function of a trained epidemiologist, the services of a sanitary engineer should be used to a greater extent. In the past, to the writer's best knowledge, sanitary engineers have had little opportunity to assist in such investigations, although it has been common practice for many years to utilize the services of the sanitary engineer in other epidemiological studies where environmental factors were involved.

There are other items on which further information is needed. While perhaps some of these studies should primarily be conducted by professional personnel other than sanitary engineers, it is believed that sanitary engineers could render valuable assistance. No attempt is made to enumerate all such items, but the following will illustrate some of the needs:

Is general ventilation (including temperatures, humidity, and air movement control) indicated in the hospital? Is it permissible to recirculate air in the surgery, the nursery, the labor and delivery rooms, and contagious wards? Is it ever permissible to recirculate air from any one patient area to another?

In view of the limited studies that have been reported, and of the lack of conclusive evidence of substantial benefit, what policy should be adopted on use of ultra-violet ray air sterilization in surgery, nursery, contagious wards, formula room, etc.? On use of aerosols?

Should completely separate dishwashing facilities be required for a contagious section or tuberculosis section? If so, is it permissible to return clean dishes from this section to the general kitchen for serving?

Should linens from the contagious section, tuberculosis section, etc., be laundered separately from the general

laundry? Should linens receive germicidal treatment before being removed from these sections to the hospital or a commercial laundry? If given no such treatment, what special precautions should be taken by personnel who handle such linen in the laundry?

Should feces and urine from known or suspected cases of intestinal infection or other infectious material be germicidally treated before discharge into a public sewer? Or into a private sewer?

What special precautions should be taken in handling and storage of patients' clothing?

Should mattresses in the contagious section be sterilized after discharge of each patient? Does laundering at low temperatures (wool 120° F.), particularly from the contagious section, provide ample protection?

Is it permissible to include food left on plates from the contagious or the tuberculosis section in garbage which is fed to hogs?

Adequate information is not available on peak water usages on which to base intelligent design of water piping and drain systems.

No public laboratory now exists where hospital plumbing fixtures and appurtenances can be tested.

These and many other questions remain to be answered.

One of the requirements for federal aid under the Hospital Survey and Construction Act is that states must regulate the operation and maintenance of hospitals receiving such aid. Under this stimulus, many of the states already have, and most of the others probably will make, provisions for licensing of all hospitals. Sanitation should play a prominent part in any such regulation and thus for the first time in many states the sanitary engineer will have an opportunity to participate in hospital planning, operation, and maintenance.

In most hospitals, various individuals

have responsibility for some phase of sanitation with little correlation or general direction. Probably very few hospitals are large enough to justify employment of a full-time sanitary engineer, yet sanitation problems are of sufficient importance in hospitals of all sizes to warrant more attention than has been accorded them in the past.

It would be desirable, wherever feasible, to have one person on the hospital staff, preferably with sanitation training, who is responsible for all phases of sanitation, with such assistance and guidance of local or state health department sanitation personnel as may be needed.

The state and local health department sanitary engineers should be available to review plans and specifica-

tions, from a sanitation standpoint, for new construction and for revamping existing structures; to make sanitary surveys of existing hospitals and advise as to physical changes and operation procedures which would improve sanitary conditions; to advise and guide personnel who are responsible for operation and maintenance of equipment; to participate in inservice training of employees; and to study means of improving hospital sanitation.

With the advent of a huge hospital construction program, coupled with the control of operation and maintenance of most hospitals by the state, the sanitary engineer is presented an opportunity to extend his services into a field with which he has not been closely identified in the past.

Best Sellers in the Book Service for May

An Appraisal Method for Measuring the Quality of Housing: A Yardstick for Health Officers, Housing Officials and Planners.

Part I. Nature and Uses of the Method, 1945..... \$1.00

Part II. Appraisal of Dwelling Conditions. 3 Vols. 1947..... 5.00

Approved Laboratory Technic. Kolmer & Boerner. 4th ed. 1945..... 10.00

The Control of Communicable Diseases. 6th ed. 1945..... .35

Diagnostic Procedures and Reagents. 2nd ed. 1945..... 4.00

Fundamentals of Immunology. Boyd. 2nd ed. 1947..... 6.00

Milk and Food Sanitation Practice. Adams. 1947..... 3.25

Public Health Administration in the United States. Smillie. 3rd ed. 1947..... 6.50

Sexual Behavior in the Human Male. Kinsey. 1948..... 6.50

Standard Methods for the Examination of Water and Sewage. 9th ed. 1946..... 4.00

Order from the Book Service

AMERICAN PUBLIC HEALTH ASSOCIATION

1790 Broadway

New York 19, N. Y.

Sanitary Ventilation*

W. F. WELLS, F.A.P.H.A.

*Associate Professor of Research in Airborne Infection, University of Pennsylvania
School of Medicine, Philadelphia, Pa.*

FIFTEEN years ago we demonstrated before a joint meeting of these sections an apparatus for the study of the bacterial behavior of air¹; at the meeting ten years ago we described a method for the measurement of sanitary ventilation²; five years ago we discussed air disinfection in day schools³; this paper considers the sanitary significance of ventilation. Paradoxically, the hygienic interest in ventilation waned with rise of sanitation. Before the patterns of spread of ingested infection and inhaled contagion were clearly differentiated, the sanitary disproof of the miasmatic origin of enteric infection discouraged further belief in air-borne respiratory contagion; transfer of contagious disease then was ascribed to personal contact.

Even in the most congested districts of our largest cities, contact infection was of secondary consideration in the environmental control of typhoid fever. The gradual decline in residual typhoid resulting from elimination of carriers created by water-borne infection came as a minor and unpredicted bonus, compared to the reduced rates immediately following an investment in pure water.⁴ In the control of contagious epidemics on the other hand, such as measles, for instance, or influenza, where a single case can initiate a contagious chain of

growing generations of infection, quarantine has until recently been the only environmental means available. Whereas the relatively static dissemination of infection in space dominates spread of typhoid fever and other water-borne intestinal infections, the propagation of air-borne respiratory contagion in time is intrinsically dynamic.

DYNAMICS OF CONTAGION

The autocatalytic nature of contagion has been expressed mathematically for theoretical epidemics in homogeneous aggregations homogeneously exposed. "Almost all workers in the analytical theory of epidemics assume that the rate at which an infection passes in a population is proportional jointly to the product of the number of persons I who are infectious and the number of persons S who are susceptible to the infection. This is called the law of mass action. Thus, if the rate of new infections be C the law is written as $C = rIS$, where r is a constant,"⁵ r then being the effective contact rate. This elementary equation approximately describes the dynamic pattern of intra-aggregational spread of contagion.

EFFECTIVE CONTACT RATE

In the study of contact infection, measles has played a leading role and is suggested as a natural index for study of the dynamics of droplet nuclei contagion. The value of S in the above formula is directly indicated; persons

* Presented at a Joint Session of the Engineering and Industrial Hygiene Sections of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 7, 1947.

The work reported in this communication was supported by grants from the Commonwealth Fund.

are assumed to be susceptible before, and immune after, having measles. Also, the value of I is generally ascertainable; direct exposure to a previous case the second week before symptoms appear can usually be detected; younger children normally contract the disease when exposed in the home.

In a quantitative study of effective contact the suburban primary school offers decided advantages: children ordinarily enter school before having measles but contract this disease before graduation; in school they are homogeneously exposed within standard classrooms; both exposure and effective contact can be established through attendance records.

By such means the effective contact rate r of measles in classrooms of three suburban primary schools during the past four years has been evaluated.⁶ Among approximately 791 susceptible

classmates of pupils who became ill with measles while attending classes (a unit of exposure), 87 contracted the disease after a normal incubation period. An effective contact rate of 11.0 per cent is consistent with unproductive exposures observed in schools⁷ and should theoretically yield in the formula some indication of productive exposures in classrooms meeting with Pennsylvania code requirements of ventilation.

INTRAGROUP CONTAGION

As compared with 80 or 90 per cent secondary attack rate among primary school children in families reported by Chapin,⁸ an effective contact rate of 10 per cent in classes may seem unimpressive, but this represents merely the static infection in a single generation. Most of the infected pupils attend class until symptoms appear, and by reëxposing their class become the infectors

THRESHOLD SANITARY VENTILATION

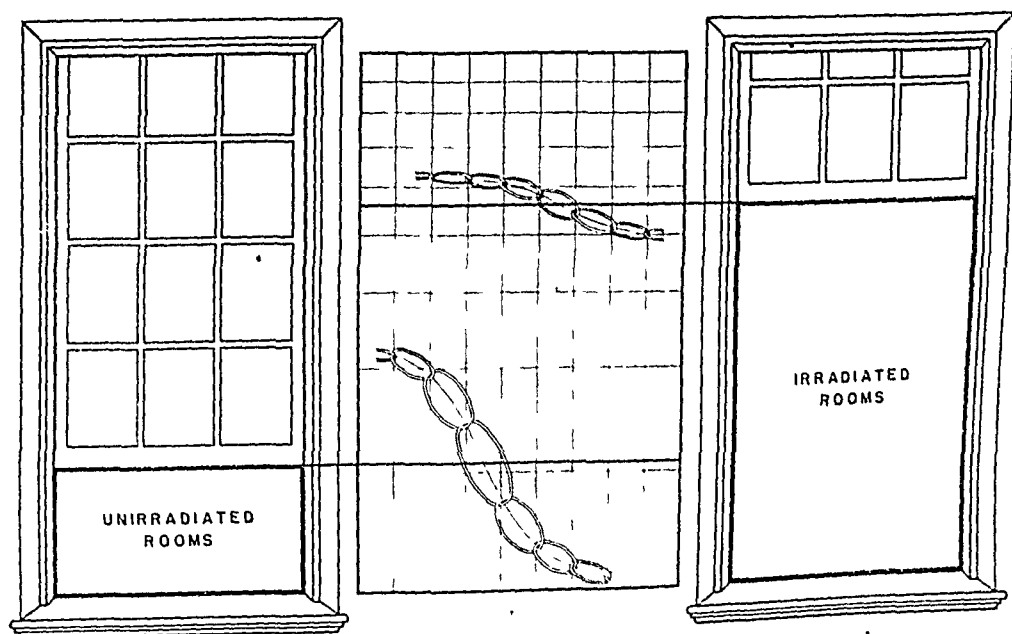


CHART I—Diagram Relating Sanitary Ventilation to Air-borne Contagion

Area inside each link of chains of generations of infection in irradiated and unirradiated schools during 1941 epidemic corresponds to percentage of susceptible pupils infected in that generation period, i.e., week and half. Center of largest link indicates number of susceptible pupils sharing ventilation at peak of epidemic when generations begin to decline, thus locating threshold sanitary ventilation per susceptible pupil. Chart on which chains are constructed described in Dynamics of Air-Borne Infection, *Am. J. M. Sc.*, 206:11-17 (July), 1943.

of a second generation. This linkage of cases in one generation to infectors of the next forges the chains of successive generations illustrated on Chart 1.

Obviously while cases exceed infectors rS is greater than unity and generations are growing, reach a "steady state" at the peak of the epidemic when $rS_T = 1$, and decline when infectors exceed cases, or rS falls below unity. The "density" of susceptible persons, S_T , at the epidemic peak, or the reciprocal of the effective contact rate, is called the "threshold," because if this "density" is not maintained by accession of persons susceptible to the disease, as when contagion becomes endemic, cases are sporadic and the disease dies out. During an epidemic the "density" theoretically falls as far below as it started above the "threshold," though our school results seem to indicate a proportional rather than an absolute relationship.⁹

To one accustomed to the erratic behavior of measles in classes such an orderly array may seem unrealistic, yet the diagonal on Chart 2, approximating the computed total infections for classes of differing susceptibility, portrays diagrammatically the pregnant fact that the percentage of susceptible pupils who contract the disease when introduced into classes increases with the number of susceptible children in the classrooms. The reality of this fact is indicated by the percentage of susceptible pupils in different grades of a large centralized school near Syracuse who contracted measles during a recent epidemic.¹⁰ With enrolled classes of 33 pupils (an approximate average) the numbers plotted on the chart correspond with percentages of susceptible children in the grades. Since the cases contracted outside the classroom are included in these data, the plotted number of cases per 100 susceptible children exceeds somewhat the number resulting only from dynamic spread of measles

within the classroom. Nevertheless it becomes evident that "crowding" is a major factor in the contagiousness of measles.

SANITARY VENTILATION

Now in terms of droplet nuclei infection, S is proportional to the amount of infected air breathed by susceptible persons; I to the amount of infection contributed to the air by the previous generation of cases; and r to the dilution of infection afforded by ventilation, or to the reciprocal of VS , where V represents ventilation per susceptible occupant (Chart 1). The substitution of these factors has proved the basic equation of the law of mass action to apply in quantitative experimental air-

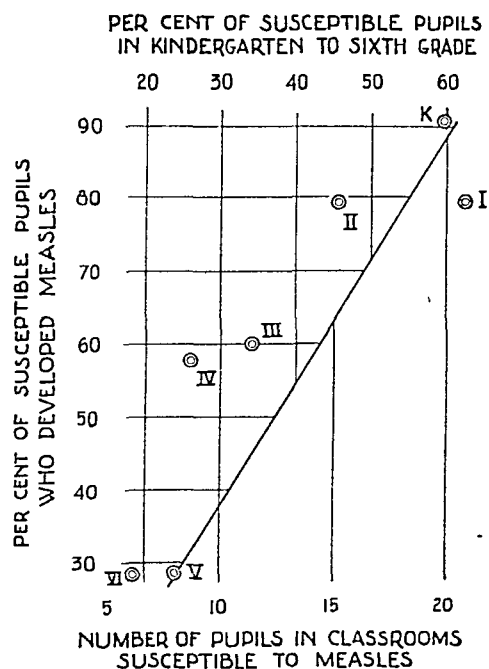


CHART 2—Increasing Percentage of Susceptible Pupils Who Develop Measles as Number of Susceptible Pupils per Classroom Increases

Diagonal approximates percentage computed with 10 per cent effective contact rate per generation. Marked circles indicate percentage of susceptible pupils in primary grades of Mexico School who developed measles in 1946 epidemic (10). Percentage of susceptible pupils corresponds to 33 pupils per class (approximate average).

borne tuberculosis in rabbits.¹¹ Since rS_T becomes unity at "threshold density of susceptibles," ventilation per susceptible occupant at this "density," V_T , becomes the natural sanitary unit of ventilation and the law of mass action, as applied to air-borne contagion, then becomes $CV = IV_T$. Only below threshold ventilation, or when V is less than V_T , can droplet nuclei contagion become epidemic; cases are sporadic when V exceeds V_T , and the infection dies out.

Ventilation is usually expressed as cubic feet of fresh air replacement, or cubic feet per occupant—per susceptible occupant in sanitary ventilation. Sometimes it is more convenient to express ventilation in air changes of confined atmospheres, and if a *lethe* of disinfection is defined as the bactericidal equivalent of bacterial removal by dilution with one air change (one volume pure air replacement with continuous mixing), sanitary ventilation by air disinfection can be expressed in cubic foot-lethes.¹² By principles underlying these transformations elaborated elsewhere,² sanitary ventilation can be measured bacteriologically by the equilibrium concentration of standard test organisms, atomized at a constant rate into an enclosed atmosphere at representative locations, determined at another representative location with and without air disinfection. Multiplying the die-away rate without disinfection by the ratio of equilibrium concentrations gives *lethes*, or equivalent air changes.

Radiant disinfection of air in primary schools has played a dominant role in the experimental study of sanitary ventilation. The number of air-suspended bacteria killed by irradiation of a dry confined atmosphere can theoretically be deduced from a generalized hypothesis combining three accepted laws: the inverse square law of radiant intensity; the Roscoe-Bunsen law of

reciprocity of time and identity of exposure; and the quantum (logarithmic) law of disinfection.¹³ By this hypothesis the number killed becomes proportional to the number of photons, or to ergs of radiant energy intercepted by living bacteria. If a ray be regarded as a constant stream of photons, then the number of photons in a confined atmosphere is proportional to the total lengths of the rays between the points of entrance and disappearance from the enclosed space. Dividing the volume of the room into this total length, or the sum of the products of the rays into their length, gives average intensity. Thus, radiation in watts multiplied by average ray length in feet gives total irradiation in foot-watts which, divided by room volume in cubic feet gives average intensity in watts per square foot.

This reciprocal relationship between radiant flux and distance traversed through an enclosed space is obvious with uniform light intensity. Thus, one watt of uniform parallel light, such as sunlight, traversing 10 feet of a transparent column 10 feet long and of 1 square foot cross-section, will irradiate 10 cubic feet to 10 foot-watts, or 1 foot-watt per cubic foot, giving an intensity of 1 watt per square foot. In like manner, 10 watts falling perpendicularly upon 10 square feet of a side, passing through 1 foot of this column, will also irradiate 10 cubic feet of air to 10 foot-watts, giving average intensity of 1 watt per square foot. In any position or in any form, 10 cubic feet would be irradiated by 10 foot-watts, the product of the flux into mean ray length. Regardless of the form of the space or the direction of the rays, irradiation is given by radiant flux multiplied by mean ray length.¹⁴

It follows from the generalized law of radiant disinfection that the greatest number of organisms suspended in a given volume of air are killed when uni-

formly exposed to a given amount of irradiation, the lethal efficiency of uniform irradiation therefore being a maximum. We were unable to irradiate large spaces uniformly but were able to devise a chamber providing uniform exposure to a point source at the center, toward which air flowed with a velocity inversely proportional to the square of the distance from the source. The product of time and intensity of exposure of air-borne organisms to the source was therefore constant at any point, and the determined foot-lethes divided by computed foot-watt minutes of exposure, or the product of average intensity by time of exposure, gave the lethal equivalent of irradiation. Against standard bacterial suspension in dry air 0.002 foot-watt minutes of irradiation in the 2537Å wave band was equivalent to a cubic foot-lethe, less than a tenth of the irradiation required in humid air, on moist agar surfaces, or in aqueous suspension.¹⁵ If radiation in this wave band be adopted as standard lethal radiation, then a foot-watt minute of standard uniform lethal irradiation is equivalent to 500 cubic foot-lethes of standard air disinfection, or cubic feet of sanitary ventilation.

But it is not feasible to irradiate the occupied zone of a room to the desired average intensity; and, so, irradiation efficiency in practice depends upon design. Generally the amount of irradiation realized from a radiant source in an enclosed space depends directly upon mean ray length; the uniformity of irradiation of the space normally increases with mean ray length, the uniformity of exposure depending upon air circulation usually increases as rays are lengthened; and the disinfection of organisms en route from occupant to occupant approaches average disinfection as rays are lengthened. The hygienic rating of disinfection thus increases *inter alia* with mean ray length.¹³

The role of air circulation in equal-

izing exposure of air-borne organisms to differing intensity in ventilated spaces is little appreciated by those who have not measured radiant disinfection by bacteriologic procedures. With good design, air circulation between the occupied and upper irradiated zone, expressed in terms of the amount of recirculation of the air through a chamber uniformly irradiated with the given number of foot-watts exceeded three air changes per minute. Thus, by radiant disinfection with 6 foot-watts per pupil, more than twenty times the sanitary equivalent of standard school ventilation—exceeding threshold sanitary ventilation (Chart 1)—has been attained in experimental schools.¹⁶

DYNAMIC EXPERIMENT

Measles epidemics would not propagate in these schools according to the dynamic hypothesis discussed above. Records^{17,16, 4, 6 *} of nine years' experience in the irradiated Primary Department of the Germantown Friends School and six in the two Swarthmore Primary Schools, as compared with four years' experience in the unirradiated Primary Department of the William Penn Charter School and the two Nether Providence Primary Schools, indicate that:

1. The effective contact rate of measles in classrooms was reduced; per hundred susceptible classmates of a pupil becoming ill with measles while attending class (unit of exposure) 11.0 contracted the disease in unirradiated schools, during the second following week, as against 3.1 in irradiated schools.

2. The dynamic spread of the measles in the school was checked; per hundred susceptible pupils of unirradiated schools more than twice, and in classrooms more than five times, as many were infected.

3. The community threshold for primary school children was raised; per hundred pupils in unirradiated primary schools, half again as many had had measles.

* Note: presented on slides at the meeting but omitted on editorial grounds.

Q Fever in Los Angeles County

Description of Some of Its Epidemiological Features

CHARLES C. SHEPARD, M.D., AND
ROBERT J. HUEBNER, M.D.

Division of Infectious Diseases, National Institute of Health, Bethesda, Md.

Q FEVER has been found to occur in Los Angeles County, California, in an apparently endemic fashion, and this paper describes certain characteristics of the disease in that area.

Two naturally occurring outbreaks of Q fever are known to have taken place in the United States. The first appeared in Amarillo, Tex., in March, 1946,¹ and the second in Chicago, Ill., in August, 1946.² These two epidemics were alike in many respects; both were sharp outbreaks arising from occupational exposure of susceptible persons to stock being slaughtered or moving to slaughter. The attack rates were high in both instances, being over 50 per cent in the most heavily exposed groups, and the dates of onset of the cases were distributed over a 2 to 3 week period, the variation being chiefly accounted for by the spread in incubation period of the human disease.

It seemed clear from studies of the two outbreaks that infected cattle in Amarillo and infected calves or sheep in Chicago had been the source of human infection, and that transmission to slaughter-house workers had come from infected tissues and body fluids either by direct contact or by means of droplets of splattered fluids. Ticks had been very rarely seen on animals in either of these locations, and, in Chicago, cases did not tend to develop in persons associated with operations on hides, but instead were concentrated in personnel handling viscera.

Although the means by which the human beings had become infected was somewhat clarified by these studies, the manner of infection of the animals was not obvious, and it was not possible to gain a clear picture of the natural reservoirs of the disease in this country. For one reason the infectious source had long since been removed when the outbreaks occurred, and the epidemiological investigations were necessarily retrospective. The endemic area now found in Los Angeles County appears to provide suitable material for investigation of the natural reservoir problem.

The apparent lack of an insect vector in the two American outbreaks and their explosive and isolated nature seems to be different from the picture in Australia.³

THE OUTBREAK IN LOS ANGELES COUNTY *General Description of Area—*

The cases which have been found have developed in the milk shed area of Los Angeles County. This zone is in flat land 10–30 miles southeast of the center of the city of Los Angeles. The climate is warm and dry and moderated considerably by the Pacific Ocean.*

This dairy area is one of the most concentrated in the world. There is

* Weather bureau records show that in Los Angeles since 1877 the average yearly rainfall has totaled 15.55 inches with 14.22 inches of this falling in the months from November through March. The average temperature for the same period has been 63.0° F. with monthly means varying from 55.6° in January to 71.4° in August. In 1946 the highest temperature was 95° and the lowest 38°.

TABLE 1
Human Cases of Q Fever

No.	Age	Sex	Pneumonitis	Days of Fever	Date of Onset	Complement-fixation titer	Date Sample taken	Remarks
1	62	F	By x-ray	?	11-20	128	5-25	No definite exposure to dairies recalled.
2	51	M	By x-ray	11	11-25	128	6-7	Had visited small farms.
3	31	M	By x-ray	21	12-28	128	5-27	Visited dairy occasionally.
4	35	M	By x-ray	10	2-6	128	4-28	Visited dairies frequently.
5	29	M	By x-ray	9	2-11	256	5-26	Visited dairy about 3 weeks before onset.
6	15	M	Physical findings and bloody sputum	21	2-23	512	4-28	Frequently played around dairy.
7	45	M	Physical findings	6	4-6	64	5-21	Had visited dairies.
8	32	F	Physical findings and bloody sputum	10	4-13	512	4-28	Home 100 yards from several dairies.
9	27	F	By x-ray	12	4-20	512	6-4	Home 100 yards from dairy.
10	30	M	By x-ray	12	4-24	128	5-22	Two dairies across street.
11	28	M	By x-ray	11	4-26	0	4-30	Visited dairy 1 27 days before onset.
12	50	M	By x-ray	12	5-1	64	5-16	Cows kept in field beside house.
13	35	F	Physical findings	6	5-10	128	5-17	Home 200 yards from dairy.
14	36	M	Physical findings	7	5-14	0	5-21	
15	26	F	No x-ray. No physical findings of pneumonitis	10	5-15	512	5-16	No definite exposure to dairies recalled.
						4	5-23	Wife of Case No. 10.
						512	6-4	
16	30	M	By x-ray	8	5-20	0	5-26	Home 100 yards from several dairies.
17	39	M	By x-ray	10	5-22	512	6-5	
						0	5-28	Home surrounded by dairy pens.
						128	6-2	
						128	6-9	

as has been described by others. The onset was acute with fever, headache, chills or chilly sensations, and body aches and pains. Cough was frequently complained of but was not a prominent symptom. The sputum which was sometimes produced was at times blood-tinged. Chest pain was common and was usually of a lateral distribution, although a feeling of substernal congestion was frequent. Physical examination of the chest often revealed little of note except perhaps suggestive findings. Respirations were elevated when pneumonic involvement was extensive. Roentgenography revealed a pneumonic process which was usually diagnosed as "atypical" pneumonia when patchy, and "early lobar" pneumonia when diffuse. The leucocyte count tended to be normal or slightly elevated. The illness ran a course of 1 to 3 weeks' fever with

prolonged convalescence especially in older patients. No deaths were found which could be attributed to Q fever.

Many of the patients had recovered when first visited and the criteria of diagnosis had then to be a typical clinical history and the presence of specific complement-fixing antibodies. When patients were seen in the acute stage, blood was obtained, so that a rise in antibody titer could be shown with a later specimen. In addition the clot from the acute stage blood was inoculated into guinea pigs in an attempt to isolate *R. burneti*. It is felt that the diagnosis was firmly established by the demonstration of a marked rise in antibody during the illness or by the isolation of the etiologic agents.

Isolation of *R. Burneti* into guinea pigs was successful in cases No. 8, 11, 14, and 16. The strains were also es-

their antibodies in the course of their work, the results indicate the rate of exposure, since some of them had developed antibodies in less than one year's experience. The dairy workers with negative sera could have become so after having been positive at an earlier date, so that it is possible that more of them had been positive at one time or another. We have observed that after laboratory-acquired Q fever in human beings the sera revert to negative in the course of several years.

Table 3 shows the complement-fixation results with sera gathered from persons who had been ill with diseases which were presumably not Q fever. Although they gave histories of upper respiratory infections, blood samples were obtained and their sera were examined for Q fever antibodies. Though the number is small, the results show that sera of people living near the dairies, but not in actual contact with the cows may also show Q fever antibodies. Some of those with positive serology said they had never visited the dairy near which they lived.

In Table 4 are shown the results on sera obtained from the Los Angeles County and the District of Columbia laboratories. They were in both cases routine sera found negative in serologic tests for syphilis. Those from Los Angeles County were selected because the donor's residence had been given in the general milk shed area. Actually most people living in this area do not

live close to the dairies, since the human population is concentrated in towns, and the dairies are for the most part distributed about the countryside. Of the 166 specimens examined, 5 were found positive in low dilution. The 96 sera from the District of Columbia were all negative. The incidence of positive sera from the Los Angeles County milk shed is low, -3.0 per cent, but none were expected from previous experience.

The results of Tables 2, 3, and 4, when considered together, show that positive complement-fixations for Q fever can be expected in this area on sera of persons not undergoing obvious attacks of Q fever. Although some of the persons with positive sera were not questioned about previous illness, many were questioned at some length, and no definite history of Q fever could be obtained.

Serologic Studies on Sera of Cows—

We have previously examined, by the complement-fixation test for Q fever, bovine sera from two general areas. Nearly sixty sera of beef cattle from Texas and states adjacent to the Texas Panhandle were found negative last year, and more than sixty sera from Maryland milk cows were found negative at the same time.

It was possible to sample the cows at 9 different dairies in the Los Angeles milk shed area and to study the blood sera for complement-fixing antibodies for Q fever. The dairies were distributed across the milk shed area. Table 5

TABLE 5
Complement-fixation Results on Sera of Cows from Several Dairies in Area

Dairy No.	Number of sera	Number Negative	Number Positive	4	8	16	End Titers				
							32	64	128	256	512
A	9	9	0	0	0	0	0	0	0	0	0
B	13	11	2	0	1	0	0	1	0	0	0
C	12	11	1	0	0	0	1	0	0	0	0
D	20	18	2	0	2	0	0	0	0	0	0
E	16	10	6	0	0	2	2	1	1	0	0
F	15	12	3	0	0	0	0	0	1	1	1
G	15	14	1	0	0	0	1	0	0	0	0
H	15	14	1	0	0	0	0	1	0	0	0
I	15	10	5	0	1	1	0	1	1	1	0
Total	130	109	21	0	4	3	4	4	3	2	1

gives the results. In all, 130 sera were examined and 21 were found positive, 10 of them in dilutions of 1:64 or higher. The incidence of positives, 16.2 per cent, found in this survey varied from one dairy to another and was highest in dairy E and lowest in dairy A. The significance of the difference in the rates is probably not great, and there was some evidence that Q fever infection was present in all of them. For example, in dairy A several of the dairy workers were found to have positive sera. Other dairy workers of Table 2 were employed at dairies E, F, G, H, and I, and the patient in Case 11 visited dairy I 27 days before he became ill.

DISCUSSION

Although only 17 cases are listed in Table 1, it is likely that many more cases have occurred in the Los Angeles area. The complete reporting of Q fever must depend upon increased awareness of its presence by the physicians of the area, and the adequate use of laboratory diagnostic facilities. Most of the persons listed in Table 1 were patients of a few physicians who were especially interested in discovering cases.

The patients listed in Table 1 as having undergone clinical illness with Q fever did not have intimate contact with cows, and this point merits comment since it tends to cause confusion. Many people deny contact with cows except when they have touched them. As has been stated the "contact" of the persons in Table 1 arose from their living near dairies or having visited them within the incubation period of the disease.

None of the clinical cases found developed in dairy workers, yet evidence for the frequent infection of dairy workers was obtained by serological studies. Half of the 20 dairy workers sampled showed complement-fixing antibodies for Q fever rickettsiae, and it seems likely that others of them had been in-

fectured at one time or another, since positive to negative conversion may take place within a few years. Many of those having antibodies for Q fever did not give histories of illness particularly suggestive of Q fever. It thus appears that the dairy workers had undergone mild or inapparent attacks of Q fever. Mild attacks are known to occur.^{2, 6, 7, 8}

An apparent inconsistency arises from these considerations, that is, the persons with what was apparently the greatest exposure seemed to escape clinical illness. This situation could have arisen from sampling methods, since if mild Q fever were common and severe Q fever rare in this area, and if exposure to the disease were not too greatly concentrated in the dairy workers, the severe cases could have been found in non-dairy workers simply because of their numerical superiority. An alternative explanation also appears possible, namely, that the exposure of the dairy workers is such that it tends to result in the mild disease rather than the severe form.

The complement-fixation results in Tables 2, 3, and 4 indicate that there has been considerable past exposure to Q fever in certain groups of persons in this area. This has apparently resulted in immunity in many cases. In addition it gives rise to difficulties in making a definite diagnosis of Q fever in a particular illness, since the demonstration of complement-fixing antibodies for Q fever rickettsiae in a single specimen taken in the course of a febrile illness is not sufficient to establish the etiology of the fever as being *R. burneti*. In this study, in order to investigate illness which had taken place in the near past we made the diagnosis of Q fever on a single positive serum when the patient had undergone an attack of "atypical" pneumonia. However, whenever the patient could be seen in the acute stage, a sample of blood was taken then, thus making it possible to establish the diagnosis of Q fever with considerable cer-

tainty by demonstrating a rise in antibody in the course of the disease, or by isolating *R. burneti* from the patient's blood, or by both means.

Q fever in the cows of this area appears to be common as judged by the results of the complement-fixation test. It does not appear possible to state definitely that the cows are the source of human Q fever infection since the possibility remains that the same source infected both cows and human beings.

The origin of most of the cattle in other regions suggests the possibility that the infection giving rise to the positive complement-fixations might have been acquired outside the Los Angeles area. However, 3 of the cows positive by complement-fixation were born and raised in the area; their titers were all low (1:8), but such titers seem to be significant, since the cow sera studied heretofore have been completely negative.

The negative results with bovine sera from the Texas Panhandle and adjacent areas and from Maryland were obtained in the course of investigations of an agglutination test using *R. burneti* suspensions as test antigen. Derrick, Smith, and Brown have reported 13 of 879 Australian dairy cows showing agglutinins for Q fever.⁹ However, the agglutination test as we performed it appeared unreliable and of 500-600 bovine sera studied about 60 per cent gave positive agglutination tests. We concluded that the agglutination results we saw were most likely nonspecific and not related to past infection with *R. burneti*.

It would be of interest to know when Q fever infection appeared in Los Angeles County, but it seems that we have little evidence on this point. The first case of Q fever in Table 1 was in a patient whose illness started November, 1946. It is quite possible that cases have been occurring for some time, and it is doubtful if the presence of infection would have become known now had it not been for the recent interest in Q

fever because of outbreaks elsewhere in the country.

It should be noted that few if any ticks are present on the cows in the Los Angeles milk shed, and that the fly population is kept low by DDT spraying of barns and the frequent removal of manure.

SUMMARY

1. Q fever has been found occurring in an apparently endemic manner in the milk shed area of Los Angeles County. Most of the cases lived near or visited dairies.

2. Serological studies revealed that many people who did not give histories of clinical attacks of Q fever showed complement-fixing antibodies for Q fever. Half of the dairy workers and people living near dairies showed specific antibodies.

3. Of 130 sera of cows in the area 21 showed antibodies for Q fever, some in high titer.

REFERENCES

1. Topping, N. H., Shepard, C. C., and Irons, J. V. Q Fever in the United States. I. Epidemiologic Studies of an Outbreak Among Stock Handlers and Slaughterhouse Workers. *J.A.M.A.* 113:813-815, 1947.
2. Shepard, C. C. An Outbreak of Q Fever in a Chicago Packing House. *Am. J. Hyg.* 46:185-192, 1947.
3. Derrick, E. H. The Epidemiology of Q Fever. *J. Hyg.* 43:357-361, 1944.
4. Bengtson, I. A. Complement Fixation in the Rickettsial Diseases—Technique of the Test. *Pub. Health Rep.* 59:402-405, 1944.
5. Topping, N. H., and Shepard, C. C. The Preparation of Antigens from Yolk Sacs Infected with Rickettsiae. *Pub. Health Rep.* 61:701-707, 1946.
6. Burnet, F. M., and Freeman, M. Note on a Series of Laboratory Infections with the Rickettsiae of Q Fever. *M. J. Australia* 1:11-12, 1939.
7. Irons, J. V., Murphy, J. V., and Wolfe, D. M. Q Fever in the United States. III. Serological Observations in an Outbreak among Stock Handlers and Slaughter House Workers. *J.A.M.A.* 133:819-820, 1947.
8. Spicknall, C. J., Huebner, R. J., Finger, J. G., and Blocker, W. P. Report of an Outbreak of Q Fever at the National Institute of Health. I. Clinical Features. *Ann. Int. Med.* 27:28-40, 1947.
9. Derrick, E. H., Smith, D. J. W., and Brown, H. E. Studies in the Epidemiology of Q Fever. 9. The Role of the Cow in the Transmission of Human Infection. *Australian J. Exper. Biol. & M. Sc.* 20:105-110, 1942.

ACKNOWLEDGMENT—Acknowledgment must be made of our indebtedness to many people in the course of this work. Frank W. Young, M.D., of Artesia, Calif., suspected Q fever on a clinical basis and sent us a number of sera, many of which were positive by complement-fixation, and it was in this way that the

presence of Q fever in the area was discovered.

Much help was freely given by the personnel of the Los Angeles County Health Department. The coöperation of the local physicians is greatly appreciated, as is the assistance of the dairy owners.

ADDENDUM

Since this paper was submitted for publication, Huebner, Jellison, Beck, Parker, and Shepard have published the results of further

investigations at Los Angeles. *Pub Health Rep.*, 63:201 (Feb. 13), 1948.

They report the finding of *R. burneti*, the causative agent of Q Fever, in the raw milk of 4 dairies in Southern California. Pasteurization results under field conditions, while incomplete, apparently rendered naturally infected milk non-infectious for guinea pigs. Available epidemiological evidence does not indicate that the drinking of milk was the cause of a majority of the cases thus far studied.

Silver Nitrate Still the Preferred Drug in Ophthalmia Neonatorum

In the April issue of the *Woman's Home Companion*, Miriam Zeller Gross, in an article entitled, "Can Present Laws Blind Your Baby?" proposed that the use of silver nitrate be discarded as a method of preventing the infection of eyes of the new-born. She proposes that penicillin be substituted because of its proved value and proved harmlessness.

Among the protests of the scientific accuracy of the article is a report released by the New York Academy of Medicine, on request for an opinion by the Commissioner of Health of New York City. He had some months ago asked the opinion of the Academy about the wisdom of amending the New York City Sanitary Code requirements for silver nitrate.

A digest of Academy opinion follows:

In preventing infection of the baby at birth, both penicillin and silver

nitrate are safe to use when the solutions are prepared carefully and applied properly, a committee of specialists reported. There is no evidence that 1 per cent or even 2 per cent solutions of silver nitrate, which are those used in the prophylaxis of ophthalmia neonatorum, have ever damaged vision.

Bacteria that cause gonorrhea and pneumonia are most likely to cause blindness in the baby, and the concentration of penicillin most effective to halt the growth of these bacteria is not yet known.

In view of the present available evidence of the relative effectiveness of silver nitrate, silver acetate, and penicillin in the control of ophthalmia neonatorum, it would seem that existing laws requiring the use of silver nitrate should not at the present time be revised by the substitution of penicillin for silver nitrate.

Relative Efficiency of the Open and the Confidential Method of Reporting Causes of Death*

PAUL H. JACOBSON

Vital Statistics Analyst, Statistical Bureau, Metropolitan Life Insurance Company, New York, N. Y.

SINCE January 1, 1947, the confidential method of reporting deaths from natural causes has been in use in all five boroughs of New York City. The system had been tried on an experimental basis in the borough of Manhattan during the preceding eight years. The legal and ethical bases for the use of the confidential certificate have been previously reported.¹

Primarily on these bases but also because of its approval by the Committee on Public Health Relations of the New York Academy of Medicine and the five county medical societies of the city, the method was extended to all boroughs. During the first few years of its use in Manhattan, there appeared to be some indications of its statistical superiority,

but no scientific study had been made by means of which its relative efficiency could be impartially evaluated. Accordingly, in November, 1942, Dr. Ernest L. Stebbins, then Commissioner of Health, secured a grant from the New York Foundation for the purpose of making such a study.

HISTORY OF DEATH CERTIFICATION

The registration of causes of death originated with a view to controlling the spread of pestilences, and from the start the statistics of death, by cause, have served as a basis for public health activities. Because of this fact, the registration of vital events in the United States has generally been made a function of state and local health departments.

The ethical aspects of medical certification have been the subject of controversy to a much greater extent in Europe than in the United States. In some countries of Europe, this controversy resulted in the refusal of the attending physician to participate in the reporting of a death or the cause thereof. Switzerland has been a notable exception. More than a half century ago, the Swiss developed a confidential method of reporting causes of death which gave the public authorities information essential to the protection of the public health and at the same time guaranteed the preservation of professional secrets.

In the United States, little if any con-

* This paper presents the findings of the study made by the New York City Department of Health in 1943-1944. The study was carried on under the direction of the late Thomas J. Duffield and the author, with the assistance of Marjorie T. Bellows, Louis Weiner, and their staffs in the Bureau of Records and Statistics. A Statistical Advisory Committee guided the department in the conduct of the study and in the appraisal of the results. The committee consisted of the following members:

Ernest L. Stebbins, M.D., Commissioner of Health, Chairman

Alfred Angrist, M.D., Pathologist, Jewish Memorial and Queens General Hospitals

E. H. L. Corwin, Ph.D., Executive Secretary, Committee on Public Health Relations, New York Academy of Medicine

Godias J. Drolet, Statistician and Assistant Director, New York Tuberculosis and Health Association
Haven Emerson, M.D., Emeritus Professor of Public Health Practice, Columbia University, and Member, Board of Health

John W. Fertig, Ph.D., Professor of Biostatistics, Columbia University

Hugo Muench, M.D., Fellowship Adviser of The Rockefeller Foundation

sideration was given to the question of the confidential nature of medical diagnoses until recent years. A start toward evaluating the problem in this country was made in 1933-1934 when Nicoll and Bellows² showed that syphilis and alcoholism were understated in the Westchester County, New York, mortality statistics. A voluntary system of confidential reporting, which they instituted, was discontinued after several months when found unsatisfactory.³

METHODS OF REPORTING CAUSES OF DEATH

There are two fundamental methods by which causes of death may be reported: (a) the open method, and (b) the confidential method.

(a) *The Open Method*—In the United States, it is the general practice to report deaths on a certificate which requires the following: (i) the name of the deceased, (ii) personal particulars identifying the deceased, (iii) the medical certificate of death, and (iv) information regarding the date and place of burial or cremation. In the medical certificate of death, the physician is expected to state the period of his attendance upon the deceased, the medical diagnoses of the principal and contributory causes of death, the duration of those conditions, autopsy findings, and operations performed.

(b) *The Confidential Method*—In an effort to improve the method of reporting, and at the same time to preserve the essential features of the American procedures, the late Thomas J. Duffield, then Registrar of Records in New York City, in 1936 proposed a confidential system of death certification. After considerable discussion, the Board of Health approved the introduction of the Physician's Confidential Medical Report as an experiment in the borough of Manhattan, commencing January 1, 1939.* Previously, in the entire city, the open form was used, and this form or a similar

one was used in the other four boroughs through December 31, 1946.

Objections to the open form, which are overcome by the confidential certificate, arise from the fact that it has become the practice of custodians of vital records in the United States, as elsewhere, to issue copies of official records of death to relatives for use in the settlement of the affairs of the deceased.

In New York City, for more than a quarter of a century, the certified copies of death certificates issued by the Department of Health have been negative photostatic reproductions of the face of the certificate. Under such circumstances, it is possible that physicians, in keeping with their feelings regarding the ethics of their profession and the law governing professional secrecy, have not always recorded the complete diagnosis of the cause of death to the best of their knowledge and belief. The primary reason for withholding information appears to be the fact that the family physician may not wish to record a diagnosis which offends survivors because it reflects unfavorably upon the memory of the deceased.^{2,5} The fact that a death certificate is of access on legal order and that a copy may be required for the settlement of the estate of the deceased are not thought to be nearly so important in promoting incomplete reporting.† Regardless of the reasons, in stating anything less than the full truth, physicians withhold information that may be im-

* The confidential method, at that time, was also used by Switzerland, and by the cities of Nürnberg, the Hague, and Amsterdam, and to a certain extent in England and Wales⁴; it has since been put into use by the Province of Quebec, Canada.^{6,8}

† The experience of one large insurance company has consistently shown that physicians have no intent to withhold information which can be used for scientific or statistical purposes. A comprehensive published report for their 1911-1914 experience revealed that through supplementary inquiries to physicians the number of deaths attributed to such significant titles as alcoholism, syphilis, and gonococcus infection were increased by 21, 78, and 130 per cent, respectively.⁷ Similar results are evident from unpublished data for recent years.

portant in the planning and administration of public health and related programs.

With the confidential form of reporting, a copy of a death record includes only the following: (i) the name of the deceased; (ii) personal particulars identifying the deceased; (iii) certification that the death occurred on a given date and was due to natural causes, and (iv) information regarding the date and place of burial or cremation. No part of the Physician's Confidential Medical Report, including the causes of death, duration of diseases, and related information appears on the copy of the death record issued to relatives of the deceased. Thus the contents of the confidential medical report are not divulged.

PLAN OF THE SURVEY

In 1943 the Department of Health initiated a study, jointly sponsored by the Department of Hospitals, to evaluate the comparative statistical efficiency of the two methods of reporting causes of death in New York City. A pilot study of 955 deaths which occurred in municipal hospitals in 1941 was completed in the early months of 1943. On the basis of these preliminary statistics, the final plan for the study was formulated, and collection of data started on July 1, 1943.

Objective—The objective of the study was to ascertain whether the confidential method of reporting causes of death resulted in statements of cause of death more nearly in agreement with the physician's knowledge and belief at the time the certificate was filled in than did the open method. It should be noted that the study was not concerned with the accuracy of a physician's knowledge. No method of reporting is able to eliminate diagnostic errors which result from limited clinical examination or medical knowledge; for example, cases in which no operation, biopsy, or other special laboratory tests are performed.*

Criterion—Not all discrepancies between what the physician knows and what he actually records on the death certificate are due to wilful alteration of the known facts. Carelessness, lack of uniformity of definition of terms, and personal interpretation of their meaning are important factors contributing to such differences.¹⁰⁻¹³ To some extent, these differences may be minimized by education and by proper formulation of the questions on death certificates.^{14, 15} Some of these errors were eliminated from the study, by classifying the various individual titles of the 1938 revision of the *International List* into 17 diagnostic groups. Thus only changes from one group to another were considered significant.

In consideration of the above factors, the basic criterion of the study was established as the *correlation between the primary cause of death selected from the statement of cause of death reported to the Department of Health and the primary cause selected from the diagnoses abstracted from the medical case history* (selected and coded according to the *Manual of the International List of Causes of Death*, Fifth Revision, and *Joint Causes of Death*, Fourth Edition, 1939).

The secondary criterion consists of *comparison of the relative frequency with which the following seven conditions (existing or preëxisting) were mentioned anywhere in the case history and on the death certificate: (a) alcoholism, (b) cancer, (c) diabetes mellitus, (d) mental disease, (e) puerperal sepsis, (f) syphilis, and (g) tuberculosis.*

The latter criterion was adopted since it appeared desirable to ascertain the relative completeness with which statements are made on the two certi-

* Because of the deficiencies in clinical diagnoses as revealed by comparisons with autopsy findings,^{8, 9} since June 1, 1947, all autopsy findings for deaths which occur in New York City are reported to the Department of Health on a supplementary confidential medical report.

cates. For example, mental disease is rarely the primary cause of death, but is it more accurately reported as a contributory or associated cause on the confidential death certificate than on the open? Moreover, a sub-sample of 89 cases, independently abstracted by four medical workers, indicated that any method of analysis must assume an indeterminate difference in the primary cause of death due solely to the process of abstraction (individual differences of opinion, etc.). Personal variations are practically eliminated from the data obtained for the conditions specified above (check list). However, if any findings in favor of the confidential certificate are disclosed by these data and not from those on the primary cause of death, they cannot be conclusively attributed to the method of certification. This arises from the fact that the Physician's Confidential Medical Report provides more space for recording the statement of cause of death than does the open certificate.

Selection of Sample—Approximately 28 per cent of the deaths in New York City occur among persons who receive medical attention prior to death and who die at home. These cases afford the best example of the physician-family relationship and might be expected to provide fruitful information for evaluating the efficiency of the confidential certificate. However, no objective method is available for analyzing these cause-of-death statements. The difficulty arises primarily from the fact that case histories in the private practitioner's office are highly incomplete, lack uniformity, or are nonexistent.* As a result, the proprietary hospitals were selected for study, since the role of the physician in these hospitals most closely approximates that of the private practitioner. In contrast, physicians in municipal hospitals do not have such close personal relationship with their patients. It was expected, therefore, that

differences due to wilful alteration of the known facts would not be as great for municipal as for proprietary hospitals. Thus the municipal hospitals were included in the study to serve as a means of interpreting the findings for the proprietary hospitals.†

All proprietary hospitals licensed by the General Inspector's Office of the Department of Hospitals on July 1, 1943, which had been in operation during 1937-1939 and 1941, the period covered by the study, were included in the sample. Nine hospitals — Bellevue, Harlem, City, New York Cancer, and Goldwater Memorial in the borough of Manhattan, and Coney Island, Kings County, Queens General, and Lincoln in other boroughs—were selected for study of municipal hospitals; restricted, however, to deaths reported during January and February of the study years. Because of the small number of deaths involved, the borough of Richmond was not included in the study.

Each borough office of the Department of Health maintains a cross-index file by place of death for all deaths which are reported within the borough. The deaths which occurred in the hospitals selected for study were easily identified from these files. Cases certified by the medical examiner's office were then eliminated by inspection of the death certificates.

Procedure—The Department of Hospitals, which by law is authorized to license and to control the practices of proprietary hospitals, was most helpful in securing access to the hospital records. Dr. Edward M. Bernecker, Commissioner of Hospitals, wrote to the

* The completeness with which syphilis and pulmonary tuberculosis are mentioned on these death certificates could be evaluated by checking the certificates for residents of the city against the department's rosters of known cases. Of much greater value for this and similar purposes, however, it would be desirable to add to the death certificate an item requesting the date and place of latest hospitalization (for deaths not occurring in institutions).

† Voluntary hospitals, which operate under approval of the State Department of Welfare, were not included in the study.

superintendent or proprietor of each hospital requesting his coöperation and explaining the purpose of the study. Each hospital was then contacted by the Department of Health, supplied with a list identifying the deceased included in the study, and appointments scheduled for the abstraction of the case histories.

A simple form was used to collect information; one copy was filled in for each death certificate and another for the corresponding hospital case history. The information was copied from the death certificate exactly as it was originally reported. Supplementary information in regard to causes of death, operations, special laboratory tests obtained through inquiries by burial desk clerks, nosologists, or from special autopsy reports, which is added to the back of the certificate, was not included as a part of the death certificate abstract. All of this work was carefully checked to detect clerical errors.

In preparing the abstracts of hospital case histories, the medical field worker was instructed to "assume that he is the physician called upon to fill out a death certificate and that his knowledge of the deceased is limited to the information found in the hospital case history." Only information available at the time the certificate was filled in was considered in recording the principal and contributory causes of death and using the check list. This information generally consisted of the final discharge diagnoses (excluding autopsy findings made available after the death certificate was executed*), results of laboratory tests, operations, observations during illness, and previous history. Since it was possible that knowledge of the

death certificate information might influence the abstractor in spite of all efforts to use unbiased judgment, the information from the hospital case history was abstracted onto a blank form, which was not collated with the death certificate abstract until each form had been individually processed and coded.

It was not practical or possible to verify the accuracy of all hospital case history abstracts. Moreover, it was recognized in planning the study that the abstractor's personal interpretation of the meaning and importance of conditions would have a significant bearing on his selection of the causes of death. Nevertheless, it was felt desirable to evaluate the completeness of the cause-of-death statements, including the check list data, and the frequency with which non-medical errors (use of incorrect chart, etc.) were committed. Accordingly, a sub-sample of cases from proprietary hospitals was checked by a Department of Health physician. Additional cases from both proprietary and municipal hospitals in which errors appeared possible were checked against the department's rosters of known syphilis and tuberculosis cases, or with responsible physicians in the hospitals in which the deaths occurred. Finally, all cases were reviewed by a physician of the department and questionable cases passed on by a physician of the Statistical Advisory Committee. Among the 7,330 abstracts of hospital case histories, several were adjusted by these methods. While not all errors may have been detected, it was evident that the data were sufficiently accurate for the purposes of the study.

COMPLETENESS AND REPRESENTATIVENESS OF THE DATA

A total of 15,000 cases was selected for study, 6,492 in proprietary hospitals, and 8,508 in municipal hospitals. Preference was given to completion of the work in proprietary hospitals, and

* It is recognized that it may not always have been possible to ascertain whether or not preliminary findings from autopsy were known to the physician at the time he signed the death certificate, especially in municipal hospitals. Analysis of the data, however, reveals no evidence of significant differences in the findings between autopsied and not autopsied cases.

TABLE 1
Primary Cause of Death,* Death Certificate Histories Compared, All Proprietary and Municipal Hospital Deaths Included in Study

Cause and International List Number		Number of deaths assigned according to diagnoses in hospital case histories															Diagnostic Group	
Diagnostic Group	Total Hospital Case History	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
All Causes	7330	230	77	57	1236	129	340	27	1954	641	354	37	71	787	221	1	2	1166
Tuberculosis, 13-22	226	204	1	...	...	...	3	...	8	6	1	...	...	2	1	...	...	...
Syphilis, 30	141	13	66	2	2	...	3	...	35	8	...	...	...	7	1	...	...	4
Other infectious and parasitic diseases, 1-12, 23-29, 31, 32, 33b, 34-44	58	...	...	44	1	...	...	...	3	2	...	...	...	2	...	...	...	...
Cancer, 45-55	1229	2	...	...	1176	9	1	...	14	7	1	...	...	15	3	...	...	5
Non-malignant tumors, 56, 57	115	...	1	...	11	84	...	...	4	1	2	...	...	1	9	...	...	1
Diabetes, 61	394	...	...	...	3	1	318	...	54	10	1	...	...	4	1	...	...	2
Alcoholism, 77, 124a	54	1	...	...	1	...	...	23	3	7	...	...	...	16	...	...	...	3
Cardiovascular-renal diseases, 88, 83, 90-103, 130-132	1883	3	7	6	14	2	8	1	1691	86	2	...	2	21	11	...	1	28
Respiratory diseases, 33a, 104-114	565	3	...	1	2	1	4	1	57	479	...	...	...	7	1	...	...	9
Appendicitis, 121	406	...	...	...	...	12	...	...	3	1	344	...	...	44	1	...	...	1
Puerperal infection, 140, 142a, 145a, 147	50	1	...	...	...	...	...	...	2	...	2	32	11	1	...	...	...	1
Other puerperal causes, 141, 142b, 143, 144, 145b, 146, 148-150	72	...	...	...	...	...	...	...	8	1	...	5	57	...	...	...	...	1
Other diseases of the digestive system, 115-120, 122, 123, 124b, 125-129	742	1	1	...	19	6	2	1	38	7	1	...	...	650	6	...	1	9
Other diseases of the genito-urinary system, 133-139	219	1	1	1	4	10	...	...	7	2	...	...	1	6	186	...	...	...
Chronic poisoning and violent or accidental deaths, 78, 79, 163-198	13	...	...	...	...	1	1	1	6	2	...	...	...	1	...	1	...	...
Ill-defined and unknown, 199, 200	9	...	...	...	2	1	...	...	5	...	...	...	...	1	...	...	...	...
All others, 59, 60, 62-76, 80-82, 84-89, 151-162	1154	1	...	3	1	2	...	...	16	22	...	...	...	9	...	...	...	1100
Diagnostic Group		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q

* Coded according to the Manual of the International List of Causes of Death (Fifth Revision) and Joint Causes of Death (Fourth Edition), 1939.

* Coded according to the Manual of the International List of Causes of Death (Fifth Revision) and Joint Causes of Death (Fourth Edition), 1939.

TABLE 2

Per cent Ratio of (A) Number of Deaths Assigned to Primary Cause from Cause-of-Death Statements on Death Certificates to (B) Number Assigned from Diagnoses in Hospital Case Histories *

Cause and International List Number	Municipal Hospitals					Proprietary Hospitals		All White Decedents										Attending Physician		Other (18)
	Grand Total (1)	Total (2)	Non- White		White (4)	Total (5)	Total (6)	Sex		Age						Total (14)	Physician (15)			
			White (3)	Total (7)				Male (7)	Female (8)	0-14 (9)	15-44 (10)	45-64 (11)	65-74 (12)	75+ (13)						
Tuberculosis, 13-22	101	101	112	97	104	100	98	103	†	104	104	78	†	108	†	119	108	90		
Syphilis, 30	55	53	55	52	57	54	58	40	†	38	48	56	90	59	†	25	60	82		
Other infectious and parasitic diseases, 1-12, 23-29, 31, 32, 33b, 34-44	98	80	†	67	102	93	94	91	80	90	110	100	†	115	†	†	†	†		
Cancer, 45-55	101	100	97	100	101	101	101	100	†	97	102	100	99	103	108	95	96	100		
Non-malignant tumors, 56, 57	112	73	†	92	119	115	95	120	†	127	104	80	†	127	†	171	133	110		
Diabetes, 61	86	95	100	95	84	86	85	87	†	78	88	86	80	89	67	100	87	100		
Alcoholism, 77, 124a	50	46	†	50	54	52	52	52	...	43	60	50	†	47	†	†	45	†		
Cardiovascular-renal diseases, 58, 83, 90-103, 130-132	104	104	113	102	104	103	101	106	83	110	102	106	100	102	99	105	102	99		
Respiratory diseases, 33a, 104-114	113	119	102	126	110	115	116	114	116	106	120	107	126	115	92	112	120	114		
Appendicitis, 121	87	†	...	†	87	87	89	84	96	92	78	87	93	88	†	90	79	92		
Puerperal infection, 140, 142a, 145a, 147	74	†	†	†	73	74	...	74	...	74	...	...	...	†	†	†	†	...
Other puerperal causes, 141, 142b, 143, 144, 145b, 146, 148-150	99	†	†	†	94	96	...	96	...	96	...	...	...	†	†	†	†	†
Other diseases of the digestive system, 115-120, 122, 123, 124b, 125-129	106	111	107	112	106	106	110	102	129	105	107	102	102	120	114	106	131	117		
Other diseases of the genito-urinary system, 133-139	101	126	100	131	98	101	102	96	†	84	100	106	109	106	110	100	114	†		
Chronic poisoning and violent or accidental deaths, 78, 79, 163-198	8	†	...	†	0	8	†	†	...	...	†	†	†	...	...	...	...	...
Ill-defined and unknown, 199, 200	22	†	...	†	33	22	†	†	†	†	†	†	...	†	†	†	†	†		
All others, 59, 60, 62-76, 80-82, 84-89, 151-162	101	103	111	106	100	101	100	102	98	129	118	89	100	104	106	94	112	100		
Total Number of Decedents	7,330	1,678	329	1,349	5,606	6,955	3,617	3,338	1,163	1,123	2,612	1,378	679	1,707	204	362	845	296		

* Coded according to the Manual of the International List of Causes of Death (Fifth Revision) and Joint Causes of Death (Fourth Edition), 1939. † Less than 10 cases.

as soon as the preliminary findings for these data were available, it was decided not to complete the abstraction of case histories in municipal hospitals. As a result, data for 1,678 deaths, or only one-fifth of the cases in municipal hospitals, were obtained for study. The great majority of these completed cases were Manhattan deaths which had been reported on the confidential certificate. The data from municipal hospitals, therefore, can be given little weight in this study. They are included in this report, however, since they appear to be consistent with the findings from proprietary hospitals.*

Of the 6,492 cases which were selected for study in proprietary hospitals, complete data were obtained for 5,652, the hospital charts could not be located for 715, and the charts for the remaining 125 could not be used because they contained insufficient information. According to their distribution by age, sex, color, and cause of death reported on the death certificate, the cases obtained for study from each borough and year comprise a representative sample of the cases originally selected.

MAJOR FINDINGS

The correlation between the primary causes of death as determined from diagnoses in hospital case histories and those determined from statements on death certificates for all 7,330 cases is shown in Table 1. These data indicate the causes to which deaths from selected conditions are generally attributed in New York City vital statistics. They also provide an approximate index of the extent to which these significant diseases are overstated or understated. These indices for the 17 cause-of-death

groups are given in Table 2; column 1 is computed from the data in Table 1, and the other columns from similar tabulations which could not be included in the space allotted for this paper.

The great concentration of cases in the diagonal cells in Table 1 means that there is a very substantial agreement between the diagnoses in hospital case histories and the statements of cause of death on death certificates, and that, judged by these broad cause-of-death groups, disagreement is the exception rather than the rule.

Of the 17 cause-of-death groups studied, only the *respiratory diseases* (33a, 104-114) appear to be significantly overstated in official mortality statistics. They were charged with an excess of 13 per cent in this sample (Table 2). The overreporting of these diseases, primarily the pneumonias, was especially marked among white persons whose deaths were certified by internes in municipal hospitals.

As may be seen from Table 1, many deaths due to respiratory diseases are charged to the cardiovascular-renal diseases and an even greater number due to the latter are incorrectly attributed to the former. The difficulty appears to arise both because of disagreement as to whether the condition is lobar or bronchopneumonia and equally as often from carelessness in stating "lobar" when "lobular" is meant, or vice versa. Since cardiovascular-renal diseases are frequently associated with pneumonia, under the *Joint Cause Manual*, the *International List* assignments for the former conditions are also affected by the proper determining factor as to the form of pneumonia. For example, a cardiovascular-renal condition associated with pneumonia is assigned to the former if lobular, but to the latter if lobar.

In contrast, five conditions (alcoholism, syphilis, puerperal infection, diabetes, and appendicitis) appear to be understated on death records. These

* Contrary to expectation, the data from municipal hospitals reveal greater variations than those from proprietary hospitals. This may result from the fact that quite frequently in municipal hospitals several physicians may attend the same patient, and often the physician who certifies the death may not have been previously connected with the case.

TABLE 3

White Decedents with Alcoholism (77,124a)

Place of Death	Number from Case Histories(A)		Number from Death Certificates(B)		Per cent Ratio * B to A	
	1937-1938	1939, 1941	1937-1938	1939, 1941	1937-1938	1939, 1941
<i>Primary Cause of Death</i>						
Proprietary Hospitals						
Manhattan	5	7	3	3	60	43
Other Boroughs	5	9	3	5	60	56
Municipal Hospitals						
Manhattan	..	15	..	8	..	53
<i>Primary or Contributory Cause of Death</i>						
Proprietary Hospitals						
Manhattan	17	13	8	7	47	70
Other Boroughs	17	17	11	6	65	35
Municipal Hospitals						
Manhattan	3	70	0	30	..	43
<i>Condition Existing at or Prior to Death</i>						
Proprietary Hospitals						
Manhattan	19	12	8	7	42	58
Other Boroughs	19	17	11	6	58	35
Municipal Hospitals						
Manhattan	3	80	0	30	..	38

* These ratios are based on a small number of cases and may, therefore, be influenced by chance fluctuations.

† Excludes decedents under 15 years of age and those for which an autopsy was performed.

conditions will now be discussed.

Alcoholism (77,124a)—Of all conditions selected for study, alcoholism was most affected by differences between diagnoses in hospital case histories and causes of death stated on death certificates. Of the 54 deaths from alcoholism or alcoholic cirrhosis of the liver, only 23 (43 per cent) were so reported. Sixteen deaths were charged to other diseases of the digestive system, primarily cirrhosis of the liver without mention of alcoholism,* 7 to respiratory diseases, and the other 8 to various other causes. At the same time, 4 deaths supposedly due to other conditions were charged to alcoholism. In this sample, therefore, the official statistics accounted for only one-half of the mortality from alcoholism. This finding is in apparent agreement with the results

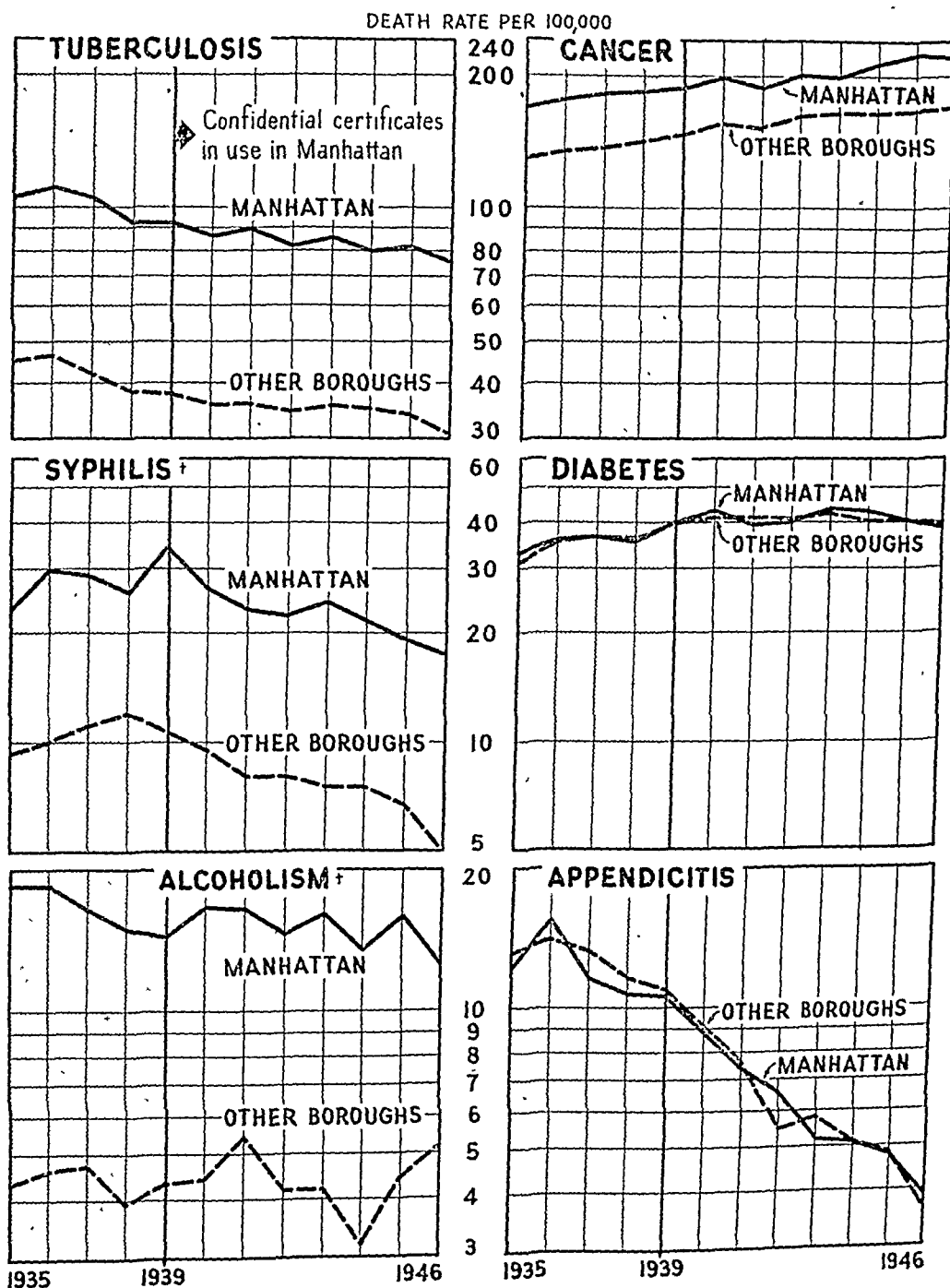
of the confidential inquiry in Westchester County, New York, which revealed that approximately three-fifths of the deaths from alcoholism in 1931-1933 were correctly charged.²

Did the confidential method of death certification, introduced in Manhattan in 1939, more accurately depict the mortality from alcoholism than the open method? The pertinent data are shown in Table 3. Since alcoholism is a relatively infrequent cause of death, only a small number of cases fell into the sample and the findings may be influenced by chance fluctuations. However, several facts are worthy of note. Approximately one-half of the deaths attributed to alcoholism were "improperly" reported from proprietary hospitals whether the open or confidential certificate was used. Even municipal hospitals in Manhattan understated this cause of death by one-half in 1939 and 1941. And, as may be seen from Table 2, this was also true for deaths certified by internes. Finally, it should be

* Today many physicians and pathologists question the role of alcohol in the causation of cirrhosis, as such. Thus, even though a patient with cirrhosis had a history of alcohol ingestion, they would prefer to place the etiology in the role of some dietary deficiency.

FIGURE 1

MORTALITY FROM SELECTED CAUSES MANHATTAN COMPARED WITH OTHER BOROUGHES OF NEW YORK CITY*



* By residence; non-residents included in borough of death.

† To maintain comparability between the 1929 and 1938 revisions of the *International List*, deaths prior to 1940 are increased by 9.2 per cent for alcoholism and by 9.1 per cent for syphilis.

noted that, if alcoholism accounted for twice the number of deaths charged to it in official statistics, the recorded number of these deaths should increase significantly when the confidential certificate is used, if the method is more efficient than the open form of certification. Actually, as Figure 1 shows, the trend in Manhattan since 1938 has approximately paralleled the trend in the other boroughs.

Syphilis (30)—About the same extent of agreement between the hospital case history and the death certificate was found for syphilis as for alcoholism. Of the 141 deaths assigned to syphilis according to hospital records, only 66 (47 per cent) were so reported on death certificates. An additional 35 of these deaths were attributed to cardiovascular diseases, 13 to tuberculosis, and 27 to other causes (Table 1). In contrast, syphilis was selected as the primary

cause of death from 11 certificates for which the hospital charts charged the deaths to other conditions. Failure to note on the death certificate that syphilis was successfully treated accounted for some of these differences. Thus, only 55 per cent of the mortality from syphilis was reflected by the official statistics (Table 2). For syphilis as for alcoholism, the data confirm findings previously reported for Westchester County where the figure for syphilis was found to be 51 per cent.² Similar to the findings from that study, syphilis was more accurately reported as the primary cause of death for men than for women; in this study the ratio was 0.58 among white males and only 0.40 among white females.

Syphilis appears to have been more completely reported from proprietary hospitals in Manhattan during 1939 and 1941 than during 1937–1938 (Table 4):

TABLE 4

White Decedents with Syphilis (30)

Place of Death	Number from Case Histories (A)		Number from Death Certificates (B)		Per cent Ratio * B to A	
	1937– 1938	1939, 1941	1937– 1938	1939, 1941	1937– 1938	1939, 1941
<i>Primary Cause of Death</i>						
Proprietary Hospitals						
Manhattan	8	12	4	8	50	67
Other Boroughs	7	8	2	6	29	75
Municipal Hospitals						
Manhattan †	3	33	1	21	33	64
<i>Primary or Contributory Cause of Death</i>						
Proprietary Hospitals						
Manhattan	10	12	5	8	50	67
Other Boroughs	9	11	2	7	22	64
Municipal Hospitals						
Manhattan	6	59	2	33	33	56
Brooklyn	..	8	..	5	..	63
<i>Condition Existing at or Prior to Death</i>						
Proprietary Hospitals						
Manhattan	10	12	5	8	50	67
Other Boroughs	11	11	2	7	18	64
Municipal Hospitals						
Manhattan	7	67	2	33	29	49
Brooklyn	..	9	..	5	..	56

* These ratios are based on a small number of cases and may, therefore, be influenced by chance fluctuations.

† Excludes decedents under 15 years of age and those for which an autopsy was performed.

TABLE 5

White Female Decedents with Puerperal Infection (140, 142a, 145a, 147)

Place of Death	Number from Case Histories (A)		Number from Death Certificates (B)		Per cent Ratio * B to A	
	1937- 1938	1939, 1941	1937- 1938	1939, 1941	1937- 1938	1939, 1941
	<i>Primary Cause of Death</i>					
Proprietary Hospitals						
Manhattan	6	3	6	1	100	33
Other Boroughs	14	22	9	17	64	77
	<i>Primary or Contributory Cause of Death</i>					
Proprietary Hospitals						
Manhattan	7	6	7	5	100	83
Other Boroughs	14	22	9	17	64	77

* These ratios are based on a small number of cases and may, therefore, be influenced by chance fluctuations.

charged to various other conditions. In contrast, the deaths of 22 persons were allocated to diabetes in disagreement with the facts recorded in their hospital case histories (Table 1). For the cases included in this study, therefore, only 86 per cent of the mortality from diabetes was stated in the official statistics (Table 2).

In view of the fact that diabetes was

less completely reported from proprietary than from municipal hospitals, and that deaths certified by attending physicians were least accurately recorded, one might expect an improvement with the use of the confidential certificate. No such evidence, however, is disclosed by the available data. As may be seen from Table 6, 78 per cent of the deaths due to diabetes in Manhattan proprie-

TABLE 6

White Decedents with Diabetes (61)

Place of Death	Number from Case Histories (A)		Number from Death Certificates (B)		Per cent Ratio B to A	
	1937- 1938	1939, 1941	1937- 1938	1939, 1941	1937- 1938	1939, 1941
	<i>Primary Cause of Death</i>					
Proprietary Hospitals						
Manhattan	54	55	42	43	78	78
Other Boroughs	94	104	81	90	86	87
Municipal Hospitals						
Manhattan †	6	43	5	41	83 *	95
	<i>Primary or Contributory Cause of Death</i>					
Proprietary Hospitals						
Manhattan	76	74	51	53	67	72
Other Boroughs	122	133	102	114	84	86
Municipal Hospitals						
Manhattan	10	64	8	61	80 *	95
Brooklyn	..	19	..	17	..	89
	<i>Condition Existing at or Prior to Death</i>					
Proprietary Hospitals						
Manhattan	82	77	51	53	62	69
Other Boroughs	127	135	102	114	80	84
Municipal Hospitals						
Manhattan	10	64	8	61	80 *	95
Brooklyn	..	19	..	17	..	89

* These ratios are based on a small number of cases and may, therefore, be influenced by chance fluctuations.

† Excludes decedents under 15 years of age and those for which an autopsy was performed.

OTHER FINDINGS

Tuberculosis (13-22)—It does not appear probable from the data collected for this study that tuberculosis has been understated in the New York City mortality statistics for recent years. For every 100 deaths from tuberculosis according to hospital case histories, there were 101 assigned to the condition in the official death records (Tables 1 and 2). These findings are in apparent agreement with those obtained in the study in Williamson County, Tennessee.¹⁶

Although tuberculosis was not understated as the primary cause of death for the cases studied, its occurrence as a contributory cause was not completely recorded. This fact may be noted from a vertical comparison of the data in Table 8. For example, in Manhattan proprietary hospitals during 1937-1938, the extent of agreement was 100 per cent for tuberculosis as the primary cause of death, but only 90 per cent

for the condition as the primary or contributory cause. Regardless of the criterion used, however, there are no indications that tuberculosis was more efficiently recorded on the confidential than on the open certificate. The mortality statistics for New York City confirm this fact (Figure 1).

Cancer (45-55)—Of the seven conditions considered likely to be affected by confidential certification, cancer is both the most important and apparently the most completely reported. A study of deaths which occurred in Massachusetts in 1932¹⁷ revealed that approximately 6 per cent of the mortality from cancer was underreported on death certificates; 11 per cent of the cases were "missed" at the same time that 5 per cent were "overdiagnosed." More recently, from a survey of ten urban areas in 1937-1939, the U. S. Public Health Service reported that possibly only 5 per cent of the mortality from cancer was assigned to non-

TABLE 8
White Decedents with Tuberculosis (13-22)

Place of Death	Number from Case Histories (A)		Number from Death Certificates (B)		Per cent Ratio B to A	
	1937- 1938	1939, 1941	1937- 1938	1939, 1941	1937- 1938	1939, 1941
	<i>Primary Cause of Death</i>					
Proprietary Hospitals						
Manhattan	28	11	28	12	100	109
Other Boroughs	23	16	21	20	91	125
Municipal Hospitals						
Manhattan †	6	55	5	57	83 *	104
	<i>Primary or Contributory Cause of Death</i>					
Proprietary Hospitals						
Manhattan	31	17	28	15	90	88
Other Boroughs	27	20	21	22	78	110
Municipal Hospitals						
Manhattan	14	99	7	86	50	87
Brooklyn	..	16	..	15	..	94
	<i>Condition Existing at or Prior to Death</i>					
Proprietary Hospitals						
Manhattan	34	17	28	15	82	88
Other Boroughs	32	22	21	22	66	100
Municipal Hospitals						
Manhattan	15	106	7	86	47	81
Brooklyn	..	17	..	15	..	88

* This ratio is based on a small number of cases and may, therefore, be influenced by chance fluctuations.
† Excludes decedents under 15 years of age and those for which an autopsy was performed.

malignant causes on death certificates.¹⁸

While the procedures followed are not similar, our data confirm these findings. Of 1,229 deaths from cancer, 1,176, or 96 per cent, were "properly" certified on death records. The other 53 deaths were charged to various other conditions (Table 1). Offsetting these "misses," 60 deaths were attributed to cancer on death records in disagreement with the facts available in hospital charts. For the cases included in this study, therefore, the official mortality statistics accurately reflected the extent of the mortality from cancer. This was true for deaths which occurred in proprietary hospitals as well as those reported from municipal hospitals (Table 2).

In view of the above, it is highly improbable that cancer is understated in the mortality statistics for New York City. It would not be expected, therefore, that the confidential method would have any effect on the accuracy of these statistics. This fact is confirmed by the data in Table 9, and the trends in the mortality from cancer shown in Figure 1.

Mental Disease—Because of the small number of cases, mental disease (84) as a primary cause of death is included with the "All Others" group in Tables 1 and 2. Analysis of the extent to which mental diseases (84, 162a, pt. 77b, 150b, 30b) are mentioned on death certificates, whether or not the conditions contributed to death, reveals no

evidence that they were more completely recorded on the confidential than on the open certificate.

External Causes (78, 79, 163-198)—Among the 7,330 deaths studied, 17 cases were found in which an external cause appeared in the hospital case history but was not reported on the death certificate. Of these cases, 12 deaths should have been charged to the external cause, and 5 to other conditions. As may be seen from Table 1, one-half of the 12 deaths from external causes were charged to cardiovascular-renal diseases on death certificates, 2 to respiratory diseases, and 1 to each of four different conditions. Evaluation of these cases indicates that most if not all of these differences involve intentional avoidance of medical examiner action. As such, it is doubtful whether any form of reporting can be expected to eliminate these discrepancies.

Operations Performed—The completeness with which operations are reported on death certificates has a major effect on the accuracy of mortality statistics. It is pertinent, therefore, to ascertain whether operations were more completely reported on the confidential than on the open certificate.

Analysis of the data for 5,606 white decedents from proprietary hospitals reveals that operations had been performed on 2,147, or 38.3 per cent, of these patients. Of these, 2,097, or almost 98 per cent, were reported on official death records. While the fre-

TABLE 9
White Decedents with Cancer (45-55) as Primary Cause of Death

Place of Death	Number from Case Histories (A)		Number from Death Certificates (B)		Per cent Ratio B to A	
	1937-1938	1939, 1941	1937-1938	1939, 1941	1937-1938	1939, 1941
Proprietary Hospitals	184	166	190	164	103	99
Manhattan	271	343	270	348	100	101
Other Boroughs					83 *	98
Municipal Hospitals			5	95		
Manhattan †	6	97				

* This ratio is based on a small number of cases and may, therefore, be influenced by chance fluctuations.

† Excludes decedents under 15 years of age and those for which an autopsy was performed.

quency of operations declined from 41.3 per cent in 1937 to 34.8 per cent in 1941, there was a slight improvement in reporting, from 96.6 per cent in 1937 to 98.2 per cent in 1941. This improvement, however, occurred in proprietary hospitals in boroughs other than Manhattan. Judged by proprietary hospital deaths, therefore, the confidential method did not result in more accurate reporting of operations.

DISCUSSION

When, about the year 1891, the confidential system of reporting was put into use in certain cantons of Switzerland, the number of reported deaths from syphilis was nearly doubled. Accordingly, the system was adopted and has been used throughout that country since January 1, 1901.¹⁹ On the basis of this experience, it was expected that there would be a marked increase in the reported mortality from syphilis, as well as from several other diseases, following the introduction of the confidential system to New York City. In the first year of its trial in Manhattan, the confidential report apparently had increased the accuracy with which the mortality from syphilis was reported. Since that time, however, the parallel trends in the mortality from the disease,

both in Manhattan and in the other boroughs of the city (Figure 1), have made it appear more probable that the rise, which was recorded in Manhattan from 1938 to 1939, was chiefly if not entirely a normal fluctuation.

The use of the confidential report was extended to the other four boroughs of the city on January 1, 1947. If the system proved effective, we should expect an increase in the mortality from alcoholism, syphilis, etc.; in these boroughs, but not in Manhattan, where no change in method of reporting occurred. The recorded mortality data for the first 11 months of 1947 compared with the same period of 1946, for seven conditions considered significant to confidential certification, are shown in Table 10. There is no evidence from those data of any changes which may be attributed to the system of reporting. Therefore, it may be concluded that, to date, the confidential report has had no significant effect on the accuracy of mortality statistics in New York City.

No method of reporting, of itself, can be expected to eliminate all of the factors which affect the accuracy of mortality statistics. In 1938, Dr. Halbert L. Dunn stated that "the errors in cause of death due to carelessness on the part of the physician in filling out the

TABLE 10

Mortality from Seven Selected Conditions in New York City, by Borough of Residence (non-residents included in borough of death), First Eleven Months of 1947 and 1946 compared

Cause and International List Number	Number of Deaths				Death Rate *			
	Manhattan		All Other Boroughs		Manhattan		All Other Boroughs	
	1947	1946	1947	1946	1947	1946	1947	1946
Alcoholism (77)	109	137	64	132	6.2	7.8	1.2	2.4
Syphilis (30)	301	307	276	260	17.2	17.6	5.1	4.8
Puerperal infection (140,147)	22	19	33	36	56.4	59.5	25.1	31.6
Diabetes (61)	743	664	2,404	2,085	42.5	38.0	44.2	38.7
Tuberculosis (13-22)	1,268	1,320	1,572	1,665	72.6	75.6	28.9	30.9
Cancer (45-55)	4,007	3,851	9,364	9,036	229.3	220.6	172.3	167.7
Appendicitis (121)	66	71	196	209	3.8	4.1	3.6	3.9

* Deaths from puerperal infection per 100,000 total births; all other causes per 100,000 total estimated population, adjusted to annual basis.

death certificate are probably fully as numerous as those arising from his desire for a confidential record. . . ."¹¹ From this study, one might add that simple ignorance of the rules of certification and lack of understanding of the mechanisms of death also have a greater bearing on the information that is recorded than does the method of reporting. Moreover, there are no indications that better statistics have resulted from the use of the confidential method.

How then may we effectively and efficiently improve the accuracy of mortality statistics? This is a problem of major importance which confronts the consumer of vital statistics. Together with the instructor in the medical school, he must devise a means of impressing the attending physician with the importance of his responsibility in reporting causes of death. This should involve careful perusal of the patient's history chart to determine the factors which caused and contributed to death, and entry of the cause-of-death statement on the certificate with sufficient accuracy and care so as to reflect his conclusions.* Some improvement could also be effected by a change in policy, in local health departments, from paper check-up by death certification clerks to a consultative service which the physician could call *before* he certifies the cause of death. This would enable the physician, who has had few deaths in

his own practice, to obtain the advice of one who has had practical experience with a great many cases as to the terminology and definition of causal mechanisms involved in a particular case.

The physician's unwillingness to record the causes of death to the best of his knowledge and belief is apparently of secondary importance to other factors which affect the accuracy of mortality statistics. Judged by the findings from this study, the confidential report does not improve the accuracy of diagnoses which reflect on the memory of the deceased. Apparently such improvement can be effected only through intensive educational campaigns which impress both the medical profession and the public with the fact that the development of medical knowledge, and the ability to combat disease, are dependent upon complete and accurate statistics. The campaigns against tuberculosis and cancer have removed many of the barriers of fear and superstition concerning these conditions and have thus been a factor in the present state of completeness with which they are recorded on death certificates. The current campaign against the venereal diseases has already effected a reduction in the inaccuracy of these mortality statistics. In the near future, as the campaign becomes more successful, the public will be completely impressed with the fact that the disease can be conquered. At that time, it may be expected that the true extent of the mortality from syphilis will be reflected by official statistics. Undoubtedly, most persons in this country prefer to face the facts openly and squarely, and will not intentionally withhold significant information once they are made cognizant of its value and importance.

SUMMARY

1. A confidential method of reporting causes of death, for deaths due to natural causes, has been used in the borough of Manhattan since

*The importance of the above cannot be overemphasized. In New York City, for example, more than one-half of the deaths are certified from institutions where more than one practitioner is in attendance. Frequently, these institutions find it necessary to execute a death certificate at a time when no physician who attended the patient is available. Even when one of the physicians is available, it is not possible for him to be able to fill out the death certificate without reference to the case history.

The situation is quite similar for an additional one-fifth of the deaths in New York City, which are certified by the medical examiner's office. In addition to the information obtained from the hospital or private physician, the completed history for these cases may contain extensive notes resulting from the examiner's investigation. All of this information must be carefully considered both from the medical examiner's and the vital statistician's point of view when the death certificate is prepared.

January 1, 1939, and in all five boroughs of New York City since January 1, 1947.

2. In 1943-1944, a study was made of 5,652 deaths which were certified from proprietary hospitals in 1937-1939 and 1941, and of 1,678 deaths which were certified from selected municipal hospitals in January and February of those years.

3. Judged by diagnoses abstracted from hospital case histories, five conditions were found to be understated on death certificates. The official statistics for these 7,330 persons accounted for only 50 per cent of the mortality from alcoholism, 55 per cent for syphilis, 74 per cent for puerperal infection, 86 per cent for diabetes, and 87 per cent for appendicitis. Tuberculosis and cancer were found not to be understated.

4. There are no indications from the data that better statistics have resulted from the use of the confidential death certificate.

5. The trends in the recorded mortality in Manhattan, while the confidential report was used, closely paralleled those for the boroughs which used the open certificate. Comparative mortality data for the first 11 months of 1946 and 1947 also reveal no changes which might be attributed to the use of the confidential report in all boroughs of the city since January 1, 1947.

REFERENCES

1. Duffield, Thomas J. The Physician's Confidential Medical Report of Cause of Death, *A.J.P.H.*, 34:271-274, 1944.
2. Nicoll, Mathias, Jr., and Bellows, Marjorie T. Effect of a Confidential Inquiry on the Recorded Mortality from Syphilis and Alcoholism. *A.J.P.H.*, 24: 813-820, 1934.
3. American Public Health Association. Confidential Inquiry in Cause of Death, *Year Book*, 1935-1936, pp. 252-254.
4. Defries, R. D., and Sellers, A. H. Second Annual Report of the Committee on Certification of Causes of Death (Part III), *Canad. Pub. Health J.*, 26: 398-405, 1935.
5. Parrot, Paul. A Trial of the Confidential Death Certificate in the Province of Quebec, *Canad. Pub. Health J.*, 30:335-342, 1939.
6. ———. The Use of the Confidential Death Certificate in the Province of Quebec, *Canad. Pub. Health J.*, 33:114-121, 1942.
7. Dublin, Louis I., and Kopf, Edwin W. The Improvement of Statistics of Cause of Death Through Supplementary Inquiries to Physicians, *Quart. Am. Stat. A.*, June, 1916, pp. 175-191.
8. Swartout, H. O., and Webster, R. G. To What Degree Are Mortality Statistics Dependable? *A.J.P.H.*, 30:811-815, 1940.
9. Pohlen, Kurt, and Emerson, Haven. Errors in Clinical Statements of Causes of Death, *A.J.P.H.*, 32:251-260, 1942; 33:505-516, 1943.
10. Defries, R. D., and Sellers, A. H. The Physician and the New Canadian Death Certificate, *Canad. M. A. J.*, 32:431-435, 1935.
11. Dunn, Halbert L. Adaptation of the International List of Causes of Death to Changing Needs of the Medical Profession and Public Health Groups, Bureau of the Census, Vital Statistics—*Special Reports*, 5 (No. 24), 1938.
12. Janssen, Theodore A. Comparability of Mortality Statistics, *J. Am. Stat. A.*, 33:399-403, 1938.
13. Sellers, A. H. The Physician's Statement of Cause of Death, *A.J.P.H.*, 28:430-444, 1938.
14. ———. Common Errors in Certifying the Cause of Death on the Medical Certificate. *Canad. M. A. J.*, 39:468-473, 1938.
15. DePorte, J. V. Mortality Statistics and the Physician, *A.J.P.H.*, 31:1051-1056, 1941.
16. Puffer, Ruth R., et al. Accuracy of Tuberculosis Death Rates in Williamson County, Tenn., *A.J.P.H.*, 43:370-378, 1943.
17. MacDonald, Eleanor J. Accuracy of the Cancer Death Records, *A.J.P.H.*, 28:818, 1938.
18. Dorn, Harold F., and Horn, Joseph F. The Reliability of Certificates of Deaths from Cancer, *Am. J. Hyg.*, 34:12-23, 1941.
19. Whipple, George C. *Vital Statistics*, (2nd ed.), New York: Wiley, 1923, p. 135.

NOTE: Special acknowledgment is made to Kurt Pohlen, Ph.D., employed under a grant from the New York Foundation, for his technical assistance, especially for his painstaking and diligent efforts in abstracting the diagnoses and related information from the original hospital records.

Acknowledgment is also made to Drs. Allan Hurst, Alfred Koerner, and Oma H. Price of the Department of Health, and to the hospital superintendents, proprietors, record librarians, and many other persons whose assistance and coöperation helped to make the study possible.

The author is grateful for helpful suggestions in the preparation of this paper to Dr. Louis I. Dublin, Second Vice-President and Statistician, and Herbert H. Marks, Manager, Insurance Medical Statistics, both of the Metropolitan Life Insurance Company, and to many of the persons already mentioned.

The opinions expressed herein are those of the author and do not necessarily reflect the views of the New York City Department of Health, the members of the Statistical Advisory Committee, nor of the other persons to whom acknowledgment has been made.

Selecting Public Health Personnel Through Examining Processes

Gleanings from the Conference of Health Officers and
Merit System Supervisors *

DOROTHY DEMING, R.N., F.A.P.H.A.

Merit System Service, American Public Health Association, New York, N. Y.

THIS conference, which consisted of an interchange of experiences in the use of various examining processes for the selection of public health personnel, was attended by health department and merit system representatives. Discussion, led by Dan S. Moore, State Director of Personnel, Louisiana Civil Service Commission, was informal, and focused for the most part on the three currently employed methods of selecting personnel under merit system regulations: the rating of training and experience, the written test, and the oral interview, with brief consideration of the weights given each in relation to the level of position under scrutiny.

While there were no formal recommendations arrived at during this conference—such was not its purpose—some of the comments and conclusions of the group are of such timely interest to administrators as to warrant recording.

THE ORAL INTERVIEW

There are two major purposes for which oral interviews are used: to sample the candidate's knowledge of the field, and to evaluate such factors as his personality, appearance, and ability to think and speak logically and clearly. It was suggested that a written examination properly constructed to test a can-

didate's knowledge, yields a far more precise measure than does the oral interview. The group agreed, however, that an oral interview to evaluate appearance and personality is especially important in selecting public health personnel because so many of the staff must meet and deal daily with the public. No administrator present was willing to appoint a public health physician, nurse, or engineer without a personal interview, and a board of oral interview serves as a preliminary screening of candidates for such interviews.

The objections to oral tests that were mentioned included: (1) a misconception, occasionally held by candidates, to the effect that interviews are "fixed" in advance; (2) the difficulty in scoring objectively and weighting appropriately the factors to be measured by the interview; (3) the frequent lack of a verbatim record of the interview which makes it difficult to prove the basis on which the individual interviewers made their judgments. Even with these drawbacks, however, the majority seemed to feel that the oral interview is a very necessary step in selection, and eliminates those obviously unsuited from a personality standpoint. No one would give it up.

THE RATING OF TRAINING AND EXPERIENCE

While no one present could offer a truly valid and workable method of eval-

* Presented at the Seventy-fifth Annual Meeting of the American Public Health Association in Atlantic City, N. J., October 6, 1947.

uating experience and training of professional public health personnel, all agreed that such rating is very essential. It was pointed out that its value, and therefore the weight assigned to this rating, increases with the importance of the position. For example: a public health nursing supervisor's training and experience bear a more direct relation to her potential ability to do the job well than the training and experience of a graduate nurse who will serve as an assistant to a public health nurse in a clinic. In fact, several health officers present thought that the rating of training and experience, plus the oral interview were the only tools needed or wanted in their states in selecting public health physicians.

THE WRITTEN EXAMINATION

The group devoted considerable time to discussing the pros and cons of requiring written examinations of professional personnel.

Those in favor of making the written examination an intrinsic part of the selective procedure offered in support of their opinion their belief that the written test presents:

1. Clearcut, indisputable evidence with regard to a candidate's knowledge of facts, and, if the right type of questions are used, provides an excellent measure of his capacity for exercising sound judgment.

2. The most reliable means we have to date for *ranking* candidates objectively. Several merit system supervisors and health officers remarked on the success with which the examinations prepared by the Merit System Service differentiated between the well prepared and less well prepared candidates in their states.

Many of those present indicated that they would like to use the objective type of written tests for all positions, but stressed their inability to persuade some of the professional groups to take examinations, because these groups:

1. Resent taking still another examination when they are already graduates of medical and nursing schools and licensed to practise,

2. Dislike—and this is easily understandable—finding that in spite of years of experience, they occasionally make scores lower than candidates with far less experience.

3. Feel that an objective test measures theoretical knowledge only.

It was also pointed out that one very bad factor in requiring a written test is the hardship worked on the candidate who is ill on the day of examination and who must then wait until another examination is held before being placed on the register.

A few persons present went so far as to say that professional people who have passed licensing examinations should be exempt from written tests and be judged on a rating of their training and experience, and by an oral interview. Merit system supervisors immediately pointed out that while this procedure may work when only 3 or 4 candidates are applying, a finer, more objective screening must be devised when 30 or 40 candidates are being ranked. With the best of efforts, the rating of training which has taken place in 30 or 40 different institutions all using different grading methods is difficult, while an evaluation of experiences which have occurred under as many as 100 employers each of whom offers a subjective opinion of the candidate's performance, leaves the scorer hopelessly at sea.

All were agreed, however, that reluctance to take written tests will probably be overcome when the candidates find the examinations are professionally acceptable and appropriate to the level of duties of the job. Such an examination can be compiled only if the specifications are good—that is, give complete descriptions of the requirements for, and of, the job. There is much room for improvement in many of the present job specifications.

WEIGHTING THE SELECTIVE PROCESSES

The discussion then turned to weighting the three selective processes: the oral interview, rating of training and expe-

rience, and written tests. The consensus seemed to be that the written tests for entering positions should receive very heavy weighting; that the oral interview should carry least weight of the three, perhaps 20-30 per cent; and that the rating of training and experience should carry a generous weight for "upper bracket" administrative positions, much less for first level jobs.

In conclusion, Mr. Moore summed up the situation by saying

The establishment of a minimum qualification for admission to practise a profession, does not, in and of itself, eliminate from merit system selection those people who are

not fitted to carry the specialized job. If some other device is not used, the appointing authority may find himself called on to choose the best of three undesirables. Written objective-type tests, properly constructed according to adequate job specifications, are suggested as appropriate and desirable instruments for ranking candidates

He reminded the audience that the Merit System Service of the A.P.H.A. is interested in all steps in selecting personnel. It can suggest the names of persons to serve on oral interviewing boards, and as advisers for assisting with the rating of training and experience, as well as supply the written objective-type tests under discussion

Beginnings of a Mental Health Program in a State and Local Department of Health*

KENT A. ZIMMERMAN, M.D.

Consultant for Mental Health, State Department of Public Health, San Francisco, Calif.

HEALTH officers in general recognize that a pressing need in their communities is the rapid development and expansion of mental health programs. Most feel that the community pressure is for the development of treatment clinics, and many people in health departments assume that that is the only kind of a program they can justifiably sponsor. Child guidance clinics and psychiatric clinics would probably be established by the thousands, almost overnight, if it were not for two very frustrating considerations, the lack of funds to operate a clinic and, even more serious, the inadequacy of well trained personnel. Many individuals, therefore, feel bewildered, and some discouraged when they find themselves blocked by these frustrations. In general, few people seem to see the work that is being done daily in the well baby, prenatal, tuberculosis, and venereal disease clinics, and in home visiting and family health counseling as being a very important opportunity for the promotion of mental health.

The reasons for such an attitude are perfectly justifiable. The usual well trained physician and nurse today do not think of themselves as capable of handling even simple emotional prob-

lems. Their professional education often did not give them this concept, and psychiatry itself has until very recently remained isolated from the rest of medicine. Consequently the general attitude in the majority of medical and nursing schools which seemed to be conveyed to the students, was that when there were problems of medical practice which related to feelings and attitudes, it was important to be aware of these, but, if possible, they should be left alone. This is one important reason why most doctors and nurses feel insecure when confronted with the emotions that accompany illness and convalescence. In many professional individuals there is also a lack of awareness of the importance of the emotional relationships that exist between doctor and nurse and patient, and their influence on both doctor and patient in everyday medical practice.

A growing number of people interested in mental health problems are coming to feel that a practical approach to the problem of meeting the mental health needs of communities could be made through professional workers already giving service to the communities. One of the most important of these groups is that of the health workers, who in company with school teachers, social workers, probation officers, and physicians in private practice, are concerned with helping people handle their problems and educating them toward

* Presented before the Maternal and Child Health Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 6, 1947.

the self-responsibility of keeping happy and well.

WHAT ARE THE PROBLEMS?

In coöperation with the Commonwealth Fund, the California State Department of Public Health undertook a project to ascertain what kind of program might be necessary to promote incorporation of mental health principles as part of public health practice. In late 1946, two physicians, with training in pediatrics and psychiatry and some experience in public health, joined the staff of the State Department of Public Health. These physicians were myself and Dr. Martha MacDonald. Dr. MacDonald worked with us for three months and then, unfortunately for us, resigned to do purely clinical psychiatric work. The first thing we did was to make a study of the State Department of Public Health and three local departments of health in the San Francisco Bay area. We needed to learn something about the following:

1. Attitudes of staffs about psychiatry and mental hygiene
2. How the staffs felt mental hygiene and psychiatry might help with their work
3. What did the staffs feel capable of doing
4. What did staff members lack which prevented them from becoming more effective in promoting the emotional well-being of their patients
5. How this could be supplied to them within the limitations of time for training and the tremendous work load which each department and staff member faced

A brief description of our findings and impressions pertinent to this discussion give some of the answers to the above questions. A large number of public health workers are eager for staff training in mental health concepts. However, any training program has to take into consideration the fact that because of the extremely heavy work load

and the shortage of personnel, administrators are reluctant to give long periods of time to such training. At the same time, administrators feel the desire of their staffs for training in this field. They are beginning to understand that a high turnover of personnel is often the result of the blocking of professional individuals in their growth by overwork and the lack of opportunity for instruction. Highly trained personnel for education of local staffs cannot in general be attracted to local staffs because of the low salary scales. Local departments of health, therefore, are turning more and more to state departments of health for consultation, planning and financing of training programs.

Concepts about the training of local personnel are limited. Many health officers and nursing supervisors feel that a course of lectures on mental hygiene will meet the needs, and their thinking about education often stops here. Too infrequently do they see that a program needs to be planned so as to follow up in local public health practice what was covered in the lectures. One reason for this is that they feel that they need the mental hygiene expert to perform this task and rarely think of using people in their own communities who could supply another viewpoint and the discipline of another training such as school teachers, probation officers, social workers, etc.

In the majority of local health departments, where there are often only one or two full-time physicians, the backbone of clinical service is the public health nursing staff. The physicians who usually attend the clinics come for, perhaps, one afternoon a week and perform their duties and leave the health department alone the rest of the time. In the main, the physician performs the mechanical part of medical practice and when there is an important and emotionally-laden decision about the course of activities of an individual and his fam-

ily in relation to illness, this task is usually given to the nurse to handle. Even with the patient who has no major problem at the moment, it is the nurse in the clinic who often takes the history, explains the doctor's orders, or sees the patient functioning as part of the family. It should be no surprise, therefore, that the nurse is avidly seeking for information and guidance on normal emotional growth of individuals and their families. The nurses are the ones who have to support the insecure mother of the new baby, help the adult with tuberculosis to accept sanatorium care, get the patient with venereal disease to see responsibility in coming for treatment, etc. Yet the nurse is all the more insecure, because her professional training and background have often been of an authoritarian nature, and she finds that this approach to the emotional problems such as she handles is rarely successful. Furthermore, as is also the case with physicians, she has often had no training whatever in the science and art of interviewing which both professions find again and again in their practice is the very thing they need most.

Another striking thing about many health departments is their utter lack of awareness of what other community agencies in their community are doing. Again, the person who interrelated these activities in the community was generally the public health nurse who, in her health work with families, needed to work with the social worker and the school teacher and sometimes the probation officer. However, the problem was mainly that the health department was so overwhelmed with work, as are the other community agencies, that its staff could rarely lift its eyes beyond its own confines and see itself as an important element in a total community picture of community services. This increased, therefore, the frustration of many sincere and conscientious individ-

uals who felt discouraged that there was so little they could do in meeting the emotional needs of their patients and families. This seemed to be because they thought in terms mostly of their own services, and, because of their lack of knowledge of the total community facilities, failed often to see the real importance of their own contribution to the patient.

Practically all the physicians who worked in the clinics felt a need for more knowledge of the normal individual, especially as to his growth and development, his reactions to illness, and his role in the doctor-patient relationship. Many physicians thought that this would help them in their practice as well as in their dealings with people everywhere. But also, it must be confessed, many physicians saw no particular reason for this since they were functioning quite successfully in their practices; and many felt that most simple emotional problems should be referred immediately to the psychiatrist.

Nurses stated they wanted more instruction about the normal emotions in children and adults and instruction on the techniques of interviewing. Occasionally an intuitive individual recognized that her own emotions and attitudes seemed to interfere or help in the treatment of some of her patients and would ask if some teaching could not be offered on this subject.

In summary it might be said that health workers are:

1. Eager for what psychiatry can offer them.
2. Belittle the potentially important mental health role they could play; feel they need the expert before anything can be done.
3. Feel inadequate in knowledge about the normal emotional behavior of children and adults. This is practically like saying that they want more confidence in knowing what human behavior really is.
4. Need more understanding of the emotional structure of the doctor-patient and nurse-patient relationship.
5. Want some instruction in interviewing and counseling.

In this local health department I worked at first as pediatrician in a typical well baby clinic. Our plan was to have the nurses of the staff rotate through this clinic. In addition to observing, each nurse was to select two or three patients or families who represented a problem in management or were of especial interest to her. The nurse was to keep good notes on these patients, especially of the interviews. At the end of each clinic session these patients were discussed from the standpoint of emotional change in both patient and nurse, or what some psychiatrists and psychiatric social workers call "movement" in the emotional interrelationship as it developed and waned. The object here was to simulate an approach to the case work situation which the learning social worker goes through in her training. In this way it is felt that some attention can be given to the nurse and her feelings so that she begins to learn and accept certain approaches which she as a personality can use in dealing with patients which affect the patients either positively or negatively in relation to their medical care. This experience, going on concomitantly with the lecture material given during the weekly nurses' staff meetings, required the integration of much more of the material into the nurse's personality. Likewise it provided a method of controlled growth of the individual in understanding the emotions of others and also those of herself in relation to her patients. The practical difficulty with this scheme was that we could not reach all the nurses on the staff with such personalized teaching.

A new scheme is now being developed. The health officer and the supervisor of nurses arranged that I attend a special well baby clinic to which all the nurses could refer two or three families from her district. We could thus have at least two nurses attend with their families at each session, and in a matter

of two to three weeks each nurse on the staff would have the opportunity to talk about how she felt about her patients and how she thought her patients felt about her.

I visit also the tuberculosis, crippled children screening clinic, rheumatic fever, and venereal disease clinics. This is more a consultation service discussing with the physicians and nurses those patients who refuse treatment, refuse hospital or sanatorium care, who become hostile in attitude, and those whose anxieties produce further symptoms and the like. Our policy here is to support and guide the nurse and the physician so that they handle these patient problems themselves rather than label the patient uncoöperative or refer him to the law officer or psychiatrist, if any is available.

Under the leadership of the health officer and the director of maternal and child health of the Richmond Health Department, the pediatricians in practice who attend the well baby clinics for the health department are considering meeting for a weekly luncheon at which the progress of our program will be followed and some discussions will be held on the mental health implications of office practice.

Along with this demonstration in a local health department it is contemplated that in coöperation with the Child Development Center of the Children's Hospital of the East Bay, the State Department of Public Health should also set up an experimental experience to see whether we can in another way supply some of the needs that nurses and physicians in public health, and medicine in general, do not get in their professional training. One of the great lacks for all physicians and nurses in their training has been an opportunity to understand and be with the normal child and get acquainted with the fact that he has emotions of hostility and anger which he must learn to in-

Volunteer Participation in Community Health in Hawaii*

RAYMOND GEORGE NEBELUNG, DR.P.H.

*Executive Director, Public Health Committee
Chamber of Commerce, Honolulu, T. H.*

ANY health problem, no matter how complicated, can be handled effectively if it is broken down into its different aspects. These individual problems can then be dealt with independently; but an integrated overall plan is essential so that the various programs will strengthen each other and eventually lead to unified community action.

For the past two and one-half years we have been building an organization for this purpose in Honolulu. The program is still in its developmental stages but sufficient progress has been made to indicate that lay persons not only are interested but are eager to assume responsibility in health activities under professional direction. Volunteer workers are being utilized with good results. Our first step was to study and to evaluate existing health programs in terms of community needs. Then it was possible to work out policies and procedures on the basis of available data and the coöperative concern of community groups. The second step was to make the facts known and to keep them before the public through a sustained and constructive educational program that will bring about action in these matters. Both lay and professional groups have participated in all phases of the work. We are endeavoring to make community needs better understood; and to secure

services more broadly conceived, adequately financed and administered.

The most difficult part of the demonstration has been the educational phase because it requires a sustained effort in which both lay and professional persons must participate if public interest is to be maintained. Furthermore, it necessitates a high quality of leadership, individual initiative, and a lot of time on the part of both groups.

The instrument which we are using to advantage to achieve our objective is a health council. Current membership in this activity includes 56 organizations, of which 35 per cent are civic organizations, 25 per cent professional groups, 22 per cent voluntary agencies, and 18 per cent official health agencies. The governing board consists of the council chairman, vice chairman, secretary, the chairmen of the three standing committees, two members elected by the council, and the two delegates representing the Public Health Committee of the Chamber of Commerce of Honolulu. Council expenditures are borne by the latter organization as a part of its contribution in the interests of promoting better community health. The professional personnel of the Public Health Committee function as the technical staff for the council. Planning and co-ordination are brought about through the program, education, and legislative committees, headed by lay and professional volunteers. Committee members are selected by each chairman, giv-

* Presented before the Public Health Education Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 10, 1947.

ing due consideration to all racial groups and organizations. Because these are working committees, emphasis is placed upon utilizing lay individuals as far as possible and making use of professional health personnel in a consultant capacity. Services of the latter are best used in planning because they usually do not have sufficient time to undertake the all-important follow-up activities. Besides, placing responsibility on lay volunteers gives them an incentive to demonstrate leadership and is a motivating force in overcoming public inertia.

Bi-monthly meetings, and special sessions as required, are held by the council. Programs are planned in cooperation with the various groups on the basis of interests and needs. This organization has provided a mechanism for discussing in a democratic manner health problems that have community concern. Also it has made possible the machinery with which to carry on follow-up activities of an educational and legislative nature which will enable us to deal more effectively with these problems.

A number of tangible results have already been achieved. They include establishing a full-time professorship in health education at the University of Hawaii, setting up a school of practical nursing under the auspices of the Vocational Division of the Territorial Department of Public Instruction, inaugurating outpatient clinic facilities in two local hospitals, sponsoring a Hawaii branch of the National Society for Crippled Children and Adults, and preparing an exhibit and booklet *The Health Story in Hawaii*.

Hawaii's health story merits special consideration because it is unique in our experience. Its purpose was twofold: to compile and present in a readable and interesting manner factual information on health in Hawaii; and to acquaint people throughout the Territory and on the mainland with health activities in

the islands. The project was sponsored by the Public Health Committee of the Chamber of Commerce of Honolulu in cooperation with the Oahu Health Council. The former organization initiated the idea and subsidized the costs entailed in its preparation.

The chairman of the Community Education Committee of the Oahu Health Council headed the special exhibit committee. Other members included representatives of the Public Health Committee of the Chamber of Commerce of Honolulu and its staff, Territorial Medical Society, Territorial Board of Health, Hawaii Visitors' Bureau, and Holst and Cummings advertising agency. The first problem which confronted them was how to portray the desired overall picture of health work in the Territory. It was finally decided to prepare a small booklet of approximately one hundred pages with photographs and descriptive copy.* It was also agreed that the content should feature health programs rather than the specialized work of individual agencies because it seemed more logical to tell what is being done rather than who is doing it.

The first step was the preparation of an outline allocating a certain percentage of space to each activity. Then a script was written showing why the percentages were made and outlining the points to be covered in each picture and page of copy. This material was circulated to each health council member and to other interested persons throughout the Territory. A revised outline embracing the suggestions and criticisms received was then drawn up, and work schedules were made out for photography and final copy. Fourteen agencies and individuals contributed photographs; sixteen organizations provided consultant services and other materials.

* *The Health Story in Hawaii*, Public Health Committee of the Chamber of Commerce of Honolulu, 1947.

The other phase of the project consisted of the preparation of a health exhibit which features fourteen photo murals mounted on a mechanical page turner. Hawaiian scenes form the background. The exhibit was prepared for display in the Scientific Exhibit Section of the 75th annual meeting of the American Public Health Association.

In the development of our program we have been motivated by the desire to obtain greater interest and more participation in community health work on the part of the general public. Satisfactory progress can be achieved only through dynamic leadership and the support and utilization of professional and lay volunteer personnel.

Cutter Recalls All Dextrose Solutions

Dr. R. K. Cutter, President of Cutter Laboratories, on May 6 telegraphed the following information for readers of the *Journal*:

"Contamination has been found in another and entirely different glucose solution, dextrose 10 per cent in Ringers. The company is coöperating with the Food and Drug Administration, and is requesting the assistance of health departments throughout the country, in immediately recalling from hospitals Cutter's entire line of dextrose and other solutions for mass intravenous injection. Company officials believe that discovery of this new contamination makes questionable the use of any product pro-

duced in their intravenous solutions department until this entire contamination difficulty is solved. The other products produced in this department are concentrated dextrose, distilled water, sodium citrate, normal saline solutions in 50 and 100 cc. bottles, as well as all flasks supplied by Cutter for community blood and plasma banks.

"The reason for this contamination is still unknown, and until they have the positive answer, Cutter feel that this is the only step that can be taken in the interest of public safety. In the meantime, arrangements are being made to supply hospitals with solutions of other manufacturers."

further observation and control are more certain. The school group, from 7 to 14 years of age inclusive, comprises 2,145,000 individuals, equally divided between the two sexes. As a group for investigation, it represents 21.4 per cent of the total Colombian population. Its distribution among the 14 departments of the Republic fluctuates between 22.1 per cent and 19.6 per cent according to information compiled by the Contraloría General de la República. From January, 1945, until July 31, 1947, there were examined a total of 140,163 school children throughout the 14 departments. The number of those children affected by simple goiter was 79,505 or an incidence of 56.5 per cent.*

The criteria for the diagnosis and classification of simple goiter in reference to form, size, and consistency, were established in a unified fashion from the initiation of the project. All examination of persons and the registration of the data were in charge of a special medical commission created for that purpose.

2. With the data obtained from the survey there was made a national map of the distribution of simple goiter by departments.

Mere observation of this map permits full appreciation of the high incidence of simple goiter (from 37 to 81 per cent) in the departments in the interior of the country. This is in marked contrast to the low incidence (less than 10 per cent) in the coastal areas along the Atlantic and Pacific.

The great difference between the two percentages is highly significant. It is apparently explained by the greater consumption of iodine by the inhabitants of the coastal regions. That iodine is obtained from the atmosphere itself and

from foods of marine origin (including sea salt).

3. Based on the available historical data and the partial results of the survey on the incidence and distribution of simple goiter in Colombia, two very important premises may be established:

First, in some localities, formerly similarly affected by goiter, this endemia has been gradually disappearing, apparently as a result of better nutrition and the hygienic water supply for drinking purposes established for its inhabitants.

Second, for the last thirty years the endemia of simple goiter has been invading areas formerly untouched by it, such as—the Departments of Caldas and Antioquia. This has been due to the fact that the regional consumption of salt from iodized sources, has gradually been almost completely replaced by the use of salt from the large mines near Bogotá. The salt from these mines is extremely low in iodine content but it is cheaper, since it is exploited on a large scale and it is easily distributed to various centers of consumption due to the development of means of transportation throughout the country.

4. a. Simple goiter and drinking water—

The popular belief predominates in Colombia that the drinking of "hard water" is the cause of simple goiter.

In conjunction with the census of simple goiter, an attempt has been made to establish an association or correlation between these two phenomena; 209 water samples having been taken from 293 places included in the census.

The conclusions have been the following:

First, in places with "soft water" (up to 75 p.p.m.) and "semi-hard water" (up to 150 p.p.m.) the incidence of simple goiter fluctuates between 7 and 90 per cent.

Second, in localities where there is "hard water" or "very hard water" (more than 150 p.p.m.) the incidence

* These data include all the sizes of goiter (+ to ++++). If there are excluded the cases of (+), considered as transitory or "physiological," the incidence is reduced from 56.5 per cent to 35 per cent.

of simple goiter is always high, i.e., more than 45 per cent.

b. Simple goiter and climate—

There exists no correlation between these two phenomena. Simple goiter is distributed in an equal manner between the various climatic areas. (Cold climate—more than 6,000 feet above the sea level in altitude; temperate—between 2,500 and 6,000 feet above the sea level; and hot climate—less than 2,500 feet.) There is, however, a higher frequency in climates where anquilostomiasis or hookworm predominates.

c. Simple goiter and cretinism—

In some regions of Colombia, where simple goiter endemia is of long duration, there may be noted defects in physical development (stature shorter than that of the average) and abnormalities in mental development on a scale varying from the mentally retarded and "slow" to the cretin and the idiot.

5. Prophylactic Measures—The historical antecedents of the simple goiter endemia in Colombia, the determining factors in its invasion and extension into some regions, the significant difference between the incidence of the endemia in the interior and the coastal regions of the country—all lead one to consider the relative scarcity of iodine as the principal etiological factor in the incidence of simple goiter in Colombia. This, of course, does not exclude the effects of other contributory elements.

On the basis of this etiological premise, the Department of Nutrition proceeded to search for an adequate manner of furnishing a supplementary source of iodine—as a prophylactic measure against simple goiter. It was proposed to incorporate this supplementary iodine into ordinary kitchen salt for use by the inhabitants of the interior of the country.

As the first step in this procedure, the average daily consumption of salt per

capita was determined. This is 15 gm. Then, the optimum iodine content of the salt was calculated to be 4 mg. per 100 gm.

Samples of the salt, with a natural iodine content, from the old mines were analyzed but though the original iodine content was acceptable, the production capacity for the desired consumption was inadequate.

Samples were also analyzed for iodine content of the marine salt and the salt from the mines near Bogotá. The iodine content was almost equal.

It was then planned to iodize and stabilize the marine salt, but the project was abandoned because of technical difficulties and administrative problems (collapse of the production of the mines, social problems with labor, cost of transportation, etc.).

6. Artificial iodization of salt—

It was finally decided to iodize artificially and stabilize the salt from the mines of Zipaquirá, Nemocón and Sesquilé, situated almost in the geographical center of Colombia.

The manufacture of salt in powdered form from these mines follows a process which consists essentially of the following: (1) extract the mineral from the mines, (2) dissolve it in sweet water, (3) let it be purified and concentrated in a solution called "salmuera" up to 28-30 per cent salt, (4) evaporate the salt solution in containers of iron at a temperature of 98-100° C., (5) separate into precipitated salt, (6) permit to dry and transport for wholesale distribution in burlap sacks (retail sales per pound in paper sacks or wrapped in vegetable leaves).

At the present time there is manufactured and consumed a quantity of 100,000 tons of land salt per annum, destined for human use and for that of animals.

The method of artificial iodization tried out and adopted consists in adding to the salt solution—before it is placed in the iron caldrons—the mixture of

iodine and chemical stabilizing substances. This method does not require special machinery, obtains a uniform distribution of iodine throughout the salt, and results in being both simple in procedure and economic in cost. The stability of the iodine in the iodized salt is checked by samples submitted to various temperature and humidity conditions in cold, temperate, and hot climates, and in containers of ordinary paper. The loss of iodine content fluctuates between 3 and 4.5 per cent of the original content, after from 8 to 14 months subsequent to the time of the manufacture of the salt.

There is already information to determine the most adequate composition of the iodine mixture necessary in order to obtain a stabilized artificially iodized salt which is both cheap and easy to prepare.

7. Financing—Once the experimental studies were terminated, the Nutrition Division of the S.C.I.S.P. submitted for the approval of the Minister of Health in June, 1947, a project designed for two specific purposes: first, the artificial iodization of the salt from all the mines, and second, simultaneously with the first objective, to provide for the creation and the maintenance of the National Nutrition Institute for the study of the food and nutritional problems in Colombia.

The project for the financing of the proposed program consists essentially in the following phases: (1) the increase by 1 cent (Colombian) of the selling price of iodized salt over that of the common salt (this increase produces approximately Ps. 2,000,000 each year), (2) from this annual income, to pay the iodization expenses and to assign the total funds in excess of that cost for the creation and maintenance of the aforementioned Institute.

The original project of the Division of Nutrition was approved by the Minister of Hygiene and presented by him

to the Consejo de Ministros (meeting of national cabinet members) which entity also gave its approval. At the present time the proposal is under discussion by the National Congress, which body must pass it as a Law of the Republic. In the event that the proposal becomes law, the Division of Nutrition will have achieved two fundamental objectives: the prevention of simple goiter and the financing of a vast plan for the benefit of Colombian Nutrition. All this is being accomplished without burdening the budget of the Minister of Health nor that of the Servicio Cooperativo Interamericano de Salud Pública and at the cost of only 12 cents (Colombian) per annum to each inhabitant of the interior areas of Colombia. This accomplishment will be doubtless one of the most effective contributions of the Servicio Cooperativo Interamericano de Salud Pública in Colombia.

NOTE: The work and projects on simple goiter have had the approval and the unqualified support of the Directors of the S.C.I.S.P. in Colombia and of the Ministers of Hygiene throughout the entire period of the campaign. The Banco de la República—the entity in charge of the income proceeding from the exploitation of the salt mines throughout Colombia, has given every facility for the experiments on artificial iodization of salt on an industrial scale. In these studies and experiments, Dr. D. M. Hegsted of the Nutrition Division of the Schools of Medicine and Public Health of Harvard University—Asesor Técnico of Nutrition under contract to the Ministry of Health, Dr. Jacinto Caycedo—Medical Director of the Simple Goiter Commission in Colombia, and Dr. Alfonso Parra—Chemist of the Nutrition Laboratory—have given valuable assistance.

SUMMARY

1. Simple goiter is an ancient and serious problem of pathology in Colombia.
2. Surveys carried out on 140,000 school children, from 7 to 14 years of age inclusive, show an incidence of 56.5 per cent, including all sizes of goiter (+ to +++++). If there are excluded those cases of (+) value, the incidence is reduced to 35 per cent.
3. The history of simple goiter in Colombia, the process of its propagation to certain re-

gions of the country previously immune, and the marked difference of the incidence of the endemia between the school children of the interior (more than 50 per cent) and those of the maritime or coastal regions (less than 10 per cent) lead to the conclusion that the relative scarcity of iodine is the principal etiological factor of simple goiter, without excluding other factors such as anquilostomiasis (hookworm) and the quality of the drinking water.

4. In those regions of the Country where simple goiter is of long duration as an endemia (more than 100 years) there are observed cases, in children and in adults, with chronic defects in physical development (stature shorter than that of the average) and with evidences of mental retardment (mentally "dull" and cretins).

5. As a preventive measure against simple goiter in behalf of the entire population of Colombia there is proposed the artificial iodization of the salt from the land mines, in the proportion of 4 mg. of iodine per each 100 gm.

of salt. The average daily intake of salt per capita is 15 gm.

6. In order to finance the artificial iodization of the salt there is proposed an increase of one or two cents in the selling price per pound of salt. This increase will produce an annual fund of from 2 to 4 million pesos (approximately 1 to 2 million U. S. dollars).

7. From this annual income will be paid the iodization expenses and the remainder of the money will be destined to the creation and maintenance of the Instituto Nacional de Nutrición (National Nutrition Institute).

8. The project for the artificial iodization of salt and the creation and maintenance of the National Nutrition Institute is at the present time under discussion by the National Congress of Colombia and has already received the approval of the Special Commission of the Senate.

9. The approval and realization of this project will be one of the most efficacious contributions of the Servicio Cooperativo Interamericano de Salud Pública in the benefit of the Colombian people.

Budgets and Expenditures for Dentistry from Maternal and Child Health Funds*

A study of the dental programs of selected states, 1938-1946

JOHN T. FULTON, D.D.S.

Dental Services Adviser, U. S. Children's Bureau, Washington, D. C.

CONTINUOUS planning of programs is one of the essential elements of public administration. To plan effectively it is essential to review and appraise the nature and extent of past activities in a particular field. One of the continuing jobs of an administrator, therefore, is to "pull out the files" and to inform himself of the experience of others.

For the most part the development of dental programs in state health departments followed the passage of the Social Security Act in 1935 when grants in aid became available to the states to extend and improve health services to mothers and children. The Children's Bureau, in administering Title V, Part I, of the Social Security Act, makes grants-in-aid to states on the basis of an annual plan and budget which is submitted by each state for maternal and child health services. The Children's Bureau further requires that each state at the end of the fiscal year submit for audit a report of the expenditure of these funds.

An examination of these records for dental items helps us in appraising what has developed, and should establish

bench marks for the continued planning of public dental programs.

Such a study is now under way in the Children's Bureau, and this paper is in the nature of a preliminary report, covering the budgets and expenditures of eight selected states for a period of 9 fiscal years from 1938 through 1946. The material presented is limited to the items concerning dentistry which appeared in the budgets and audited expenditures of the states. Only those items were recorded that could be clearly identified as dental expenditures. Lump sum reporting of supplies, equipment, or educational materials may have included items for the dental programs, but it was not possible to extract such amounts. It should be pointed out also that the amounts reported to the Children's Bureau by the states cover only federal funds and the money used by the states for matching these funds. The reported amounts, therefore, do not necessarily represent the entire sum spent by the various states for dental services. It should be emphasized that findings in the study are preliminary and subject to review in the light of future analysis.

For purposes of administration, the Children's Bureau has established 8 regional offices. One state from each of these regional jurisdictions was selected for this preliminary report on the basis

* Presented before the Dental Health Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 2, 1947.

that the dental program of the state health department had been maintained continuously for the 9 years under study. No other criteria were applied in the selection of the states. Thus it cannot be assumed that these states constitute a representative example from a national or regional point of view. These findings are, however, descriptive of continuing programs in the states concerned.

While it is beyond the scope of this paper to discuss administrative or program content, it is interesting that 7 of the 8 states have always employed full-time dental directors. Four of the 7 have served for the entire 9 years. The 1 part-time director has also headed up his state's dental program since its inception. In 2 cases, the directorship has changed and in 1 of the states the dental program operated for 2 years without a dentist in charge.

It is interesting further that by 1942 all of these states had brought their dental personnel under state merit system classification plans.

Almost one and three-fourths million dollars were earmarked for dental programs by these state health departments, three-fourths of which were subsequently expended. The amounts budgeted range from \$68,000 to \$427,000 per state, with half the states budgeting in the neighborhood of \$150,000. The proportion of these budgets which was actually spent ranges from 55 to 93 per cent with half of the states well above 80 per cent and 1 other state closely approaching that figure.

The related weight of dental expenditures to the total sums spent for maternal and child health services varied from over 11 per cent in 1939 to 6.5 per cent in 1945, rising again to 10 per cent in 1946. In this computation the expenditures for this group of 8 states are combined for each of the study years. The percentage remains fairly constant for the first 3 years and then tends to decrease through 1945, but rises sharply

back to its former level in 1946. Trend for individual states was varied. In 1 of the states the trend was consistently downward through the entire 9 year period. In another of the states no trend was evident, while in the other 6 states there was a great amount of fluctuation during the 1940's. As the United States was engaged in war during 4 of these years, it is possible that these fluctuations were caused by man power shortages and scarcity of materials and supplies. At this point, however, such considerations are matters of conjecture. Detailed study of this trend was not possible with the present material and will be reserved for a later, more detailed analysis.

Concerning expenditures for dentistry in 1938 and 1946, the first and last years studied and also the proportion of the total maternal and child health expenditures used for dentistry in those years, our study shows that 6 of the 8 states increased the amount of their dental expenditures substantially. In the states where there was an increase in the amount of dental expenditures in 1946 as compared with 1938, the increase ranged from \$3,510 for state No. 2 to \$40,390 in state No. 1. In the case of state No. 7 the funds decreased by approximately \$5,000, and in state No. 8 the decrease amounted to nearly \$25,000.

A breakdown of the dental expenditures over the 9 year period according to object (salaries, travel, supplies, fees, training, and health education) shows that the bulk of the total dental expenditures was involved in salary items in all the states, with the exception of state No. 4, the overall proportion of the total for this item being 71 per cent. Items for travel demanded the next largest outlay (11.4), with fees (9.8), supplies (5.9), training (1.1), and health education (0.7 per cent).

The salary items cover a variety of personnel, in the main full-time em-

ployees. Part-time dentists on a salary basis were listed by 4 of the states, one of them as previously stated being a director of his state's dental program. A summary of the latest classification plans of the states illustrates the types of personnel which made up the bulk of these salary items. Although the titles vary somewhat in the different states, in general, the personnel fall into 6 classes:

- Director of Dental Health
- Senior Public Health Dentist
- Junior Public Health Dentist
- Senior Dental Hygienist
- Junior Dental Hygienist
- Clerks and Stenographers

Travel items were listed for all types of professional personnel and included out-of-state trips.

Supplies covered a wide range of equipment such as dental instruments, chairs, engines, cabinets, laboratory equipment and instruments, dental supplies, automobile and trailers, as well as general office materials.

As pointed out earlier, sometimes supplies were lumped together as one item in the reports of expenditures. It is possible, therefore, that the total given here may not represent the entire expenditures for such materials.

Fees included payments to practising dentists for correctional dentistry in clinics or private offices, and for inspection, diagnostic and preventive services.

It is interesting to note that state No. 4 reported a much higher total of expenditures for these fee items than for salaries. Expenditures for fees in this state made up 56 per cent of the

total dental expenditures. Fees represented 13 per cent and 9 per cent of total dental expenditures in 2 other states. In the remaining states the payment of fees to practising dentists for clinical service constituted a very small proportion of the dental expenditures in these state programs.

Training embraced both graduate education for full-time personnel and refresher courses for practising dentists. The former included stipends and tuition. The latter type of training included both lecturers and clinicians who visited local groups of dentists, and the sending of local dentists to dental schools for short refresher courses.

Health education items were expended for publications, printing of leaflets, exhibits, visual education materials and equipment, and for the organization and conduct of institutes for teachers and lay people. Here too, these materials may have been grouped in general supply item reports which would not show.

Material has been presented for 8 selected states on the budgets and expenditures of dental programs in state health departments. Recognizing the limitations created by the small number of the states included, and the incompleteness of some of the items, the study nevertheless illustrates a useful approach to the problem of studying growth and change in the size of dental programs. The procedure outlined also delineates the relative importance of different types of expenditures under dental programs.

Mass Control of Dental Caries Through the Use of Domestic Water Supplies Containing Fluorine

FREDERICK S. MCKAY, D.D.S.
Colorado Springs, Colo.

BASED upon the generally prevailing rate of decay and tooth loss the forecast for the future is grim to the point of seriousness. A prediction published by an authoritative source as recently as June, 1947,¹ puts it as follows:

"It is estimated that . . . the 3,400,000 children born in 1946 . . . at 16 years of age will (each) require 7 fillings and 2 extractions and that 40 per cent of those reaching 40 years of age will require dentures."

Evidence collected during the past several years has established that the

continuous use of a domestic water supply containing even as low as approximately 1 p.p.m. of fluoride, during the period of tooth calcification, will bring about a mass reduction in the dental decay rate. As will be apparent later in this paper the conditions existing in fluorinated districts are in complete disrelation with the prediction quoted just above.

The evidence up to the present time has been derived almost wholly from examinations of children. There has been almost no information as to the dental

TABLE 1

Summary of observations on 400 Colorado Springs (Colo.) natives having dental fluorosis

Age Groups	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45 and above
Number of persons examined	65	89	70	66	35	26	26	23
Number of persons showing no dental caries experience	42	44	23	14	8	4	1	4
Number of teeth showing untreated dental caries or fillings	71	135	166	259	136	97	192	136
Number of teeth lost because of dental caries *	4	5	6	12	19	12	16	22
Number of teeth lost (all causes)	4	5	10	12	19	12	16	22
Number of decayed or filled teeth per person	1.09	1.51	2.37	3.91	3.88	3.73	7.38	5.91

* In the higher age groups it is not possible to determine accurately whether teeth were lost by caries or by other causes.

Total number of persons	400	Average decayed and filled teeth per person	2.98
Number of persons showing no decay experience	140	Total number of teeth lost (all causes)	100
Per cent of persons showing no decay experience	35	Total number of incisor and cuspid teeth showing decay experience	45
Total number of teeth showing decay experience	1,192		

Comparison of Tooth Loss at Colorado Springs with "Standardized Rate"

"Standardized Rate" * tooth loss per person	1.2	2.3	3.8	5.8	7.9	10.2	..
Tooth loss (all causes) per person, Colorado Sps.	0.06	0.05	0.14	0.18	0.54	0.46	0.61
							0.95

* From, Klein, H. J.A.D.A. 30:80-96 (Jan.), 1943 (table 4); data represent 45,500 white U. S. Adults, all socio-economic groups.

condition of adults who had acquired fluorosis of the teeth during childhood.

The data in the tables which follow were collected in the City of Colorado Springs, Colo., during the past three years, and are intended in part to supply this important information.

The observations summarized in Table 1 are not from a selected group of people but were made from persons as they presented themselves from day to day. All are natives of continuous residence with continuous use of the city water supply which has fairly consistently maintained a level of 2.6 p.p.m. of fluoride, since the first determinations were made several years ago.

The purpose of this paper is to show the actual condition that exists in this community after about 70 years of use of this water supply.

This is set forth in Table 1.

In addition to showing the average decay experience rate (untreated and filled teeth) in the different age groups, the table shows that this rate for the entire group is 2.98 per person. It will be noted also that slightly more than one-third (35 per cent) of these persons had experienced no decay whatever. The average age of the group is about 25 years. The age groups 10-14 and 15-19 show the remarkably low decay experience rates of 1.09 and 1.51 respectively, the decayed areas being practically limited to the fissures and pits in the molar teeth. The low incidence of caries experience in fluorosed upper anterior teeth cited by Dean² is confirmed by the present study, in which it was found that of the 1,192 teeth showing caries experience only 45 were in the incisor and cuspid group.

From the above it is apparent that decay of the proximal surfaces of fluorosed incisors and cuspids is almost negligible. The "standardized rate" of tooth loss as it appears in Table 1, has been accepted as a measure of the prevailing tooth loss from all causes. Table

1 shows a slowly increasing average decay experience rate as the ages advance, for which no explanation is suggested, but it is important to note that at the highest average rate shown (the 40-44 year group) the rate is considerably less than the *tooth loss* rate in the "standardized rate" table. The significance of these rates of decay experience and tooth loss can be best comprehended by comparison with a non-fluoride community such as the City of Madison, Wis.* This comparison is shown in Table 2 which was compiled by Dr. John G. Frisch of Madison.

The observations summarized in Table 3 were made in Colorado Springs and Montrose, Colo.,³ the persons examined having acquired fluorosis of the teeth in other widely scattered communities and districts through the use of domestic waters containing fluoride. These districts were generally in the middle and southwestern states and in other parts of Colorado.

Tables 1 and 3 bear a close similarity. Perhaps the most important comment pertaining to Table 3 is that the inhibitory effect of fluorine, once acquired, is permanent and is not diminished by later migrations. It is not necessary that the use of fluorinated water be continued. It is indicated also that the average rates of decay experience and tooth loss shown in Colorado Springs are by no means peculiar to that city alone. Examinations made in other communities using fluorinated water supplies, in various parts of the country, have shown that the average decay rate remains consistently at about 3 and that about one-third of the native persons are caries-free.⁴

It seems, therefore, that a pattern has been established which indicates what may be expected in any community that uses a fluorinated water supply. Bearing

* Madison is one of the cities that have recently undertaken a project for fluorination of its water supply.

TABLE 2

Comparative LOSS OF TEETH AND DENTAL DECAY EXPERIENCE by Age Groups

MADISON
0.05 FLUORINE P.P.M.

COLORADO SPRINGS
2.6 FLUORINE P.P.M.

	NUMBER EXAMINED	NUMBER WITH NO DECAY	DECAYED AND FILLED TEETH	EXTRACTED TEETH	AVERAGE NO. DECAYED, MISSING AND FILLED TEETH PER PERSON	AVERAGE NO. EXTRACTED TEETH PER PERSON
AGES 10-14	MADISON	840	33	5538	376	7.04
	COLORADO SPRINGS	60	40	66	4	1.10
	6 TIMES AS MUCH DECAY EXPERIENCED PER PERSON					
	7 TIMES AS MANY EXTRACTED TEETH PER PERSON					
AGES 15-19	MADISON	224	4	2446	323	12.36
	COLORADO SPRINGS	167	78	277	11	1.72
	7 TIMES AS MUCH DECAY EXPERIENCED PER PERSON					
	22 TIMES AS MANY EXTRACTED TEETH PER PERSON					
AGES 20-24	MADISON	158	0	2182	509	17.03
	COLORADO SPRINGS	101	33	254	9	2.60
	7 TIMES AS MUCH DECAY EXPERIENCED PER PERSON					
	36 TIMES AS MANY EXTRACTED TEETH PER PERSON					
AGES 25-29	MADISON	106	0	1336	569	17.97
	COLORADO SPRINGS	93	18	331	23	3.80
	5 TIMES AS MUCH DECAY EXPERIENCED PER PERSON					
	22 TIMES AS MANY EXTRACTED TEETH PER PERSON					
AGES 30-34	MADISON	82	0	1174	477	2013
	COLORADO SPRINGS	46	10	159	18	384
	5 TIMES AS MUCH DECAY EXPERIENCED PER PERSON					
	15 TIMES AS MANY EXTRACTED TEETH PER PERSON					
AGES 35-39	MADISON	85	0	1135	577	2014
	COLORADO SPRINGS	37	6	119	11	351
	5 TIMES AS MUCH DECAY EXPERIENCED PER PERSON					
	23 TIMES AS MANY EXTRACTED TEETH PER PERSON					
AGES 40 and ABOVE	MADISON	251	0	2310	2976	2106
	COLORADO SPRINGS	64	6	379	24	629
	3 TIMES AS MUCH DECAY EXPERIENCED PER PERSON					
	32 TIMES AS MANY EXTRACTED TEETH PER PERSON					

* All causes

JOHN G. FRISCH, D.D.S.
MADISON, WIS.

July, 1947

FREDRICK S. MCKAY, D.D.S.
COLORADO SPRINGS, COLO.

Table 2 was computed from charts compiled prior to those used as Tables 1 and 3 in this paper which accounts for the slight variations.

TABLE 3
(Observed in Colorado Springs and Montrose, Colo.)
Summary of observations on 218 migratory persons having dental fluorosis

Age Groups	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45 and above
Number of persons examined	51	80	32	20	13	8	7	7
Number of persons showing no dental caries experience	25	35	8	5	3	1	0	1
Number of teeth showing dental caries or fillings	76	155	93	66	43	28	36	33
Number of teeth lost because of dental caries *	8	7	3	1	0	..	..	..
Number of teeth lost (all causes)	8	7	3	8	0	4	4	4
Number of decayed or filled teeth per person	1.49	1.93	2.90	3.30	3.30	3.50	5.14	4.71

* In the older groups it is not possible to determine accurately whether teeth were lost by caries or by other causes.

Total number of persons	218	Average decayed and filled teeth per person	2.43
Number of persons showing no decay experience	78	Total number of teeth lost (all causes)	38
Per cent of persons showing no decay experience	35.7	Total number of incisor and cuspid teeth showing decay experience	16
Total number of teeth showing decay experience	530		

Comparison of Tooth Loss in this Migratory Group with "Standardized Rate"

"Standardized Rate" * tooth loss per person	..	1.2	2.3	3.8	5.8	7.9	10.2	..
Tooth loss (all causes) per person in this migratory group	0.15	0.08	0.09	0.40	0.0	0.5	0.5	0.5

* From, Klein, H. *J.A.D.A.* 30:80-96 (Jan.), 1943 (table 4); data represent 45,500 white U. S. Adults, all socio-economic groups.

on the relation between the degree of fluorosis of the teeth and the caries experience rate, a significant observation made on the Colorado Springs group was that in 137 of the first 300 persons examined the degree of fluorosis was classified as "mild." Their average caries experience rate was 2.46 and 55 (40 per cent) of this group were caries-free.

It has not been maintained that any benefit will accrue to teeth formed prior to the use of fluorinated water, and yet it cannot be said that this will not be the case. Reliable evidence bearing upon this point would be difficult to obtain, but there is a feeling that such teeth may experience some benefit.

Primarily this is a long-range influence directed toward the reduction of tooth decay in children and at the same time endowing the teeth with a resistance against decay that extends, as the tables show, well into adult life.

The chief research project in dentistry has been and still is to determine the

cause of decay and to devise means for its elimination. No caries reduction program encountered thus far has succeeded in delivering any considerable segment of a mass population into adult life with an average caries experience rate of about 3 and a complete absence of decay in approximately one-third of a native population, as has the use of a domestic water supply in which fluorine is a natural constituent. Some twenty-five communities in this country have accepted the evidence as sufficiently conclusive to warrant the addition of fluoride in a proper proportion to their domestic water supplies as a means of reducing the decay rate. If in the future some method of further reducing the decay rate should be available, it need not necessarily be in conflict with the action exerted by fluorine.

REFERENCES

1. Editorial, *J. Am. Dent. A.* 34, 12:831 (June 15), 1947.
2. Dean, H. T. Epidemiological Studies in the

United States. Amer. Assoc. Adv. Science II. *Dental Caries and Fluorine*, 1946.

Dean, H. T., et al. *Pub. Health Rep.*, 54, 21:862-888 (May 26), 1939.

Dean, H. T., et al. Domestic Water and Dental Caries. *V. Pub. Health Rep.* 57, 32:1155-1179 (Aug. 7), 1942.

Dean, H. T., et al. *Pub. Health Rep.* 56, 15:761-792 (Apr. 11), 1941.

3. Downs, R. A., and McKay, Frederick S. A Reverse Approach to the Fluorine-Dental Caries Hypothesis. *A.J.P.H.*, 36, 11:1307-1308 (Nov.), 1946.

4. Dean, H. T. Fluorine and Dental Caries. *Am. J. Orth. & Oral Surg.*, 33, 2:49-67 (Feb.), 1947.

Dean, H. T. Fluorine, Mottled Enamel and Dental Caries. *J. Pediat.*, 16, 6:782-794 (June), 1940.

Dean, H. T. Domestic Water and Dental Caries.

V. Pub. Health Rep., 57, 32:1155-1179 (Aug. 7), 1942.

Dean, H. T. Domestic Water and Dental Caries. *II. Pub. Health Rep.*, 56, 15:761-792 (Apr. 11), 1941.

Hoffman, O. E. Examinations in Certain Counties in Iowa, 1947. Unpublished.

Frisch, J. G., et al. Summary of Comparative Dental Survey Union Grove—Madison, Wis. Private Correspondence, 1946.

Downs, R. A., McKay, Frederick S., and Frisch, J. G. Survey of Public School Children in Salida, Colo., 1947. Unpublished.

NOTE: Grateful acknowledgement is made to Mark F. Bryant, D.D.S., of Colorado Springs for his assistance in collecting data.

Sixth Annual Meeting United States-Mexico Border Public Health Association

The Sixth Annual Meeting of the United States-Mexico Border Public Health Association was held in Laredo, Tex., and Nuevo Laredo, Mexico, March 20-22. Nearly 300 persons were in attendance with almost as many from the South of the Border as from the North.

Sessions were held on international coöperation in health, on Border sanitation, on tuberculosis and its control, with special reference to BCG, on meningitis and other communicable diseases, and on the problems confronting the mother and child. Excellent exhibits were shown from the Section on Public Health Education of the Ministry of Health and Welfare of Mexico. Coöperating agencies beside the Ministry of Health were the U. S. Public Health Service, the Ministry of Hydraulics in Mexico, the Ministry of Agriculture in Mexico, the Institute of

Inter-American Affairs, the U. S. Children's Bureau, the International Boundary and Water Commission, the Rockefeller Foundation, the University of Vera Cruz, the Texas Tuberculosis Association, the Crippled Children's Foundation, and the Pan American Sanitary Bureau.

It was decided to hold the meeting in 1949 at Nogales, Ariz., and Nogales Sonora, Mexico.

The new officers for the Border Public Health Association were elected as follows.

President: Dr. Victor Ocampo Alonzo, Hermosillo, Sonora

President-Elect: Dr. George W. Cox, Austin, Tex.

Vice-Presidents: Dr. Jose Angulo Araico, Mexicali, Baja, Calif.; Dr. J. P. Ward, Phoenix, Ariz.

Secretary: Dr. M. F. Haralson, El Paso, Tex.

Pro-Secretary: Dr. Gustavo A. Rovirosa, El Paso, Tex.

Role of the State Health Department in the School Dental Program*

J. M. WISAN, D.D.S., M.S.P.H., F.A.P.H.A.

Dental Director, State Department of Health, Trenton, N. J.†

STATE departments of health are accepting six responsibilities¹ in the conduct of school dental programs. Briefly, these responsibilities are:

1. Studying and planning for the solution of dental health problems
2. Coördinating and advising local agencies
3. Subsidizing local programs
4. Establishing standards for dental programs
5. Disseminating authentic dental health information
6. Coöperating with other state agencies

While the listed functions indicate that state departments of health are exhibiting characteristics of leadership, the actual performance in conducting school dental programs does and should rest with local personnel.² The state department of health within this concept functions as an interagency. How indispensable local participation is for meeting dental health needs will be discussed under each of the listed functions.

1. *Studying and planning for the solution of dental health problems*—A local board of education or a local board of health conducts surveys to determine the prevalence of dental defects among school children. It is desirable that local personnel be aware of the dental needs of their children. However, the value of the findings will be enhanced if local

authorities are able to compare conditions found in their community with conditions found in other situations.³ By utilizing comparable data obtained under similar or nearly similar conditions, the effectiveness of program technics can be evaluated. Not only can results of programs be reliably measured, but also costs can be accurately estimated by uniform reports.⁴

State departments of health should designate inspection charts and recommend techniques for dental surveys, so that uniform procedures may be utilized throughout the state. After dental conditions found in local areas are carefully analyzed, the state department will be able to make recommendations for dental programs, not by theoretical armchair thinking but by accurate estimates.

A number of state departments of health are conducting demonstration and research projects. Among the phases being studied are the fluorination of communal water supplies, the topical application of 2 per cent sodium fluoride, incremental dental care procedures for children, dental care time estimates, and evaluation of health education devices.

2. *Coördinating and advising local agencies*—When local dental programs are supported by health, welfare, and educational agencies, maximum results may be expected; but competent leadership is required to develop such coördination. When requested to do so, a state dental administrator usually finds it less difficult to accomplish rapport of local personnel than does a home-town

* Presented before a Joint Session of the American School Health Association and the Dental Health Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 9, 1947.

† Present address: Director, Division of Dental Health Education, American Dental Association, Chicago, Ill.

official. Moreover, because of his objective viewpoint, a state administrator is better able to recommend desirable changes or improvements.

In New Jersey the dental health division of the State Department of Health has found it profitable to help organize dental health committees representing local schools, health departments, nurses, dental hygienists, parents and teachers, and other groups interested in child health. In some instances, these dental committees operate solely to promote the dental program; in other places, they operate as subcommittees of health councils or committees.⁵

3. *Subsidizing local programs*—Many rural and suburban communities have neither facilities nor funds to maintain effective dental programs. Particularly is this true of dental treatment programs. State departments, being the agents for distributing federal and state health funds, are able to subsidize dental care programs in the sparsely populated areas.

However, contributing money does not warrant the establishment of authoritarian policies by a state department. Such details as designating children entitled to treatment, scheduling treatment hours, appointing dentists, might well be the responsibilities of local agencies. Also, local personnel might profitably be permitted to decide whether clinics, private offices, or mobile clinics are to be utilized. Moreover, the local dental society should be invited to recommend policies for the program.

Subsidies provided by state departments of health may take several forms. The state may pay all or part of the salaries of dentists; dental equipment and supplies may be provided. In rural areas, many state departments are providing trailers, automobile clinics, station wagons, or portable dental equipment.

Some communities will find it necessary to have the state dental adminis-

trator help in supervising dentists participating in the local dental program. When requested, and only when requested, such supervision should be provided because competent professional supervision of a dental care program will improve standards of treatment.

4. *Establishing standards for dental programs*—Under the heading "Subsidizing Local Programs," the need of assigning responsibilities to local agencies was stressed. However, local school administrators should seek the advice of state dental directors before instituting dental programs. Most state dental directors are following the recommendations of the U. S. Public Health Service, the Children's Bureau, the Council on Dental Health of the American Dental Association, the American Association of Public Health Dentists, and the National Committee on School Health Policies. The following are a few of the basic policies recommended:

- a. Simplified and uniform examination procedures should be used.⁶
- b. Record forms approved by the American Association of Public Health Dentists should be utilized.⁷
- c. Dental treatment programs should begin with younger children with subsequent incremental care provided.⁸
- d. Topical applications of 2 per cent sodium fluoride should be provided four times a year for children.⁹
- e. All necessary fillings and extractions should be provided for children included in the community treatment programs.¹⁰
- f. Authentic dental health information should be used as content material in the health education programs.
- g. Desirable motivating devices should be used in the health education programs.

If the state department of health is to fulfil this role of establishing standards for dental programs, recommendations should be presented in printed or mimeographed leaflets.¹¹ To obtain uniform data, the state department should print forms and charts in large numbers so that they can be either distributed free to local agencies or sold at cost.

5. *Disseminating authentic dental health information*—Physical education personnel and classroom teachers require guidance in selecting dental health education material. The dental bureau of the state department of health should be prepared to offer this guidance by means of field visits or by printed or mimeographed material. Informative leaflets, source units, and manuals, have been printed by state departments of health. Also, nearly all state departments purchase material published by the American Dental Association for distribution among local personnel.

State departments of health should organize state and local committees to prepare dental health education material.^{12, 13} This collaboration is highly recommended because it results in broader concepts and avoids the disadvantages of specialized thinking. State departments of education, state departments of health, state dental societies, state departments of welfare, state agricultural colleges, state teachers colleges, dental schools, state nursing organizations, state organizations for physical education, may collaborate in preparing authentic dental health education material.

The distribution of visual aids, such as movies, slides, posters, models, and charts, has been found worth while, particularly if directions for their proper use accompany the material. Health educators have informed us that visual aids as well as printed materials are to be used only as tools; that the chief objective of health education is not mere information but desirable changes of dental health practices.

6. *Coöperating with other state agencies*—Equally as important as coördination of local agencies in the conduct of local dental programs is the collaboration of all state health, welfare, and educational agencies for dental objectives. In most states we find a number of state agencies, both official and non-

official, involved in local school health programs. Since their policies are usually set by their state administrators or state officers, it is imperative that the state dental bureau work closely with these state organizations. In the case of welfare agencies and such nonofficial groups as a state congress of parents and teachers, procedures in the local areas are directed by the state leaders. After the state dental director has cleared with the state office, it is much easier to function with the local representatives of these state groups.

SUMMARY

It has been shown that the state department of health may operate as an interagency encouraging effective dental health programs in local communities. If it accepts this responsibility by employing democratic techniques, maximum results will be obtained by providing expert guidance on the state level and encouraging active participation in the local communities.

REFERENCES

1. Mountin, J. W., and Flook, E. Distribution of Health Services in the Structures of State Government. *Pub. Health Rep.*, 57:1195-1274, 1943.
2. Gruebel, A. O. Dental Services and Dental Personnel in State Health Departments. *J. Am. Dent. A.*, 32:2382.
3. Wisan, J. M. Appraising Dental Programs. *Pub. Health News*, 28:77-83 (June), 1946.
4. Wisan, J. M., Galagan, D. J., and Chilton, N. W. Studies in Dental Public Health Administration: I. Cost Analysis of the New Jersey Dental Treatment Program, 1944-1945. *J. Am. Dent. A.*, 34:322-29, 1947.
5. Nyswander, Dorothy B. New Jersey Citizens Know What They Want. *Dental Health*, 6:3 (Aug.), 1946.
6. Knutson, John W. Simplified Appraisal of Dental Health Programs. *Pub. Health Rep.*, 62:413-21 (Mar. 21), 1947.
7. American Association of Public Health Dentists: Report of Forms and Records Committee. *Am. A. Pub. Health Den. Bull.*, 3:32-33, 1943.
8. Council on Dental Health. *A Dental Care Plan for Low Income Groups*. American Dental Association, Chicago 11, Ill., Jan., 1945.
9. Report of the Council on Dental Therapeutics, American Dental Association. *J. Am. Dent. A.*, 34, 10:700 (May 15), 1947.
10. Council on Dental Health. *A Dental Care Plan for Low Income Groups*. American Dental Association, Chicago 11, Ill., 1945, p. 5.
11. Division of Dental Health, New Jersey State

Health Problems Resulting from Newer Technological Developments*

R. EMMET KELLY, M.D.

Medical Director, Monsanto Chemical Company, St. Louis, Mo.

THE health problems associated with the newer technology have been most prominent ever since the news of the atom bomb was released. Other wartime and post-war developments have contributed to our peacetime health hazards. Before discussing some of these, I wish to emphasize two related facts.

The first is that not all of the old problems of industrial medicine have been solved. On the contrary, new ones have arisen in the use of materials that well qualified observers had previously assumed were well controlled. For example, an innocuous substance such as talc, or at any rate one formerly believed to be innocuous, is now being investigated as a cause of pulmonary disability. Likewise, workers who have been employed in atmospheres well under the maximum allowable concentration of silica appear in some cases to be developing silicosis. Thus, as there is an advancing front of medical problems arising from the contact with newer products, a struggle in the rear areas with the old compounds continues.

The second point is that much of the newer information is still not generally available because of security restrictions. This includes important medical and industrial observations on microwaves, biological warfare, and radioactive materials.

The advance in industry has developed along several pathways. I will discuss only the five most prominent: radioactive materials, newer chemicals—both in substance and application—newer metals, microwaves, and ultrasonic waves.

Radioactive materials have been rightly considered by the lay and the professional public to be the key to the technology of the future. We are limiting ourselves in this discussion to health problems, and so the many actual and potential benefits which radioactive isotopes afford to medicine and industry will not be dwelt upon.

To evaluate the health hazards associated with this field, let us see what the exposure is, how widespread it will be, and what ill effects have been reported to date.

Radioactive materials emit a variety of radiations but they all exert effects that are roughly similar. The deleterious effect on human beings is produced by setting up destructive ionizing reactions in the tissue. The response varies with the type and amount of exposure. Damage to the germinal cells, the bone marrow, and the lymphatic tissue, and the occurrence of malignant changes comprise the conditions to be expected and guarded against. Experimentally, these results are easily demonstrated. Exposure to sufficient gamma radiation or the introduction of an alpha emitter in a sufficient quantity (and remember even a fantastically small amount may be a sufficient quantity) has produced sterility.

* Presented before the Industrial Hygiene Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 7, 1947.

Leukemia has resulted from bombardment from a neutron source, and a variety of malignancies have been produced by exposure to fission products. The work of Brues, Lisco, and Finkel,¹ as reported at the 1946 Gibson Island Research Conference on Cancer, is interesting in this connection. Using strontium (Sr^{90}), bone tumors and lymphoma were produced; ytterbium 91 (Y^{91}) caused intestinal lesions with obstruction, and plutonium (Pu^{239}) caused splenic atrophy and gross liver damage. After the subcutaneous injection of one gamma of Pu^{239} localized fibrosarcomas appeared within one year, and localized ulcerative lesions and spontaneous amputations occurred.

Obviously, radioactive substances are inherently hazardous, but can they be handled and used safely? The answer is uncompromisingly yes. Before developing this statement, let us consider how widespread is their use.

On August 2, 1946, the first shipment of radioactive isotopes produced in the chain reacting pile at the Clinton Laboratories at Oak Ridge, Tenn., was made to the Barnard Free Skin and Cancer Hospital in St. Louis. During the following year over 1,000 shipments were made throughout the continental United States and the Territory of Hawaii. These shipments approximated 1,500,000 miles, and were sent to about 150 scientific and research institutions. These isotopes are being used in fundamental research, in medical research and treatment, in cancer study and treatment, in biological research, and in industrial research. Radioactive isotopes are used in oil well logging, in metallurgy, in aircraft engine development, and in structural analysis of heavy objects, such as castings and girders. In agriculture, tracer elements are used to study soil chemistry, plant hormones, photosynthesis, and the entomological aspect of farming. To date no ill effects, apart from

accidental exposure, have been observed as a result of the industrial use of radioactive isotopes. This for this is simple. It gives grounds for complacency but rather an indication of what control measures must be exercised in the future. Effects from chronic radiation have not occurred because careful attention to details of protection has made the production, transportation, and use of these isotopes safe. For example, at Clinton Laboratories the budget of the health physics group amounts to more than \$250,000 annually. Their job is monitoring and supervising the radioactive material from the time it enters the pile until final disposal occurs. Shipping containers vary from less than a pound to a ton, averaging 150 lbs. In one case a 23 gm. unit (approximately the weight of a half dollar) containing radioactive cobalt (Co^{60}) was shipped in a container weighing 1,600 lbs. Other meticulous details are carried out, such as checking the radiation of truck wheels before trucks leave the laboratory to avoid radiation damage to the driver in the event of changing a tire.

It has been shown that radioactive materials can be manufactured, transported, and used safely. Maximum allowable concentrations have been established for all types of radiation. The methods of detection and the means of protection from radiation are so adequate and well tested that only the careless, the uninformed, or the foolhardy should suffer exposure. This is borne out by the record of the Manhattan District plants and the Atomic Energy Commission installations, as well as by the absence of injury to the 70,000 people taking part in the Bikini experiments.

For the future I see three health problems in this field. The first is accidents and their prevention. When working with fissionable products there can be spills, breaks, and other unfore-

ces that will produce
cient to cause serious in-
Health. This has occurred and,
will continue, but the inci-
as been and should be very
The second is unfamiliarity or in-
cient knowledge of how to handle
se materials. As the number of in-
stitutions using these products swells
from 150 to the thousands, there will
be workers who will not abide by the
tolerances and safety rules laid down.
Then too, more detail work will be per-
formed by individuals lacking the
physicist's viewpoint.

The following example is typical of
what might be expected: In a southern
hospital a medical technician was carry-
ing out analytical procedures with a
radioactive substance (which paren-
thetically was not received from the
Atomic Energy Commission) in a
manner which was subjecting her to
total radiation of many times tolerance.
Her superior had failed to assure him-
self that everyone in the laboratory
knew and practised the essentials of
protection. As the actual work stems
down farther and farther from the in-
dividual to whom the material is sent,
this hazard grows. One need only
couple the deformities and skin cancers
of our early radiologists with the fact
that present radiologists have a leukemia
rate eight times that of males of a
comparable age, to understand that
progress in protection for scientific
workers comes slowly. We then receive
a view of what may be in store for
workers in the future unless adequate
supervision is maintained.

The third problem is that of chronic
low level exposure. Most investigators
and workers will be using negligible
amounts of radioactivity in tracer ex-
periments, and only simple precautions
will be needed. However, when we
calculate the sum total of all the radio-
active isotopes used over the entire
country, and as some (carbon 14 for

example) have a half life of over 5,000
years, the serious character of the dis-
posal problem becomes evident. Simply
diluting the material and letting it pass
into our streams and rivers will not
suffice. The radiation would continue
and be built up with successive dis-
posals. This problem is being investi-
gated by everyone concerned, but the
final answer has not been found.

The industrial chemical field is broad-
ening too rapidly and too extensively
for me to do more than select one com-
pany as an example of the methods of
handling the problems associated with
new products. In 1946 this company
developed over 50 new products, and it
is expected that in 1947 at least as
many more will be produced.

The problem for a manufacturing
concern is to make certain that no
product is used in a manner in which
systemic toxicity or skin irritation
might result to its workers or consumers.
It is impossible to obtain toxicological
information on 50 or so compounds in
a year, but those compounds that have
an application where ingestion or skin
contact is a factor must be examined.

For example, every new textile chem-
ical, such as the melamine resins, is
subjected to a laboratory study for
systemic and skin reaction, culminating
in patch testing on 200 human subjects.
With plastics and plasticizers, animal
experimentation, involving in some
cases two year feeding tests, must be
made before they can be marketed.
Some substances, such as polystyrene
and some plasticizers, are so innocuous
that they can be used in any applica-
tion, while the use of others must be
more limited.

Certain new chemicals used as bio-
cides, such as hexaethyl tetraphosphate
or sodium fluoracetate, possess a high
level of toxicity, and investigations must
be carried out on their pharmacological
activity to allow them to be used safely.

Simply stated, the problem for the

megacycles per second or higher. Their wave length varies from 30 cm. to 1 cm. These radiations had been generated prior to 1939 but their wartime use in radar vastly stimulated their use and development. These high frequency radiations are the basis of the electronic field and have wide industrial application. It is important that their effect on the workers be determined.

Microwaves have optical properties. They can be focused and may be selectively absorbed by various media such as water, oxygen, and, presumably, tissue. Up to now the only biological effect noted has been the production of heat similar to medical diathermy. There has been no ill effect discovered either clinically in workers or experimentally in animals.³⁻⁵ Studies have been carried out on animals exposed to continuous radiations 3 hours a day for 53 days. There were no gross or microscopic tissue changes, and no effects noted on growth or reproduction.

One group of 45 men who were exposed while operating radar for 2 months to 9 years, and another group of 124 men who were exposed for 2 months to 3 years, were examined. There were no abnormal clinical or laboratory findings and no effect on the blood forming or reproductive systems was found. It appears therefore to be fairly well established that the present high frequency radiations exert no ill effect on exposed workers. Future scientific developments in this field, however, must be accompanied by biological experimentation because we cannot assume that wave lengths of new frequencies will not cause damage.

Ultrasonic waves, sometimes called supersonic waves, are elastic vibrations in any solid, liquid, or gaseous medium of a frequency above the range of audible sound (16,000 cycles per second). Their application has varied from submarine detection to the soundless dog whistle, but while at present

it is limited, much future development may occur. Ultrasonic apparatus has been devised which transmits silent sound vibrations powerful enough to ignite paper, and has been considered for such applications as eliminating bacteria and molds, drying inks, and breaking up suspensions of solid particles.

Ultrasonic waves follow the physical laws of audible sound with the addition of some phenomena due to their high frequency. Biologically, they exert a very different effect. Since 1928 ultrasound has been shown to have destructive capabilities for biological tissue. The changes induced vary from simple heat generation to cell rupture. Sudden explosive liberation of dissolved gases in the target tissue has occurred. In one experiment, 37 animals were subjected for 5 to 15 minutes to focused ultrasound produced by expansion and contraction of a quartz crystal.⁶ Reversible and irreversible nerve tissue damage was produced, causing cortical blindness, paralysis, ataxia, or death.

In this experiment the sound traveled only a few millimeters to the animal but it is possible that future industrial exposure to ultrasonic waves may be dangerous. The indications are that the danger limits will turn out to be very high and probably will be encountered only under special conditions. There have been no studies on this phase of the problem in the literature as yet but obviously they are indicated.

The problems already discussed constitute an important but incomplete segment of our newer peacetime technology. I have not included the problems of the new developments in aviation, in industrial biology, in acceleration, or temperature changes. There has been no mention made of the new weapons of destruction—the radioactive cloud, the atom bomb and biological warfare, or the results associated with them. An attempt has been made to omit the purely theoretical advances

Proposed Report on the Educational Qualifications of Community Health Educators^{*†}

I. GENERAL SCOPE OF HEALTH EDUCATION

The health educator helps individuals and groups to recognize, understand, and share responsibility in solving personal, family, occupational, and community health problems. From facts secured with the aid of technical specialists, he interprets health needs, desirable health behavior, and the services of professional health agencies. He develops situations in which actual learning takes place on the basis of factual data provided by technical experts in medicine, dentistry, engineering, nursing, nutrition, and other sciences.

A successful total program of health education in a community requires more than publicity alone. It requires the development of satisfactory learning experiences within organized groups in school and community. It includes the training of other personnel, in the fields of health and of education, to make effective use of the educational opportunities presented by their contacts with individuals and groups. The health educator supplements, in an organized and continuous way, the work of other

educators and public health workers, but he replaces none of them.

The first program of study in health education ever offered in a school of public health was established in 1921. Since that time the emphasis upon health education and the demand for properly trained health educators has constantly increased. Health education is now an important field of service in the modern public health program, with recognized techniques and procedures.

The Committee on Planning in Health Education of the Public Health Education Section of this Association, in an unpublished report, estimates that about 460 health educators are now employed by health agencies, about 300 of whom have completed graduate courses in recognized schools of public health. A survey by the committee at the beginning of 1947 indicated that these health educators were distributed as follows:

Federal health organizations	14
State health departments	160
City and county health departments	126
Voluntary health agencies	160
Total	460

* The Committee on Professional Education of the American Public Health Association publishes this report before transmittal to the Governing Council, in order to permit the members and Fellows of the Association to review it and to offer criticisms and suggestions in the further consideration of the report.

This report, like all other statements of the committee on professional and technical qualifications in public health, is subject to periodic revision in order that it may be kept abreast of the best thought.

† This proposed report is a revision of the Report on the Educational Qualifications of Health Educators approved by the Governing Council on October 13, 1943 and is intended to supersede the earlier report.

No data are available concerning the number of health educators employed by schools and colleges.

The committee just mentioned has estimated the need for health educators on the basis of present population groups, health departments, school systems, and voluntary health agencies, to be as follows:

Local health departments	1,948
State health departments	219
Federal health agencies	40
Voluntary health agencies (all levels)	2,331
Local school systems (supervisors)	1,311 to 2,300
State school systems	48
Federal office of education	6
Teacher training institutions	310
	<hr/>
	6,213

This estimate omits specialists like writers, editors, audio-visual specialists, research analysts, photographers, and librarians, of which health departments were estimated to need 335. It omits also the health teachers, employed or needed in the 29,000 public high schools and other secondary schools and the few hundred in colleges other than teacher training institutions.

These figures as well as the present acute shortage of adequately trained health educators give promise of employment and useful service for the young man or young woman entering the field. Increasing recognition is being given to the importance of the total, unified, community-wide program. Promotional progress may thus be anticipated by the beginning health educator both through the expansion of his program and through transfer to the service of larger population groups, as his ability is demonstrated.

The health educator in the health department works under the administrative leadership and direction of the health officer. The health educator working in the school system as a teacher, coördinator, supervisor, or consultant, is a member of the staff of the school and will, of course, meet whatever professional educational standards are set by the school for the type of work involved. The health educator in a voluntary health agency is employed as a staff member or as executive secretary. A health educator serving the total community may be jointly em-

ployed by health department, school system, and voluntary health agency, or by any combination of them. Joint planning is needed in any community-wide program.

The educational qualifications of the health educator, whether employed by a governmental or by a voluntary agency, should meet generally accepted standards. This report proposes *desirable areas of competence for the community health educator*, based upon the functions which he is expected to perform. The recommendations are made for the guidance both of officials responsible for the appointment of health educators and of individuals looking forward to careers in health education.

The professional standing of persons now performing creditable service as health educators has been established. Successful experience and demonstrated ability should be recognized at the present time as evidence of professional qualifications.

Educational qualifications for health educators working entirely within a school system although needed are not proposed in this report, as the preparation of such qualifications is not a function of this Association. Schools have their own planned and organized program of health education which should be a part of the total community program. Schools are broadening their concepts of their health education responsibilities to include a consideration of home and community, because they find that children cannot practise what they learn at school unless adult customs in the home permit it. At the same time health departments are recognizing that community programs of health education in which schools do not participate have lost much of their potential influence.

Other forces are moving us toward unified community programs. Other groups, like agricultural extension workers, are beginning to incorporate health education in their program.

Voluntary health agencies are finding that sporadic educational programs promoting a single goal may prove to be ill timed, competing, confusing, and ineffective. They are turning to community planning and cooperation.

The recognition that all health educators should concern themselves with the total community program has brought with it a realization of the breadth of training that all health educators need. Health authorities have realized that this public health worker is an educator by profession, that he works with schools and needs training in general education and school health education as well as in public health education.

School authorities have realized that health educators in school systems need instruction in public health and the work of public health agencies as well as in hygiene and the public school procedure. In suggesting the training of the community health educator the committee has in mind that in the absence of a school health educator, he will work with school administrators, supervisors, teachers, and curriculum committees, but that he will not ordinarily supervise classroom teaching. State laws, school authorities, and professional groups in education have set requirements and credentials for teachers and supervisors at various levels. Such standards are not a responsibility of this Association. The committee believes, however, that the health educator who meets such standards in general education and also the qualifications listed below, will have an excellent professional background for school health education.

II. THE FUNCTIONS TO BE CARRIED OUT IN THE TOTAL PROGRAM OF COMMUNITY HEALTH EDUCATION

The following functions are believed to be essential for carrying out complete community-wide programs in health

education. They are not the functions of any one health educator and it is not expected that any one health educator will have special skills in all the knowledge areas involved. Health educators in various positions, however, will be expected to undertake some or all of the following functions or activities which involve the formulation of plans and methods, the application of specific techniques and skills, the supervision of the work of others, and the maintenance of group relations.

The functions of health educators in community-wide programs of health education are:

In accordance with the administrative policy of the health department or other employing agency:

1. To assist in planning and organizing a program of health education of suitable scope and activities to meet adequately the needs of the community, state, or area to be served. This includes, at the outset and continuously thereafter, a study or survey of the needs and resources with the aid of technical experts and the determination of health problems by lay and professional groups.
2. To assist the area to organize for health education.
3. To assist in establishing and maintaining close, cooperative, working relationships between all agencies (official and nonofficial) which may contribute to health education.
4. To aid in stimulating, organizing, and guiding in-service training programs in the field of health, for employed personnel, in accordance with the policy of the agency or institution involved; including:
 - a. Health agency personnel
 - b. School personnel
 - c. Personnel of other agencies
5. To aid, in accordance with the policy of the institution concerned, in planning the health education aspects of pre-service training programs for professional personnel, including: (a) public health personnel, (b) school personnel, and (c) others.
6. To provide consultation and guidance to various individuals and groups (such as Parent-Teacher Associations, service clubs, and others) in developing and improving

the health education aspects of their programs.

7. To assist in promoting, organizing, and guiding study groups in the field of health for adult and group work agencies, such as divisions of adult education or young people's clubs.
8. To contribute to the improvement of the quality of the health education of pupils or students in accordance with the standards and policies of the school system or institution (in the absence of or in coöperation with a school health educator).
 - a. Through aid in planning school health programs and curricula of health instruction
 - b. Through conferences with teachers, supervisors, and school administrators
 - c. Through such other educationally sound activities as the school may desire
9. To assist in stimulating and establishing adequate public health and school health library facilities.
10. To assist in organizing and operating an informational service to provide answers to inquiries; and in answer to requests, to suggest source materials and source references.
11. To be responsible for the preparation, selection, assembly, and distribution of health education materials, using the services of special technicians and health experts whenever possible.
Such materials include:
 - a. Reports and other printed materials
 - b. Visual aids, such as motion pictures, film strips, photographs, graphic materials, exhibits, and posters
 - c. News releases and radio scripts
12. To organize and assist in conducting a speakers' bureau, conferences and meetings.
13. To assist in planning and, in accordance with the policy of the agency, in preparing the health education budget.
14. To encourage, and assist in the development of efficient records and reports of all health education activities in order to facilitate the quantitative analysis, evaluation, and interpretation of the health education program.
15. To assist in the establishment and employment of methods for continual appraisal, in order to evaluate the effectiveness of all phases of the total health education program.

A job analysis of existing positions reveals wide variations in their scope. In general the health educator employed

by a health agency is (1) a director of health education, or (2) a staff member with the title of health educator. Other specialists such as editors, audio-visual specialists, research analysts, photographers, and librarians are commonly employed in the larger agencies.

III. EDUCATIONAL BACKGROUND

The procedure used in determining the desirable educational qualifications here listed, was to analyze each of the above functions in terms of needed professional qualifications in basic sciences, social sciences, and public health, and to group these qualifications in suitable areas.

Certain facts should be borne in mind in approaching this discussion. Not all positions in health education, as indicated above, are of the same scope. The health officer or other appointing authority may not deem it necessary to require all the qualifications listed below for every position. *They are the qualifications believed desirable for the director of a large and complete program.* Nevertheless it is believed that the continuing improvement in the training of health educators will provide more and more workers who have this training, and that such a person will eventually prove most useful.

Experts in various techniques who are not health educators are commonly needed to assist in editorial work and in the development of films, exhibits, and other graphic materials. The health educator concerned with the production of such material will know the nature, limitations, and possibilities of the processes involved. He will know how to work effectively with printers, motion picture producers, and other specialists. This report does not consider the qualifications of these technical experts.

It is clear that the health educator will be helped by a broad cultural background and by a knowledge of (a) the structure, functions, and care of the

body, elements of the more common pathologic processes, and elements of epidemiology and public health procedures; (b) motivation and behavior in human life; (c) society as it is constituted, social forces and their control; (d) forces which affect living-environment and economics; (e) the scientific method in approaching the process of living, distinguishing science from pseudo-science; and (f) the processes of education—why we learn and how we learn.

There is also need for knowledge and skills which are more specifically professional in nature. The division between essentially basic preparation and strictly professional training cannot be readily drawn. It is not the purpose of this committee to indicate here a specific training program in terms of institutions to be attended, degree secured, years of study, or specific courses taken.

Some health educators have begun training for this field immediately upon reaching the university level. More will do so in the future with the increasing number of schools offering an undergraduate health education major.

At the same time it is recognized that several of the professional fields in the health and social sciences, including education, contain many of the elements of training which are desirable for the health educator. Many successful health educators have acquired their training through supplementing the training in one of these professional fields by study in those previously omitted areas of knowledge which are required for health education. It is not feasible to discuss here the entrance into health education from various professional fields. We shall not attempt to define optimal training. We shall attempt to state the essential qualifications.

Present requirements in the training of health educators should be sufficiently flexible to be adapted to the scope of

work required from the individual concerned. There follows a statement of desirable backgrounds and competencies for the health educator, organized under 7 major areas and based upon the duties to be performed in a complete program of health education. The major purpose of this statement is to help those who may wish guidance in preparing for a career in health education. It does not represent recommended minimum criteria for a graduate degree in public health or health education.

1. In the field of *Basic Cultural Education* involving the development of appreciations and skills in the use of the English language, it is assumed that all health educators will have had instruction in English literature, and English composition, and that most health educators will have had some background in general psychology, United States history, and world history.
2. In the *Basic Sciences* it is assumed that all students will have some knowledge of general chemistry, bacteriology, and the structure and function of the human body. Many students will also have had some training in organic chemistry, physics, and biology.
3. Training in *Education and Educational Psychology* is important to provide a knowledge of and functional experience with the learning process, principles and practices of education, methods and possibilities of adult education, the nature of the school health program, educational supervision and administration, and in-service training. It is assumed that all students will have some background in educational psychology and the principles, theory and social aspects of education, as well as professional training and field work in school health education and in public health education, including community organization. Many students will also have had an opportunity to study child growth and development, the elementary and secondary curriculum, and school administration. Some health educators will have had much more extensive study in this field.
4. In the *Social Sciences*, where we are concerned with the racial, social, and cultural characteristics of people and their mores, and the significance of the economic status of population groups, it is assumed that all health educators will have some background in general sociology and that most of them

- have some knowledge of political economy and cultural anthropology. If the Health Educator should have come from the social work field, he may have given special attention to comparative religion, social dynamics, and special problems of race relations and of publicity.
5. No health educator can be expected adequately to understand and interpret scientific health facts or the work and program of technical experts and health agencies without sufficient *public health* training to give him a knowledge of basic principles in the organization and administration of public health, personal hygiene (including mental hygiene and nutrition), environmental sanitation, methods of communicable disease control (including the nature of causative organisms and methods of transmission), public health statistics and the principles of statistical reliability, and the nature (not necessarily the skills or technics) of public health laboratory procedures.
 6. In *Public Administration*, where we are concerned with governmental and community organization, the nature and functions of community agencies, and principles of planning, all health educators may be expected to have some background in social work agencies and most of them will have had some instruction in the field of government.
 7. There are many needed *Special Skills in Health Education*. These include public speaking; the use of methods and materials; evaluation of sources of material and information; the writing of informative and friendly letters; the compilation of bibliographies; filing and clipping methods; the writing and editing of material for publication; the use of the printing and duplicating processes; effective distribution of educational material; the nature, preparation, and use of visual aids; possibilities of community participation in the development of educational material; press relations and technics; the organization and conducting of meetings; technics for the interview and consultative conference; the discovery of leaders and the way to work with them; and the use of group work methods. It is expected that instruction in public health education and school health education supplemented by field work and practical experience added to the background of general education will have provided these special skills at least in some degree.

IV. GRADUATE INSTRUCTION

The courses in public health are

usually covered at the graduate level. This training furnishes the professional, factual background of the health educator, who will profit by having such instruction presented by specialists, by studying in some of these areas with other public health workers like those with whom he will be professionally associated, and by having his instruction in these rapidly developing sciences just before beginning his professional career.

If the Bachelor's degree is not taken in a teacher training institution, much of the work in education will usually need to be taken after the Bachelor's degree, but it is desirable that most of the work in general education be taken prior to the graduate training in public health and health education. The more highly specialized professional public health courses should not be pushed down into the undergraduate level.

Some colleges and universities are offering a four year undergraduate major leading to a Bachelor's degree in health education. Usually the program is organized through the school of education, and the emphasis is upon *school health education*. This training usually prepares one to become a member of a school staff in the capacity of health teacher or coördinator. Well planned programs of this type serve as a means of supplying more trained people in school health education, and as a valuable reservoir from which to select well qualified students for the graduate training in *community health education*.

At least three months of supervised field work should be required in the training of all health educators. There are advantages in having this field work prior to the completion of graduate training in public health. The prospective student learns the nature of the work and something of his aptitude for it. His professional courses will be more meaningful to him. However, the field work may properly be taken after the

completion of the formal courses, before the awarding of the degree.

V. PERSONAL QUALITIES

A candidate for a position as health educator should possess such personal characteristics as creative ability, leadership, good personal health, good judgment, pleasing personal appearance, common sense, and adaptability. Such important characteristics, along with the ability to size up and meet situations, and the ability to present pertinent facts simply and effectively, are not guaranteed by academic records in formal courses of instruction. The health practices of the health educator himself are also important. Study and improvement in methods of determining aptitude of the prospective students for this profession are needed.

VI. LENGTH OF THE TRAINING PERIOD

If one were to enter upon a program of planned study in the first year of university life, this essential training for public health education could not be secured in less than five years. Study beyond this point would be desirable, especially for those aiming for positions of larger responsibility. If such a five year program were followed, the essential basic preparation could be obtained by a four year course leading to a Bachelor's degree in health education or one with major emphasis upon: (1) the basic and health sciences, (2) education and educational psychology, and (3) the social sciences.

The content and extent of the graduate work required would vary according to the amount of undergraduate preparation, the interval between undergraduate and graduate study, and the quality and type of experience the individual has had. But, including the three months of supervised field training, the very minimum of time required for this training would be twelve months following the Bachelor's degree.

From the standpoint of the work to be done, a considerable degree of professional maturity is needed. Usually only one community health educator is employed in a health department or volunteer agency, so that he is responsible for the program rather than being a staff member in his first position. This demand for maturity explains in part why many mature persons have, through further study, transferred to health education from allied fields. If salaries in community health education can be made commensurate with the expanded opportunity for service we may expect to recruit many able students from among the best high school teachers of health or science who have demonstrated interest, aptitude, and ability in developing community activities. There is need for other positions or field opportunities leading toward community health education and from which we may recruit trainees.

In those institutions which offer a doctorate in this field the usual three years of study after the Bachelor's degree are required. Roughly there is one year of study in education, one year in public health, and one year in research.

VII. THE PLACE FOR GRADUATE TRAINING

Most of the accredited schools of public health offer training for community health educators. They offer to the student a staff of experts in public health and health education together with the opportunity to work with students who are entering other specialties in public health. They are the only institutions in which public health training has been standardized. At present these schools cannot accept enough students to meet the need for community health educators. There is urgent need for the expansion of these facilities or the accrediting of graduate courses elsewhere. Certainly they do

not now have room to train (in co-operation with the school of education in the same university) the needed school health educators. It is expected that, for the present at least, most school health educators will be trained in schools of education with special facilities and staff for a curriculum in school health education.

Programs of professional study in health education can best be offered in those institutions which are providing professional education in other fields of public health and which have instructional facilities in the other areas of knowledge required. Field training stations should be available for all students in health education.

COMMITTEE ON PROFESSIONAL EDUCATION

W. P. SHEPARD, M.D., *Chairman*
 REGINALD M. ATWATER, M.D., *Secretary*
 GAYLORD W. ANDERSON, M.D.
 W. W. BAUER, M.D.
 ROBERT D. DEFRIES, M.D.
 ROY J. MORTON, M.S. (Eng.)
 ELLA E. McNEIL, R.N.
 HUGO MUENCH, M.D.
 WILSON G. SMILLIE, M.D.

ERNEST L. STEBBINS, M.D.
 CLAIR E. TURNER, DR.P.H.
 V. A. VAN VOLKENBURGH, M.D.
 HUNTINGTON WILLIAMS, M.D.
 EDWARD S. GODFREY, JR., M.D.
 GEORGE H. RAMSEY, M.D., *Consultant*
 LOWELL J. REED, PH.D., *Consultant*
 C.-E. A. WINSLOW, DR.P.H., *Consultant*

The Subcommittee assisting with the preparation of this Report to whom the Committee on Professional Education expresses grateful appreciation consisted of:

CLAIR E. TURNER, DR.P.H., *Chairman-Referee*
 MARY P. CONNOLLY
 MAYHEW DERRYBERRY, PH.D.
 RUTH E. GROUT, PH.D.
 IRA V. HISCOCK, Sc.D.

FRANCIS J. MOENCH, PH.D.
 LUCY MORGAN, PH.D.
 WARREN H. SOUTHWORTH, DR.P.H.
 FELIX J. UNDERWOOD, M.D.

American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

June, 1948

Number 6

Editorial Board

REGINALD M. ATWATER, M.D.
Chairman, and Managing Editor

LEONARD GREENBURG, M.D.
PROFESSOR JOHN M. HENDERSON
RALPH S. MUCKENFUSS, M.D.

STUART MUDD, M.D.
RAYMOND S. PATTERSON, PH D.
GEORGE ROSEN, M.D.

C.-E. A. WINSLOW, DR.P.H., *Editor*

AUGUSTA JAY, *Editorial Associate*

THE NATIONAL HEALTH ASSEMBLY OF 1948

THE National Health Assembly, which met in Washington on May 1-4, under the chairmanship of Federal Security Administrator Oscar R. Ewing, faced two serious handicaps—shortness of time for preparation of the program and the danger of political repercussions in an election year. These two handicaps were overcome with remarkable success.

Some 850 persons attended the Assembly, representing a wide diversity of professional and public interests; and including the American Public Health Association, the American Medical Association, the American Dental Association, the nursing organizations, the farm groups, the labor unions, the women's clubs, and many more. The object of the Assembly was to outline a program for health advance during the next ten years. It worked through fourteen well organized and active sections covering the needs for professional personnel, for hospital and health center facilities, for medical care, for local health needs, and for research in the health field; and the preparation of programs for maternal and child health, rural health, dental health, mental health, nutrition, environmental sanitation, care of the chronic diseases, rehabilitation and general state and community planning for health.

The reports of the various sections were ably summarized at the closing session by Quincy Howe of CBS (see page 858)—an innovation which might well be followed at similar meetings; and the major resolutions will be made available for the public in printed form. No startling new facts were brought out and no ambitious trails were mapped out for the future. Goals accepted by intelligent public health experts were, however, clarified and buttressed by effectively marshalled evidence indicating the need for increased knowledge of basic facts, better machinery, ampler provision of personnel funds. A few controversial issues, particularly federal compulsory insurance, were recognized as not commanding unanimous support; but the really astonishing thing about the conference was the relatively large area of agreement. The panel on Medical Care, for instance, chaired with the greatest skill and wisdom by Dr. Hugh R. Leavell, unanimously adopted the following recommendations:

1. Adequate medical service for prevention of illness, care and relief of sickness, and promotion of a high level of physical, mental, and social health should be available to all without regard to race, color, creed, residence, or economic status.
2. The principle of contributory health insurance should be the basic method of financing medical

care for the large majority of the American people, in order to remove the burden of unpredictable sickness costs, abolish the economic barrier to adequate medical services and avoid the indignities of a "means test."

3. Health insurance should be accompanied by such use of tax resources as may be necessary to provide additional
 - a. Services to persons or groups for whom special public responsibility is acknowledged and
 - b. Services not available under prepayment or insurance.
4. Voluntary prepayment group health plans, embodying group practice and providing comprehensive service, offer to their members the best of modern medical care. Such plans, furthermore, are the best available means at this time of bringing about improved distribution of medical care, particularly in rural areas.
5. The people have the right to establish voluntary insurance plans on a coöperative basis and legal restrictions upon such right (other than those necessary to assure proper standards and qualifications), now existing in a number of states, should be removed.
6. High standards of service, efficient administration, and reasonable costs require:
 - a. Coördination of the services of physicians, hospitals, and other health agencies in all phases of prevention, diagnosis and treatment;
 - b. Effective coöperation between the providers and the consumers of such services.
7. A medical care program itself will not solve the health problems of the nation. It must be coördinated with all efforts directed toward providing the people with adequate housing, a living wage, continuous productive and creative employment under safe working conditions, satisfying recreation and such other measures as will correct conditions that adversely affect the physical, mental, and social health of the people.

These resolutions—with many adopted by other sections—represent a major step forward along the road to better health for the American people. The endorsement of the principles of group practice and group payment embodied in the resolutions quoted above are almost identical with the recommendations made by the Committee on the Costs of Medical Care in 1932. Their adoption by representatives of the A.M.A., of the Physicians Forum, the C.I.O., and the Cooperatives in 1948—that is something new and something of the first importance. The Health Assembly did not register any dramatic victory over the twin foes of poverty and ignorance; but it did close the ranks of the health army for definite progress in a unified advance toward immediate goals. The Health Assembly was described by one delegate as "Democracy in Action." This was an apt characterization. As a result of these four days the public health worker and his various professional allies have been brought into a closer and more intimate contact with the consumer groups than has ever been accomplished before. The team work developed in the Health Assembly has real promise for the future.

WHAT IS EPIDEMIOLOGY?

SIX years ago,¹ we asked in these columns the question "What and who is an epidemiologist?" The answers were fruitful; but they were necessarily related mainly to the type of practical service rendered by the physicians employed in a health department in tracking down specific epidemics of disease. At that time, W. L. Aycock² suggested that a more vital question would be "What is epidemiology?"

This problem seems specially pertinent today. There are two major lines of approach to the basic theoretical knowledge on which applied epidemiology must be based. One is experimental study in the laboratory—the other observational study in the field. The avenue of laboratory approach has yielded brilliant results, and in recent years has tended to dominate the field. It has distinct advantages. In the laboratory, we can—in large measure—hold all factors constant except the

one we are studying and this makes determination of its influence definite and precise. There is, however, an inevitable disadvantage. The controlled factors may actually be of vital significance in nature; and by their elimination we may reach conclusions which do not at all correspond with the complexity of actual phenomena in the field. Both approaches are essential.

The contributions of field epidemiology were outstanding in earlier days. Snow and Budd had no laboratories; but, long before Pasteur, they laid a firm basis for the epidemiology of cholera and typhoid fever; and they deduced from field observations almost all the properties of those causative factors in these diseases which were later to be observed under the microscope. Hirsch, in his *Handbook of Geographical and Historical Pathology*, understood clearly the relation of malaria, first to "a material and specific poison generated in warm climates and seasons," related to organic decomposition; and, second, to "the degree of atmospheric moisture or of the atmospheric precipitation that results therefrom." He even knew that "wherever malaria is endemic at more or less considerable elevations, the seat of the disease is always a valley with a small declivity or a basin-like depression in a plateau"; and that "we find malaria exceedingly common in small and often definitely circumscribed spots by the sides of lakes, small streams or brooks, pools, ponds and ditches." H. R. Carter, by his field observation of the fact that the vicinity in which a case of yellow fever had occurred became infective only after a period of 2-3 weeks, laid the basis for Reed's conclusive experimental approach at Havana.

Theobald Smith, himself a laboratory experimenter of supreme genius, pointed out that inference from field observation "looks at things in nature, describes and compares them, and deduces from such comparisons certain underlying concepts. The experimental method takes the same phenomenon and tries to check or limit all but one of the activities entering into it so that this one activity can be observed, recorded, measured, and weighed. . . . Both methods have their special advantages and disadvantages . . . the experimental method must not let too many machines get between it and the whole and must find some way of putting the fragment surgically removed for experimental purposes back into the whole"; and "the comparative method is frequently in position to restrain the generalizations deduced from experimental procedures and to keep the experimenter from steering away from the goal, which is an understanding of totality."³

A particular problem has reached the stage of experimental investigation only when field observation or prior experiment has indicated the exact question to be asked. Before each fruitful experiment, there must be a hypothesis; and the formulation of this hypothesis is perhaps the most important and exciting event in scientific thinking. It is courage and vision—checked for fundamental soundness—in developing pregnant hypotheses which seems a somewhat rare quality in present-day epidemiology. W. H. Frost, one of the greatest of all American pioneers in this field said: "Epidemiology is something more than the total of its established facts. It includes their orderly arrangement into chains of inference which extend more or less beyond the bonds of direct observation." To this sort of epidemiological thinking, Aycock and his group at Harvard have made notable contributions during recent years.

The pitfalls in the path of sound epidemiological thinking are many. We must, first of all, face the fact—obvious but often forgotten—that the entities with which the epidemiologist deals are epidemiological and not clinical in nature. There is no more serious fault in our practical defenses against communicable

disease than our habit of dealing with scarlet fever and septic sore throat and otitis media as different clinical entities (as they are) but not as manifestations of one epidemiological entity, which is the important aspect of truth to the health officer. On the other hand, Aycock⁴ has pointed out that in one clinical disease, Landry's paralysis, the same pathological findings may be due to a wide diversity of causal factors. He suggests the bold hypothesis that—diverse as the so-called causative agents are in this case—they may perhaps operate upon the tissues through the same biochemical mechanism. He cites the extraordinary case of a strange epidemic at Durban, which was considered by various clinicians to be poliomyelitis, and ginger paralysis and tick paralysis and the Guillain-Barré syndrome. It proved on careful epidemiological study to be due to cooking oil contaminated with tri-ortho-cresyl phosphate.⁵ Certainly, where epidemiological phenomena can be reduced to terms of biochemistry (as has been the case with diphtheria and tetanus) the road to practical control will be opened in a startling fashion. Such studies as have recently been made⁶ on the histological reactions of embryonated eggs to influenza virus may perhaps open the way to understanding of the biochemical, as well as the histological, reactions involved.

Our problem is complicated by the splitting up of many so-called "species" of pathogens into serologic "types." Aycock⁷ is skeptical of the importance of such types in comprehending the basic principles involved, although, of course, recognizing their importance in studying a particular epidemic episode. He says that "with the exception of meningococcal meningitis, there is no instance of any degree of correlation between a single serological type and a single disease process."

Even if the chemical processes involved in pathological reactions to an invading germ were identified, it would still be important to realize the complexities involved in the answers given by the human body to the insults offered by foreign invaders. We must never be blinded by the over-simplified conception that we may discover the cause of any disease. The tuberculosis bacillus is not *the* cause of tuberculosis. It is *a* cause of that disease. You cannot have tuberculosis without the *Mycobacterium*; but half the people whose tissues have been invaded by the *Mycobacterium*, as shown by tuberculin tests, suffer from no disease in a clinical form, although they no doubt show minor pathological reactions to the invader.

Inherent "vital resistance" plays an important role in every departure from normality sufficiently marked to be labelled as "disease." We rarely know what this means; but we do know that it means different things in different diseases; and that it is a factor of major importance. Read the accounts of the attempts to climb Mt. Everest and note the different reactions of different individuals to extremes of cold and to fatigue. Study the records of accident-prone industrial employees and accident-prone automobile operators, and realize the important role of neuro-muscular balance in so apparently simple a phenomenon as a mechanical accident. In the clash between a human body and an invading germ, the differences between individuals in the field of biochemistry are equally significant.

Nutrition may be, in many instances, a vital factor in the defensive mechanisms of the body. In this regard, many students of the problem will not agree with Aycock. He concludes⁸ "that vitamin deficiency as a factor in susceptibility to infection is not a general epidemiological principle. The indications are that only deficiencies of certain vitamins affect susceptibility to certain types of infections and that these occur only in limited areas where these vitamin deficiencies reach a sufficiently severe degree to produce tissue changes which are favorable sites for secondary infection." This may be true if the conclusion is limited to

vitamin deficiencies and to the actual process of invasion by pathogens. We doubt, however, whether prevalence of typhus fever in times of famine is due only to poverty and increased infestation with lice (as suggested by Sigerist⁹); and in tuberculosis, the relation of starvation to increased morbidity and mortality seems highly significant.

Perhaps Aycock's most impressive practical contribution to the science of epidemiology lies in his emphasis on the importance of the influence of climate and seasons on the prevalence of disease. It is strange how this relationship has been neglected since research in epidemiology has been limited to the laboratory and has ignored the area of field experience. The winter incidence of upper respiratory infections is the most outstanding challenge in the whole science of epidemiology.

In those diseases which are disseminated by a specific arthropod vector, the influence of season is obvious and clearly recognized. Aycock¹⁰ demonstrates a beautiful case of four widely different seasonal curves for tularemia (with peaks varying from April to November) depending on the particular vector involved. What is commonly ignored, however, is the peak of intestinal diseases in hot climates and seasons and of respiratory infections in cold climates and seasons. It seems clear that in these instances the phenomena cannot be explained by influence on the parasite but must be sought in the physiological status of the human host. The fact that Dick and Schick tests in warm climates show the same infection rate as in cold climates, with an insignificant rate of clinical disease, is proof-positive on this point. North, many years ago, suggested that one very simple factor of seasonal physiologic variation was the relative distribution of blood supply to the intestinal and nasopharyngeal mucosa at different seasons.¹¹ Aycock, in the paper cited above,¹⁰ gives striking examples of seasonal ebbs and flows of physiological status (iodine content of the thyroid gland, organ and gland weights, resistance to acetonitrile poisoning, etc.). In a later communication¹² he presents a striking study of the amplitudes of seasonal fluctuation in various epidemic diseases and reaches the following conclusions: "Three distinct patterns of amplitude of seasonal variation are found in a number of infectious diseases. In upper respiratory bacterial infections as a group, the amplitudes suggest the operation of a single arithmetic variable consistent with seasonal variation in susceptibility. In a second group, comprising diseases transmitted by intermediary means, the amplitudes are consistent with seasonal variation in the virus reservoir. In a third group comprising upper respiratory virus infections, the amplitudes lead to the inference that both seasonal fluctuations in susceptibility of the human being and in the virus reservoir are determinants."

It has been suggested¹³ that the formula for a case of clinical germ disease may be written as follows:

$$A (a_1 a_2 \dots a_x) - B (b_1 b_2 \dots b_x) = C$$

Letting A = the power of the germ to produce disease

$a_1 a_2 \dots a_x$ = various factors increasing the transmissibility (polluted water or milk, flies, mosquitoes, etc.) or the virulence of the germ

B = the power of the human host to resist disease

$b_1 b_2 \dots b_x$ = various factors increasing the resistance of the host (age, specific immunity, nutrition, etc.)

C = a clinical case of a germ disease (or the absence of such a case if the resultant of the factors in the opposite half of the equation falls below zero)

The task of the practical epidemiologist is to concentrate on the weakest links under A (elimination of mosquitoes, pasteurization of milk, purification of water, use of antibiotics, etc.), or on the factors under B which are most easily strengthened (through specific immunization, improved nutrition, personal hygiene and the like). The function of the theoretical epidemiologist is to study all the possible factors in such an equation and to evaluate their relative importance.

REFERENCES

1. Editorial. *A.J.P.H.*, 32:414, 1942.
2. Aycock, W. L., and Russell, F. F. *Am. J. M. Sc.*, 206:399, 1943.
3. Luth, T. *Parasitism and Disease*. Princeton Press, 1934.
4. Aycock, W. L., and Foley, G. E. *Am. J. M. Sc.*, 210:397, 1945.
5. Sampson, B. F. *South African M. J.*, 16:3, 1942.
6. Parodi, A. S., et al. *J. Immunol.*, 58:109, 1948.
7. Aycock, W. L., and Foley, G. E. *Am. J. M. Sc.*, 211:350, 1946.
8. Aycock, W. L., and Lutman, A. E. *Am. J. M. Sc.*, 208:389, 1944.
9. Sigerist, H. E. *Civilization and Disease*. Cornell University Press, 1943.
10. Aycock, W. L., Lutman, A. E., and Coley, G. E. *Am. J. M. Sc.*, 209:395, 1943.
11. North, C. E. *A.J.P.H.*, 3:222, 1913.
12. Aycock, W. L., Foley, G. E., and Hendrie, K. H. *Am. J. M. Sc.*, 211:709, 1946.
13. Winslow, C.-E. A. *The Conquest of Epidemic Disease*. Princeton University Press, 1943.

THE COBBLER'S CHILDREN

ONE may logically ask why the question of routine chest x-rays for all admissions to general hospitals should be a subject for discussion at this time. The public health significance of a procedure which can be used to determine the presence of disease of the heart or lungs in 16,000,000 hospital admissions annually needs no emphasis. The advantages to patient and hospital staff, the usual findings, the technical methods available, their respective cost, even ways for financing such a program, have all been determined and have been widely publicized.¹ The fact still remains that in 1948 less than 3 per cent of the more than 6,000 hospitals in this country were on record as having adopted x-raying of all admissions as a routine procedure,² despite the fact that about one-fifth of all deaths from tuberculosis occur in general hospitals.

With these considerations in mind, a brief summary of the present status of routine hospital admission x-ray service would seem pertinent. It is generally recognized that a chest x-ray is as important a part of the routine for every hospital patient as a blood count, serology, or urine examination, and will reveal the presence of unsuspected disease more often. Numerous studies have shown that approximately 2 to 3 out of every 100 admissions to general hospitals will have x-ray evidence of tuberculosis. Half of the cases will be active, a rate at least twice that found in the general population. As many more patients will show other types of pulmonary pathology or evidence of cardiac disease. These are individuals already in hospitals, physically and psychologically receptive to treatment. To cure such a patient of a minor infection and discharge him with still undiagnosed active pulmonary tuberculosis is hardly in keeping with the highest traditions of medical care, and certainly in no way consistent with the ideals of public health.

The routine chest x-ray of all admissions to general hospitals serves a no less useful purpose in the protection of the members of the hospital staff. A higher rate of tuberculous infection has been consistently found among doctors, nurses, and attendants in general hospitals as well as tuberculosis hospitals, compared with groups of similar age, sex, and race composition not so employed. The

presumption is strong that the source of their infection may be the patient with undiscovered tuberculosis. Medlar's recent studies³ would certainly lend weight to this hypothesis. The constantly increasing proportion of non-reactors to tuberculin among adolescents and young adults further accentuates the danger of such exposure in hospital personnel. Even if we disregard the important factor of the hospital's human responsibility for the safeguarding of the health of its employees, the desirability of maximum protection for staff in these days of personnel shortage remains. The cost of compensation, which is being awarded in a steadily increasing number of states to hospital employees who contract tuberculosis in the course of their employment, is an additional consideration.

Equally explicit information is available as to technical methods and costs. There is no one method universally applicable to all situations, and the technique to be employed will depend on the daily hospital admission rate and the space and facilities at hand. For larger institutions, with admission rates of more than 25 patients daily, some type of miniature film equipment has been recommended. Full size film is advised for hospitals with fewer daily admissions. The initial outlay for a photo-fluorographic unit is high, \$5,000 to \$12,000, with an overall cost per film of approximately \$.50. Large films can be taken with little or no additional equipment, but each x-ray will be more expensive and an additional burden will be thrown on the technical staff. A satisfactory compromise for institutions admitting approximately 25 patients daily is the magazine cassette,⁴ which has been employed by the chest clinics of the New York City Department of Health since 1943. This unit operates like a roll camera, requiring reloading only once for every 50 exposures. It is rented for a nominal fee and uses full size paper film in rolls of 50, at a cost much less than that of celluloid film. The interpretation of the x-rays, the follow-up examination on suspicious or definite cases of tuberculosis or non-tuberculous disease, and the necessary record keeping present no unusual difficulties, and are readily incorporated into the hospital routine.

The financial problems involved in securing the equipment can be met in several ways. The hospital may pay for the unit itself. In many areas the city or state health department may be willing to furnish the apparatus, particularly if the latter is in a position to utilize federal funds for the purpose. The local tuberculosis and health association, chamber of commerce, hospital auxiliary, or other good friend of the hospital may make such a contribution. Once the unit has been procured, the cost of its operation, which should not exceed \$1 per patient, can be readily met. In private institutions it is usually added to the patient's bill; in public institutions, to the budget.

The most serious drawback to the extension of the practice of routinely x-raying all admissions to general hospitals has been the difficulty in manufacturing photo-fluorographic equipment rapidly enough to meet the demand. Production is now increasing steadily, delays in filling orders are growing shorter, and this explanation will soon be an excuse rather than a reason. Unless the general hospitals of this country are prepared to carry out their responsibility for this program they may find themselves regarded in the same category as the cobbler in the old proverb whose children always had holes in their shoes.

REFERENCES

1. *Admission Chest X-ray Service for Hospitals and Clinics*. American Hospital Assn., U. S. Public Health Service, National Tuberculosis Assn., 1946.
2. Hullerman, H.-V. Personal Communication.
3. Medlar, E. M. A Pathologist Looks at TB. *Bulletin, N.T.A.*, June, 1947.
4. Edwards, H. R., and Siegel, A. The Magazine Cassette X-ray Unit. *Am. Rev. Tuberc.*, 49:366 (Apr.), 1944.

Report to National Health Assembly

QUINCY HOWE

Columbia Broadcasting System, New York, N. Y.

THE following stenotypist's report in the style of a radio commentator was a feature of the final session of the National Health Assembly.

The most human of all human interests has drawn us together here in this National Health Assembly. It is the interest in what most of our forefathers called, and many of us still call, the temple of the soul. After all, nothing affects us more personally and more directly than the health of our bodies.

Human nature has therefore played a big part in all of the section meetings of the National Health Assembly, and it is going to play, I think, a still larger part in the summary that I am to present on the work of these sections.

It is human nature for us to want to help others; it is human nature for us to believe that we are right; it is human nature to make mistakes. I have the layman's admiration for the medical profession. I think our doctors are primarily motivated by the desire to help other people. I suspect some of the rest of us may be motivated by more selfish considerations. But, selfish or unselfish, we are reluctant to believe that we are wrong and that the other fellow may possibly be right.

It is the great achievement of this assembly that so many different experts in so many different fields have reached agreement on so many subjects. Just how correct these agreements may be, we shall perhaps learn before the ten years for which we are planning have run their course.

When Mr. Ewing invited me to summarize your findings, I am sure he

wanted to give you a final reminder that it is human to make mistakes. So far, you have seen human nature at its best. What you are about to hear will remind you how fallible human nature can also be. But perhaps my years with the Columbia Broadcasting system will come to my aid. CBS, you see, makes it a policy not to permit news analysts to go in for special pleading on the air. We are told to present our material in such a way that listeners can draw their own conclusions, so it is in that spirit that I am addressing myself to my present task.

The radio industry seems to operate on the assumption that most Americans no longer know how to read. Perhaps I should say that the radio industry is simply making a valiant effort to make reading quite unnecessary. I am not going to operate on that assumption, though, today. I am going to assume that all of you here, all of you, not only know how to read, but do read. I shall also assume that all of you have read, will read, or at any rate can read the conclusions that the 14 sessions of the National Health Assembly have reached in their reports.

Instead, therefore, of summarizing these reports in detail one by one, reports that speak so eloquently for themselves, let me just point out certain common denominators in these reports, and then single out a few striking specific points in the individual reports.

Finally, I will try to suggest a few broad conclusions that seem to me to arise from this material.

Now, there is one common denominator, a very human common denominator, that struck me with special force in every one of these section reports. It is this: Each section regards its own field as fundamental, basic, all important, indispensable. And in each case, the logic behind these section reports seems to me absolutely unanswerable.

For instance, who can possibly disagree with Dr. William C. Menninger and the Mental Health Section when they tell us that more than half of all our sick people, inside and outside our hospitals, suffer from some kind of mental ailment? No one can dispute the statement of the Dental Health Section, that dental caries, tooth decay, is the costliest disease known in civilized man. Perhaps some of you would like to challenge Dr. Haven Emerson and the Local Health Units Section when they say that our people can't possibly expect to enjoy better health unless and until they organize themselves into more efficient local health units. Certainly he wouldn't find any disagreement from Dr. Florence R. Sabin and the Community Planning Section. They would agree with him when they tell us that the community must do a lot more planning for its own health.

And in another section, you know that the child is father of the man; the mother is the source of all human life, as Dr. Leona Baumgartner and the Maternal and Child Health Section have explained. But to have healthy children, we have got to have healthy and also properly educated grown-ups, and Dr. James R. Miller and his section on the Chronic Disease and the Aging Process explained this when they pointed to the need, the growing need, for better care for our growing generation of old folks.

Then, Mr. Joseph W. Fichter and the Rural Health Section explained why

Americans who live on farms have every reason to consider themselves second-class citizens in so far as medical care is concerned. When you think of that, you wonder about the permanently handicapped and the crippled, veterans and non-veterans, for whom Dr. Henry H. Kessler and the Rehabilitation Section made their appeal.

Then we hear Dr. F. G. Boudreau and the Nutrition Section prove beyond any possibility of doubt that better nutrition is the real answer to better health. Then Mr. Arthur D. Weston, and the section on Environmental Sanitation come along, and they make out an equally unassailable case for better sanitation, purer food, a healthier environment, and, of course, Dr. Algo D. Henderson and the Medical Personnel Section explained the big thing we really need is more and better trained doctors and nurses, and especially assistant personnel. It is also just as true as Dr. Andrew C. Ivy and the Research Section's conclusion that we need more and better advanced research and teaching.

And then Dr. Charles F. Wilinsky, in the Hospital Facilities Section, called attention to the shortage of hospitals and other physical facilities.

Dr. H. R. Leavell in the Medical Care Section perhaps had the toughest assignment of all. He had to get his section to agree on the most controversial single issue before any of the sections: What needs to be done to give the American people the better medical care that they clearly require?

Well, so far I have stressed the differences in all these section reports, but my purpose hasn't been to suggest that they conflict with one another. Rather, I have tried to show how wide a variety of subjects this National Health Assembly has covered. Moreover, it seems to me that the subjects the Assembly has covered do not conflict at all; they overlap. I believe "impinge" is the correct word.

And most of all, they complement and even duplicate each other, complement as well as compliment each other. The need for more and better research, for instance, is a universal need. It goes through all these sections. A good local health unit is going to interest itself in the care of both the young and the aged. It is going to interest itself in mental as well as dental cases; it is going to interest itself in questions of environment as well as questions of nutrition.

Several of these sections have referred to the question of discrimination against Negroes, but discrimination takes many forms, and the best cure for discrimination, after all, is education.

Here we come to what is perhaps the most important single common denominator in all the section reports. Again and again section chairmen pointed out the need for more facts, more research, more information. For instance, how many more doctors, nurses, and medical personnel do we actually need? What do we need in the way of enlarged hospital facilities?

And these questions tie right in with the question of rural health. The Rural Health Section had a lot more information than the section on Mental Health was able to gather. Perhaps that is because we have had country doctors much longer than we have had psychiatrists, but the country doctor is becoming the forgotten man. To the outsider, it might seem the psychiatrist is getting all the breaks, until we read this report on mental health from the Mental Health Section coming up with its urgent request for much more information in a field that is perhaps more tragically understaffed than any other.

Without going into the whole list of section reports and their details—I will do that later—it does seem possible to draw this conclusion now: Nearly all the section reports, as I say, call first and foremost for more information. Surely it ought to be possible to avoid

duplication and to send out (instead of duplicating with similar questionnaires and investigating trips) the kind of questionnaire, and gather the kind of information that could be cleared through some central agency and made available to all the groups.

And such an information center would meet the cooperation of all these different sections before it set up shop in the first place.

Now, the friendly attitude that all the delegates to this Assembly have shown toward one another, the interest all have taken in one another's work, suggests that you can pool your efforts in compiling and then applying the information that almost all of you seem to need.

To most Americans shortages is a wartime word. To you who are fighting a never-ending war of your own against all the ills that flesh is heir to, shortage remains just as familiar a word as ever.

First, there is the shortage of highly trained personnel, of your doctors, researchers, and specialists in lots of different fields. Then there is the shortage of assistants, especially dental assistants and nurses. Then there is the shortage of medical schools and medical teachers, the shortage of hospitals, and, it seems, above all else, a shortage of cash. How are we going to pay for all the training, all the equipment, all the services that we need? How are we going to make the career of administering to the nation's health a career that does not require superhuman effort, superhuman sacrifice, or else a superman's bank account?

Perhaps it is not so much a question of salaries as it is a question of less costly training and of greater security for those who are financially equipped to practise medicine, go in for research, or engage in related fields of public health.

Leaving to one side the controversial question of federal health insurance, there does seem to be a rather wide-

spread feeling in which several sections have unanimously concurred—a widespread feeling that the taxpayer is going to have to carry some, probably more, of the financial burden that better health service requires.

The Rural Health Section, for instance, is unanimously agreed that the federal government must bear a greater share of the expense of rural medical care. The farming communities, even the farming states, just haven't got the funds. On the other hand, the local health units must rely largely, I suppose, upon local support—perhaps through local taxation, somewhat after the fashion of our schools.

But, can local communities carry the whole load of maintaining and extending hospital service? And if the state in addition to the federal government comes into the picture, what part has the state medical association to play? What representation will the public have?

Dr. Andrew C. Ivy's section on the Nation's Need for Research in the Service of Health recommends fluid funds from federal tax sources. No less important than the need for funds is the need for people. The two go together. Get the money and you can get the men.

I am not, as I said, going to summarize all these section reports. All of you can read them as well as I can, and most of you can understand what you read in the field much better than I can.

The section chairmen did me the honor last night of telling me what seemed to them the high points in their reports, and I will now try to pass on to the whole assembly here the salient impressions that these section chairmen left with me.

The most newsworthy and the most controversial decisions were those reached by Dr. Hugh R. Leavell's section on Medical Care. These decisions were newsworthy because of the wide area of new agreement among the members of Dr. Leavell's section.

All the groups represented in this section agree that prepayment is the best way to finance medical care. That means insurance. All agree that all the American people are entitled to medical care. All agree that federal funds must be used to finance at any rate some of this medical care.

All agree—and this is important—that the people have the right to set up their own health insurance plans. As you know, there are more than 20 states that do not now permit this but insist that the medical associations must control those health insurance plans.

This section of Dr. Leavell's on Medical Care even agreed that the medical care program alone will not solve all our health problems. This was almost a unique example of humility among the various sections.

The only disagreement among the members of Dr. Leavell's Medical Care Section—and I am not trying to minimize this disagreement, because it is an important one, but it was there—is the question: How to prepay medical care? How to take out this insurance? Some say that we should continue the voluntary method and give free care only to those who need it—a kind of a means test arrangement. That is the system now in force and that is the system that the committee, I believe, has endorsed. Others however, in this section say that we must have universal compulsory federal health insurance and that that need is immediate and urgent.

Now, for the high points of some of the other section reports. Dr. Algo D. Henderson's section on Medical Personnel stressed particularly the great need for nurses, also the need for dentists, baby doctors, and specialists in mental ailments. The big problem in connection with getting more people into nursing seems to be, as in so many cases it is the big problem, economic. They need, among other things, better working conditions, and the public needs to

know more about the prospects and the possibilities of a nursing career.

Dr. Charles F. Wilinsky's section on Hospital Facilities put a lot of emphasis on the need for coöperation between all and among all different groups and elements in the community. They made the point that our hospital system has got to be kept extremely flexible.

Dr. Wilinsky was pointing out last night that new cures that medical science may develop—like these new penicillin drugs and sulfa drugs that have so much speeded up cure of certain diseases that used to hospitalize people for a long time—may radically change the needs of the American people for hospital care. Most hospitals are still run by private, charitable, and religious organizations, but more tax money is going to be needed to do a better job.

Dr. Haven Emerson's section on Local Health Units came up with about as drastic a suggestion as any. They simply urged doubling all personnel and facilities in the public health schools—just double them! At once! As a matter of fact, there are only nine public health schools now in the United States; only nine. Perhaps that could be doubled. There is a need, in any case, says this section, for basic reorganization.

Dr. James R. Miller's section on Chronic Diseases and Diseases of Old Age wanted to stress two points in particular. First, they wanted to stress the importance of diagnosis of these chronic diseases and early treatment for them. After all, it is to the interest of our children to keep us members of the older generation in good shape and fit so we can work and our kids won't have to support us too soon and too long.

The second point that Dr. Miller's section made is the stress on the importance of rehabilitation. Experience in the rehabilitation of war veterans has shown what can be done in this direction. There is also rehabilitation needed among older people who can be and have

been cured of some of these diseases that used to be fatal.

Dr. Leona Baumgartner's section on Maternal and Child Health included in their report these words: "A child's feeling about a test in school can produce as important a stomach ache as eating a spoiled custard."

This section on child health and maternal care points especially to the recent decrease in the maternal death rate, but it also points out some rather striking figures and facts. Three out of every five children in the United States live in families that have an income of less than \$2,100 a year. Four out of five children live in families that have an income of less than \$3,000 a year. And between Pearl Harbor and VJ-Day almost half a million American babies died as compared with somewhat under 300,000 of our fighting men.

The child health and maternal care section urges and stresses also the need for spending more money on the medical care of secondary school children. The amount of money now spent on those children by the states, through the schools now ranges between one cent per child per year and three dollars per child per year.

And this section tells us that the general public and even, I dare say, many members of this Assembly, don't know what great changes have occurred in this whole field of child care and maternal health.

Mr. Joseph W. Fichter's Rural Health Section reports, among other things, that it is not possible for doctors to practise such good medicine in country districts, simply for the lack of facilities, and yet, on the other hand, this section points out that a lot of Americans would like to go back to country living, and more doctors might be willing to go back to country living if they had the hospital facilities, the money, and the cultural opportunities that the rural communities do not now afford.

Perhaps it is worth while to find out, says this section report, what the small town doctors themselves have to say about the prospects of rural medical care, rural hospitalization, and the rest.

Dr. Ivy's Section on Research in the service of health, stresses two very familiar needs that run like a theme through almost all these reports, the need for more money, the need for more funds to be derived from taxes.

Now, one of the most interesting features of Dr. Ivy's Research Section report was that they agreed that there is no lack of zeal among the bright young students. They want to go in for medical and all kinds of scientific research. This applies in all branches. Research is the thing that tempts and attracts the top 20 per cent, the people with the best scientific minds, and this top 20 per cent, ten years ago and more, used to go into medical research and all other forms of scientific research automatically, but something serious has happened.

The discrepancy between the salaries that one gets as a research worker and the salary that he can get if he is a doctor in private practice, or the salary that he can get as a scientist in the employ of private industry—this discrepancy is so great, and the uncertainty of the future for research is so great, that a lot of these best brains among our researchers are going into other fields.

Like this whole question of rural health, the answer on this matter of research in the service of health seems to me to be looking into all our folkways and seeing if we can't plan our whole lives somewhat differently.

Dr. Sabin's Section on Community Planning urges, among other things, that we take a very broad view and define health, not just as not being sick, but as a wide and general sense of well-being, including social and economic conditions, as well as the physical condition. They also warn against selling

the people in your community the idea of community health and its importance in various projects until you have the personnel to carry these projects through. All the community must participate in these projects. We need more public health councils.

Dr. Henry H. Kessler's Section on Rehabilitation reminds us that we as people are not so husky as we think. We need to know and hear more about the rather high rejection for physical reasons by the armed services during the war, and we need to break down, and this is a long process, the prejudices that exist against crippled and permanently handicapped people.

Dr. Ernest G. Sloman's Dental Health Section stressed especially the need for more dental schools and more dental research. Dental schools, it seems, need \$500 per student in addition to the tuition that the student pays in order to give that student the proper training. The big need here is for research projects—something about dental research—it does not seem as dramatic as in some other fields of research, and yet an awful lot can be done to cut the biggest part of our medical bill, the bill of the dentist, and this dental program ties in with the whole sanitation program because of the possible use of sodium fluoride in drinking water.

Dr. William C. Menninger's Mental Health Section is pioneering in what seems to me perhaps the most important field of any—maybe because it is new. Here are some figures that they come up with: Thirty to 60 per cent of all patients who consult doctors have emotional disorders that lead to physical disorders; 62 per cent of all the inmates of veterans' hospitals are psychiatric patients; one million of all admissions to Army hospitals during the war were psychiatric cases. There is an urgent need for personnel in this field. It is most important to do something about the state hospitals. We have a tendency to forget

about the inmates and the doctors in those hospitals. These doctors number anywhere from one to 300 patients, all the way to one to 1,000 patients—one doctor, one psychiatric doctor to 1,000 patients in a mental hospital, and outside the hospitals there is only one psychiatrist to every 140,000 Americans as compared to one M.D. to every 750. Barely 1 per cent of our practising nurses have psychiatric training, and they have got to care for half of all the patients. One hundred thousand new beds are needed for psychiatric cases in our hospitals at once, and yet with all this need for beds and nurses, prevention is the only real cure to this psychiatric problem, and the prevention of these mental difficulties and diseases and ailments needs the coöperation of every agency in the community—our teachers, our clergy, our lawyers, our social workers, management, labor, and everyone—it is perhaps the biggest educational job there is. It goes, maybe, to the very roots of our whole way of living.

Dr. Frank G. Boudreau's Nutrition Section says there ought to be a nutrition expert included in every health group; that nutrition is the field in which the most striking advances have been made in the last twenty-five years. We ought to start nutrition work on expectant mothers at the very start of pregnancy. Then we will get better children all through life and a lower maternal death rate. And one point that Dr. Boudreau recalled last night was that during the war, in England, Churchill went to his top scientists and said:

"What is it that must come first on the list?" They said: "See that the British people get first-class nutrition during the war." They got that nutrition, and in spite of having fallen back in many, many other fields, and suffered all kinds of hardships and tribulations, the British health, due to this good nutrition, is better than it has ever been before, and a great part of the explanation, the

way the British have told us, is because of the attention they gave to this matter of nutrition.

Mr. Arthur D. Weston's Section on Environmental Sanitation is important because it stresses the external—the importance of external factors in relation to public health.

Now, before summarizing this summary, and drawing one or two final conclusions from the many I have outlined, I think I have a duty to report on one other matter.

As Mr. Ewing explained, this assembly cannot, under the law and under its own rules, recommend any definite legislation. I do not think this prevents me in summarizing these reports and discussions from touching on the question of the membership of the United States in the World Health Organization. Dr. Louis I. Dublin raised the question yesterday from the floor. He did not press his proposed motion to urge Congress to act because Mr. Ewing said it would be out of order. Mr. Ewing made it clear, and I think it was clear to everyone present, that all members of all sections agreed that whatever our other differences may be, we united in wanting the United States to join the World Health Organization.

Dr. Fishbein, of the A.M.A., has already made two strong public statements, though, to that effect here at this assembly, and I have not heard one dissenting voice, and I have heard an awful lot in praise and agreement. For what it may be worth, perhaps I may raise my voice, too, safe in the knowledge at this time, at any rate, that I am expressing something that everybody here feels agreement about.

And this question of the World Health Organization is not the only matter on which this assembly has reached agreement. As I review the high points of the section reports, the high points that the section chairmen wanted stressed, it seemed to me that this assembly has

come to agreement on a great many important matters—matters on which agreement has not always been possible before.

Perhaps the greatest single achievement of this assembly is that all kinds of public organizations have sat down together and worked out common problems and common programs with members of the medical profession and other scientific groups.

Now, some laymen may feel that the American Medical Association has been somewhat slow in coming around to health insurance and to the idea of government aid for health. But look at it from the doctor's point of view: Like all of us, doctors are creatures of habit, and they have acquired their habits in about the hardest way there is. Just try to change some of your own habits. Try to stop smoking the way I did a little while ago; or try pulling up stakes; try going to live in a new community, changing your profession—it isn't easy.

Those of us who have been impatient with the American Medical Association for resisting change show a sad lack, I think, of understanding of human nature. Doctors have to make so many sacrifices. They submit themselves to so many disciplines, they are so overworked just keeping up with their own jobs, that the wonder to me is that any of them have time for anything else. And it is only natural that those who do interest themselves in something beyond their engrossing daily tasks want to hold on to their own tried and tested way of doing things.

That so many doctors not only have taken the time to work with the National Health Assembly but have shown themselves so coöperative, so understanding, so open-minded, seems to me the most promising and the most important development of this whole meeting. The example that the doctors have set us here should encourage all of us to go on with the kind of work that this National

Health Assembly has only just begun.

Now, there is no question that the high spot of this assembly is the coöperation between men of science and the general public. This coöperation reminds us that the atomic bomb and atomic energy are not so new as we have been led to believe. Everyone said when the atomic bomb went off that now we are in a new age, nothing is the same as it was before, and now the scientist is out of his ivory tower, and now science has got to interest itself in politics and general affairs, and the general public has got to be interested in science.

But even if there had been no atomic bomb, we would have had a meeting like this just the same. It is all a part of the same trend. The atomic bomb is one part of it, and this meeting is another part of it. It is the trend of bringing the scientists out of the laboratory, forcing the laymen to concern themselves with the impact of science on our lives. Here it happens to be medical science.

There seems no doubt that medical science can do the job. The two big questions are: Where will the money come from and where will the people come from? This assembly is hopeful. It is a hopeful sign because it is a sign of the times. It proves that the scientists and the public can work together, with government officials acting simply as intermediaries, but with the funds that finance this assembly coming from private sources. It seems almost the ideal combination of government, free enterprise, of expert and layman.

Now, as a complete and rank outsider, can I take advantage of the tolerance of this tolerant gathering to close with just one mildly critical observation, not so much of this National Health Assembly as of our American way of doing things.

As I said at the beginning, all these section reports call for more and more

facts. Of course, none of these sections has yet got the complete story. That will never be told. Some of them are just beginning to pioneer. All of them need to correlate what they already know. But we Americans, as a people, seem to have a blind passion for facts as facts. We have an almost mystical faith in statistics. Now, the collection of facts is a necessary and rewarding enterprise, but it is not a substitute for action. It is not a substitute for something that is even more difficult than action, and that is thought. Too many of us simply collect facts simply to avoid having to do anything about it. We are like the fanatic who redoubles his zeal after he has lost the sight of his objective.

During the 1920's, a wise Spaniard, Salvador de Madariaga, wrote a book, *Englishmen, Frenchmen, and Spaniards*. He made the point that the Englishman is the man of action, the Frenchman the man of thought, the Spaniard the man of passion. The Englishman, he said, thinks with his knees and elbows; he acts on instinct, and he almost always acts right, although he cannot, possibly tell you ahead of time what he is going to do or explain afterward why he has done it. The Frenchman, on the other hand, can give a perfect analysis of every situation, but when the moment to act comes, he is mentally muscle-bound and has a hard time putting his ideas into practice. Afterward, however, he can always give a perfect explanation of just exactly what happened.

Now, if the Englishman is a man of action and the Frenchman is a man of thought, the American seems to me a man of fact. Where the Englishman puts all his energy into action, we put all our energy into collecting data. Where Frenchmen put all their energy into theory and logic, we put all our energy into accumulating facts.

This is not a tendency that is peculiar to science. I think my own field of radio is the worst offender. Have

you ever seen a market survey, a listener's survey, a breakdown of Hooper ratings? I am going to take a chance now. It is no accident that Dr. Stanton, president of the Columbia Broadcasting System, one of the sponsors of this National Health Assembly, is himself a statistician.

Now please do not misunderstand me, and I hope Nate Halpern, Dr. Stanton's deputy at today's session, won't misunderstand me either. All I am saying is that a great many Americans are completely fascinated by facts. Obviously the American radio could not be where it is, and the American science could not be where it is if our leading people in these fields had not devoted themselves to the pursuit of facts, facts, facts.

But I am not saying anything to this assembly that I would not say to the president of the great organization for which I work if I say that the mere accumulation of facts is not an end, an aim in itself. It is what we do with the facts; it is what we make the facts mean that really matters.

I am not going to tell you people what all the facts that your various sections have gathered together mean. I don't know. But I am sure a lot of you do. In some of the fields that your sections have covered you will, of course, want to go out and gather more facts. Rightly! But in other cases I am sure that you have enough facts to spell out some answers; and in still other cases I bet you know the answers already and your next step is to do something about them.

It is not, however, part of my function to tell you what to do or what conclusions to draw. It is my function to review some of the material that has come before you. I will feel I have done my part if what I have said leads you to continue in thought, in action, and in spirit, the many tasks you have set yourselves and our people.

Clearing House on Public Health Salary Information

CALIFORNIA STUDIES LOCAL SALARY TRENDS

THE California State Department of Health, through its Division of Local Health Service and at the request of Local Health Officers of California, has released two salary studies covering full-time professional and technical personnel in local health departments of the state. These studies are as of October 1, 1947, and as of January 1, 1948, respectively. The October study includes 34 local departments, the January one, 32, but only 25 departments are common to both studies. A total of 40 jurisdictions are included in one or both studies.

In no instance were salaries decreased between October, 1947, and January, 1948. For the 25 health officers in both studies actual salaries paid or range of salaries, 13 remained stationary, and 12 increased during the 3 month period. In 5 instances the increases were less than 10 per cent, but in 3 they were more than one-third. The highest monthly salary of \$1,125 remained unchanged.

One more example: of 22 chief sanitarians reported at both dates, salaries of 14 remained stationary; those of 8 increased. The increases were less than 10 per cent in 4 instances, and 11, 16, 27, and 41 per cent respectively, in the remaining 4. A detailed study of this material might well reveal that variations in the extent to which salaries were increased among the separate professional groups, bear a close relation to the separate pressures brought upon them to accept other positions.

The relationship between health officers' salaries and the populations of

their jurisdictions is also worth examining. Of the 40 jurisdictions reporting salaries for either October or January or both, 13 had 1940 populations of less than 50,000; in 8 of these the health officer's monthly salary was \$600 or more. Of the 10 whose salaries were less than \$600, 5 served small populations, but 5 served populations of from 50,000 to 250,000. Again it is difficult to sort out exact correlations, particularly in view of the erratic population changes in California since 1940. Nevertheless, these figures bear careful analysis in the development of criteria for setting salary scales. They also pose the perennial question of whether the best use is currently being made of the professional and administrative skills of the public health officer in a population of 30,000, for example.

Perhaps one more word needs to be said. California is among the more fortunate states in having a comparatively low vacancy rate in its local health officer positions, the fruit, in part, perhaps, of such current studies.

LOCAL HEALTH DEPARTMENT SALARY STUDY

The May *Journal* (p. 714) reported a plan to include a sampling of local health departments in the next study of public health salaries. This study, sponsored by the Association of State and Territorial Health Officers, is already under way. The questionnaires have been prepared and sent out by the Committee on Professional Education; the technical work of analyzing and tabulating the material is being undertaken by the U. S. Public Health Service.

Questionnaires have gone to a rari-

dom sample of 126 jurisdictions in 39 states representing all areas of the country. One-fifth of the jurisdictions are state health districts. The study is limited to health departments serving from 50,000 to 250,000 persons.

LOUISIANA TAKES STOCK OF ITS SALARY SITUATION

In January, 1948, the Louisiana State Health Department made a telegram survey of salaries for 30 classes of positions common to state health agencies. Nearly every state replied to the Louisiana questionnaire; the largest number reporting for any category of workers was 43 for director of public health nursing; 42 reported on the director of public health engineering.

Except for the state health officer, salaries in the upper grades of positions appear to be somewhat higher in Louisiana than the average for all states; in the lower grades of positions, they are distinctly lower. For instance, Louisiana ranks 9th among 23 grades of minimum salaries for director of local health administration in 37 states, and 6th in 27 grades of maximum salaries for this position. For public health physicians at the entrance level it ranks 18 among 21 grades of minimum salaries in 28 states, and 14 among 23 grades of maximum salaries.

This study is available from Dan S. Moore, State Director of Personnel, Louisiana Civil Service Commission, Capitol Annex, Baton Rouge 4, La.

CONVINCING A BOARD OF ESTIMATE

In New York City the district health officers of the Department of Health have organized themselves into a Health Officers Council. This organization is

similar to the Conference of Local Health Officers of a number of states.

In April, this Health Officers Council presented a memorandum on salaries to the New York City Board of Estimate. This memorandum pointed out that of 21 health centers covering the 31 health districts of the city, only 13 were administered by health officers qualified according to Civil Service standards; of the 13 only 8 had health department experience. It also pointed out that 8 experienced health officers had left the department in 1947; of 12 carefully selected candidates who received a year's training in a school of public health through federal funds and several months of intensive training in the department, only 5 remained.

The Health Officers Council cites these facts as illustrations of the situation existing with respect to all types of workers in the health department. It believes that the unfavorable salary situation is the basic reason for the failure to maintain department personnel up to strength.

By way of highlighting its argument, the Health Officers Council compares the salaries and the population served of the New York City district health officers with those of 8 neighboring urban areas in New York State and with 10 health jurisdictions in California. This state was chosen because figures were available and because California and New York State are comparable as to per capita wealth.

This memorandum might have suggestions for other areas in their dealings with appropriating bodies. A limited supply of the memorandum is available from the Health Officers Council, 125 Worth St., New York, N. Y.

SANITARY ENGINEERING AND NATIONAL SECURITY

"A Preliminary Report—Sanitary Engineering Aspects of National Security" by the Subcommittee on Sanitary Engineering Aspects of Major Catastrophes of the National Research Council, has now been made available for general study. Prepared for and at the request of the Committee on Sanitary Engineering and Environment of the Division of Medical Sciences of the National Research Council. The Introduction states:

"This report deals with some of the sanitary engineering aspects of major catastrophes primarily as affecting the civilian population. It presents statistical data concerning catastrophes during the last quarter of a century resulting from natural phenomena and man-made causes. It gives emphasis to the special hazards of the future in the light of technological developments in the arts of peace and war and recommends organization of sanitary engineering services to mitigate the effect of future catastrophes and to provide for control and relief measures when they do occur."

"We must make adequate preparations for meeting the emergency sanitary engineering problems associated with natural catastrophes; in addition it is necessary to develop an organization capable of orientation to the contingency of war, while functioning efficiently in times of peace."

The report points out that a well coordinated program of national security to safeguard public health, welfare and our economic potential should include a plan and organization for sanitary engineering activities. The scope of the activities applies particularly to protection and promotion of public health through control measures over the environment in which people live and work. This specialized service and responsibility includes such essential community or regional facilities or services as: water supply, sewerage, control over atmospheric and stream pollution, insect and rodent control, sanitation of food production, processing and distri-

bution, garbage and refuse collection and disposal, sanitation as related to housing, industry, ventilation, swimming and bathing and general community life, and related matters.

Examples of the type of catastrophe in which sanitary and public health engineering play an important role include the general economic prostration which occurred in England during the winter of 1946-1947 due to the unusual snow storms, high winds and floods; the widespread floods which occur in the Missouri and Mississippi River valleys; and the recent Texas City explosion. The committee has classified possible disastrous events into 3 categories: those of natural phenomena such as floods, tidal waves and earthquakes; the man-made accidents which would include explosions, fires, and epidemics; and war hazards, including aerial warfare, atomic bombing, sabotage, and destruction or deterioration of essential civilian facilities.

In the past, the American Red Cross is cited as being the principal disaster relief organization on a national level. According to the report, for the 26 years from July 1, 1920, to June 30, 1946, \$105,000,000 were spent by the A. R. C. in giving disaster relief. Statistical data on the major disasters during that period are included in a separate table. Another tabulation to show the seriousness of major disasters in the United States includes 38 instances during the period 1865-1945 in which a total death toll of 29,622 is listed. A summary and classification prepared by the Metropolitan Life Insurance Company showed that 919 catastrophic accidents occurred during the period, 1937-1946, and listed 12,987 deaths. Data on these events are likewise covered in a special table.

Recommendations include:

"Calamities due to natural phenomena or man-made accidents, or those resulting from acts of warfare such as direct enemy attack or sabotage, involve a wide range of sanitary engineering problems. A consideration of these basic factors indicates that planning for prevention and control over major disasters should originate at a high federal level and be worked out in such detail as to reach down to each community in the nation."

Specific recommendations include:

1. Considering the importance of environmental sanitation in disaster relief work and national security, the committee recommends that special provision be made to develop sanitary engineering programs within the national disaster relief and security program and to place responsibility for them in qualified sanitary engineers.

2. The committee recommends that, in all research and development work of the federal government, channels be established through which the point of view of the sanitary engineer may be obtained. This may be done through employment of qualified consultants or the appointment of one or more full-time sanitary engineers on the staff of the agency or agencies concerned. Agencies in particular need of the full-time services of sanitary engineers are:

American Red Cross
Atomic Energy Commission
Central Intelligence Agency
National Security Resources Board

3. The Sanitary Engineering Division of the Public Health Service, by reason of its specially trained staff and established relationship with the sanitary engineering divisions of state, county, and local departments of health, is particularly well qualified to serve as a liaison unit between federal agencies and those of the respective states and their instrumentalities.

4. The committee recommends that a permanent sanitary engineering unit should be organized in the Public Health Service to carry out disaster and national security activities.

Working with the National Security Council, Central Intelligence Agency, National Security Resources Board, the National Military Establishment, the American Red Cross and various other federal, state, and local agencies, this unit would perform such functions as:

a. Coördinate sanitary engineering work between federal, state, and local agencies, with special emphasis on mitigation of hazards to civilians in times of peace or war.

b. Develop plans in consultation with an overall agency, for the organization and mobilization of sanitary engineers, water works operators, and related man power for service in local, regional, or national emergencies.

c. Promote civilian defense and disaster-relief planning, involving sanitary engineering and environmental sanitation, through the chief sanitary engineers of the state departments of health.

d. Develop a system of liaison and intelligence whereby in the location, design, construction, and operation of public facilities the interests of national security are taken into adequate consideration.

e. Alert state and local agencies of such national defense programs as are likely to affect community resources or facilities for which they are responsible.

f. Develop training programs in environmental sanitation for professional and sub-professional people in order to establish a reservoir of trained personnel for service in times of disorder.

Abel Wolman is chairman of the Committee on Sanitary Engineering and Environment. The Subcommittee on Sanitary Engineering Aspects of Major Catastrophes is composed of Arthur E. Gorman, Chairman, Gerald E. Arnold, Anselmo F. Dappert, Victor M. Ehlers, H. H. Gerstein.

The full report appears in the June, 1948, issue of the *Journal of the New England Water Works Association*, George C. Houser, Editor, Boston 8, Mass.

SCHOOLS OF PUBLIC HEALTH ACCREDITED FOR THE M.P.H. AND Dr.P.H. DEGREES FOR 1948-1949

On April 30, 1948, the Executive Board of the American Public Health Association received the recommendation of the Committee on Professional

Education to accredit ten schools of public health for the Master of Public Health Degree (M.P.H. in the United States; the equivalent degree in Canada

is the Diploma of Public Health or D.P.H.). The Committee on Professional Education also had recommended accreditation of seven schools for the Doctor of Public Health Degree (Dr.P.H.) for the academic year 1948-1949.

The Executive Board voted to accredit these schools all of which had been accredited previously. A reduction of the number of accredited schools

from eleven in 1947-1948 to ten in 1948-1949, is due to a withdrawal of Vanderbilt University which, because of economic circumstances, is forced to discontinue the postgraduate public health training program for the present.

Below are listed the schools accredited for 1948-1949, the degrees for which they are accredited, and the names of the directors or deans.

Institutions Accredited by the American Public Health Association To Give the Degree of Master of Public Health (Diploma of Public Health in Canada) and Doctor of Public Health for the Academic Year 1948-1949

CALIFORNIA, UNIVERSITY OF School of Public Health Berkeley 4, Calif.	M.P.H., Dr.P.H.	Edward S. Rogers, M.D., Dean
COLUMBIA UNIVERSITY School of Public Health 600 West 168th Street New York 32, N. Y.	M.P.H., Dr.P.H.	Harry S. Mustard, M.D., Director Harold W. Brown, M.D., Acting Director
HARVARD UNIVERSITY School of Public Health 55 Shattuck Street Boston 15, Mass.	M.P.H., Dr.P.H.	James S. Simmons, M.D., Dean
JOHNS HOPKINS UNIVERSITY School of Hygiene and Public Health 615 N. Wolfe Street Baltimore 5, Md.	M.P.H., Dr.P.H.	Ernest L. Stebbins, M.D., Director
MICHIGAN, UNIVERSITY OF School of Public Health Ann Arbor, Mich.	M.P.H., Dr.P.H.	Henry F. Vaughan, Dr.P.H., Dean
MINNESOTA, UNIVERSITY OF School of Public Health Minneapolis 14, Minn.	M.P.H.	Gaylord W. Anderson, M.D., Director
NORTH CAROLINA, UNIVERSITY OF School of Public Health Chapel Hill, N. C.	M.P.H., Dr.P.H.	Edward G. McGavran, M.D., Dean
TORONTO, UNIVERSITY OF School of Hygiene Toronto 5, Ontario, Canada	D.P.H.	Robert D. Defries, M.D., Director
TULANE UNIVERSITY School of Medicine Department of Public Health New Orleans 13, La.	M.P.H.	M. E. Lapham, M.D., Dean
YALE UNIVERSITY School of Medicine Department of Public Health New Haven, Conn.	M.P.H., Dr.P.H.	Prof. Ira V. Hiscock, Chairman

Credit Lines

NEW YORK PLANS NEW PUBLICATIONS

With the advent of Herman Hilleboe, M.D., as Health Commissioner, and Granville W. Larimore, M.D., as Director of Public Health Education, the New York State Health Department has taken a look at its weekly *Health News* and come up with plans for a weekly, a monthly, and a quarterly.

Beginning in June, *Health News* becomes a monthly publication, beamed primarily to professional health workers, and applying the principles of community organization. Its first developmental issue of April gave news about the State Medical Society and a number of voluntary health agencies, as well as an article on local health services. It was liberally illustrated with pictures, which is a part of the plan, and produced with a high grade of paper and typography. A wide distribution is planned for this publication.

The weekly publication will be the *Bulletin*, reproduced by multilith, and will have "house-organ" type of material and current communicable disease and other information of interest to public health workers. It started publication in June. The *Quarterly* will be devoted to scientific articles. Both the *Bulletin* and the *Quarterly* will be distributed to professional public health workers only.

WHAT DOES A HEALTH DEPARTMENT DO?

Perhaps a new way of answering this question has been found by the Lawrence County (Illinois) Medical Society. In a folded flier it lists each staff member of the Lawrence-Wabash bi-county health department and reproduces the exact record of what each did during one day.

The health officer of this bi-county

unit serving a population of about 35,000 is Dale E. Scholz, M.D.

THE SAFETY WORLD GETS TOGETHER

In February, 1948, the National Conference on Home Safety, originally organized in January, 1946, was dissolved. At the same time its successor, the Home Safety Conference of the National Safety Conference was born and will assume some of the aims and activities of the former organization. Among the notable achievements of the Conference during the two years of its existence was the publication and wide distribution of "A Man's Castle," an excellent home safety health education tool.

Donald B. Armstrong, M.D., who was Chairman of the Executive Committee of the earlier conference is temporary chairman of the new conference, and chairman of its Steering Committee. The next meeting of the conference will be held in connection with the 36th National Safety Congress in Chicago, October 18-22.

"IT'S IN THE BAG" A NEW FILM

The Texas State Health Department has recently released "It's In the Bag," a motion picture describing the nursing bag technique and an accompanying script. It is intended to arouse interest in high school girls in the public health nursing professions, as an aid in nursing training, as a means of getting certain health information to the public, and acquainting lay and professional groups with public health nursing service.

Details available from Texas State Health Department, Austin 2, Tex.

WORLD HEALTH ORGANIZATION UP TO DATE

The March issue of *International*

Conciliation (Carnegie Endowment for International Peace, 405 West 117 St., New York 17) is devoted to an article on the Program and Accomplishments of the World Health Organization by Professor C.-E. A. Winslow, with an introduction by Brock Chisholm, M.D., Executive Secretary of the Interim Commission, World Health Organization. Professor Winslow's article is a down to earth summary of the various areas in which WHO operates and the machinery which it employs, but in summarizing he makes the reader see also the wide horizons. This should be in the working library of every public health worker and particularly should it be read by the members of the House Rules Committee, that Committee which on March 12 tabled the resolution for United States ratification of the WHO constitution.

INDIANA MEANS IT

The February issue of the *Monthly Bulletin of the Indiana State Board of Health* is devoted primarily to promoting full-time local health services in Indiana. Its opening article on this subject is illustrated with a cartoon of racers entitled "Come On Indiana," and informs its readers that only 5 states ran behind Indiana in the race for complete state coverage with full-time health departments. There are articles by the executives of the Indiana Tuberculosis Association and the Indiana Congress of Parents and Teachers, and excerpts from the paper by George J. Nelbach of the New York State Committee on Tuberculosis and Health given at the Princeton Conference on Local Health Units. Ten counties are listed as the most likely candidates for supporting full-time service. If they should move over, in fact, from candidates to elected status, 50 per cent of Indiana's population would be covered by full-time local health service.

SCHOOL HEALTH IS GOING PLACES IN WISCONSIN

About 3 years ago in Wisconsin a committee became interested in school health services in that state. Under the sponsorship of the departments of health and education a Wisconsin Co-operative School Health Program with the aim of "better health for every child in the state" was set up.

The program has now prepared a series of 10 *Guides for Better School Health*. No. 1 is *The Road to School Health* (see January *Journal*, p. 119), and No. 10 is *Nutrition Education for Boys and Girls*. In between are pamphlets on school water supply, heating and ventilation, lighting maintenance, dental health, tuberculosis health education, school health examinations, health and safety instruction, and nutrition education. All of these bulletins are available on request from the State Department of Public Instruction, Madison.

The program has been under the direction of Warren H. Southworth, Associate Professor of Education of the University of Wisconsin. Many persons and many agencies have cooperated; 5 of the bulletins were published by the State Department of Instruction, 2 of them with funds supplied by the W. K. Kellogg Foundation; 2 by the State Board of Health, and 1 each by the Department of Agriculture and the Wisconsin Anti-tuberculosis Society.

This coöperative program has also had an annual school health conference. The report of the third one, held in October, 1947, is now also available.

MENTAL HEALTH ON THE RADIO

An exciting new series of 13 transcribed dramas on mental health, *The Tenth Man*, was recently released by the National Mental Health Foundation and is now available for sponsorship on local radio outlets or for other educational uses. Designed as tools for local mental

health societies, doctors, social workers, and others who wish to inform the public about psychiatric facts, these 15-minute radio plays dramatize some of the problems of the one man in 10 who needs or will need professional care for a mental or nervous disorder. The series has received commendation and endorsement from the Group for the Advancement of Psychiatry and the United States Public Health Service. Ralph Bellamy, noted actor, appears as narrator throughout the series, and prominent radio actors play supporting roles. For further information write to the National Mental Health Foundation, 1520 Race Street, Philadelphia 2, Pa.

THE IDEA WAS GOOD ANYWAY

The Lorain County (Ohio) Health Department held its 28th annual meeting on March 1. It celebrated, among other things, a \$35,000 two year grant from the W. K. Kellogg Foundation to establish a rural field training center for public health personnel.

Worthy of special mention, however, is its attempt to use the occasion to publicize rural health service over a wide area. It invited *Life Magazine* "to go to an annual meeting of a rural health department" giving as background material some of the facts from *Local Health Units for the Nation*, as well as some indication of the critical personnel shortage.

That *Life* did not accept the invitation, makes it no less good an idea. It takes more than one try to land in big time popular magazines.

MAYORS KNOW THE COST OF SLUMS

The United States Conference of Mayors publishes *America Cannot Afford Slums*, a graphic story in pictures and charts of the increasing financial burden and growing social problem of slums. It is designed as an argument for the Taft-Ellendorf-Wagner housing

bill. This telling argument for the bill is attractively packaged in a well printed, well illustrated booklet in pleasing colors.

HOUSES ARE HOMES

The Woman's Foundation has just published *Houses for Family Living*, a summary of the ideas discussed at the Rye, N. Y., Conference on Housing for Family Living in November, 1946. The stated purpose of the pamphlet is "an attempt to put between two covers some of the information recently acquired on family living and the home and to think through what it means." This excellent technical production is available from the Woman's Foundation, Inc., 10 East 40 Street, New York 16, N. Y., 35 cents—less in quantity orders.

It will be remembered that the Woman's Foundation initiated the chain of events that culminated in the National Conference on Family Life held in Washington, D. C., in May, 1948.

STREAM POLLUTION ABATEMENT

The *Annual Report—Interstate Sanitation Commission* for 1947 gives a record of the accomplishments of the tri-state body organized by New York, New Jersey, and Connecticut to control pollution of the greater New York bay area. Willing coöperation on the part of industry and municipalities is reported, although recourse to the legal powers of the Commission was resorted to 13 times in 1947 through issuance of orders on uncoöperative municipalities or industries. An increase in time spent in meeting requests for special services is noted as a result of continued public education. Among special activities followed was a continued participation in studies of the prevalence of marine borers, studies of storm water infiltration and storm-flow by-passing at sewage treatment plants. Results of chemical and bacteriological tests of samples taken from the various sewage

contributors in the area are presented for the years 1945, 1946, and 1947.

INTRODUCING THE TUBERCULOSIS HOSPITAL

Among the problems of a tuberculosis control program is the natural reluctance of the sufferer's family to hospitalize him away from the home and the nameless fear of hospitals that still remains in many areas. With this in mind the New York State Committee on Tuberculosis and Public Health has published, in an attractive illustrated booklet, *Your Sunmount*, subtitled, "Veterans Administration Hospital and How It Serves You."

The booklet is written for the patient and his family and describes the facilities for his cure and rehabilitation. In the process a good deal of tuberculosis health education is included. This description of a veterans' hospital in New York State to increase effective hospitalization of tuberculous veterans might well be copied elsewhere.

NLNE LEAGUE LETTER

Under date of March 5, the first *League Letter* of the National League of Nursing Education appeared. This is one of a series planned by the NLNE Committee of Public Relations to bring "brief, prompt, accurate information to state and local leagues about happenings in nursing education." Available from NLNE, 1790 Broadway, New York 19, N. Y., at 10 centes each.

A closely related publication is the *News Letter* of the Committee on the Structure of National Nursing Organizations, Volume 1, No. 1, which was issued in March. It is to be "published occasionally" and addressed to every member of the 6 national nursing organizations represented on the Committee on Structure numbering over 200,000. Available without charge from Room 201, 1790 Broadway, New York 19, N. Y.

TELLING DOCTORS ABOUT THE NATIONAL HEALTH COUNCIL

The *New England Journal of Medicine* for January 15, 1948, editorializes on the subject of Voluntary Health Agencies and the National Health Council. This outlines the services the National Health Council can give to existing health agencies. It suggests also that the American Medical Association again become a member of the Council.

The editorial is particularly valuable in interpreting for physicians and local medical societies the Council and its activities in developing local health councils. It has been reprinted by and is available in limited quantities from The National Health Council, 1790 Broadway, New York 19.

ANNUAL REPORTS

Twentieth Anniversary Annual Report, Georgia Warm Springs Foundation, is worth a few minutes for many reasons: to remind us of the physical courage and tenacity of the late President, for the information about the Foundation it contains, especially as to its growth in 20 years, and finally for the technical excellence of the pamphlet itself.

A Summary Report, Food Supply Division, The Institute of Inter-American Affairs, 1942-1947. If you want to know some of the long range attacks on bad health in Central and South America by way of soil conservation, better milk production, use of fertilizer, varied garden crops, leaf through this attractive report with its pictures.

Annual Report of the Social Science Research Council, 1946-1947, is the story of one organization's contribution to the knowledge of human relation through research. It deems its first task in research to be planning, that is, "the entire process of developing research personnel, improving techniques, mapping opportunities and needs, designing

projects, assuring the existence of proper materials, encouraging the investment of funds in research, and better the circumstances under which research is conducted."

Donald Young was the Director of the National Research Council during the period of this report. He is now General Director of the Russell Sage Foundation. His successor at the National Research Council is Pendleton Herring, formerly of the Carnegie Corporation of America and Professor of Government at Harvard University.

The offices of the Council are at 230 Park Avenue, New York 17.

WORTH ACQUIRING

Born Thirty Days Too Soon! was prepared by the Maternal and Child Health Division of the Kansas State Board of Health (Topeka) on behalf of the premature baby because he is too tiny to plead his own case. This tells the simple facts about prematurity, the facilities available, and a plea for tax money of eight cents per capita to expand the program, as well as suggestions for setting up a community program. It gives a page of pictures of great men who were premature babies—Winston Churchill, Darwin, Voltaire, and others.

Good News About Diabetes is number 138 in the series of Public Affairs Pamphlets and explains that the life expectancy of the diabetic is constantly increasing if he pays more attention to his health than the average non-diabetic. The author, Herbert Yahraes, also reports on the activities of the American Diabetes Association and the Diabetes Section of the U. S. Public Health Service, and urges increased funds for research, particularly into the why of diabetes. Public Affairs Committee, 22 East 38 St., New York 16, N. Y., Room 204.

The Unexpected Gift is one of a series of science readers for junior high school. This one, in story form, tells about a well balanced diet and how a school lunch program may be developed. Project in Applied Economics, College of Education, University of Florida, Gainesville, 35 cents, or 28 cents in orders of 25 or more.

The Problem of Cerebral Palsy by Meyer A. Perlstein, M.D., with the assistance of William McPeak, social science analyst, has been published by the National Society for Crippled Children and Adults. It is designed as "an aid to the medical profession, for leaders in community organizations, and as a guide to workers in the fields of health and rehabilitation." Included is a description of the problem of the cerebral palsied child, a suggested state program, professional training, research needs, and cerebral palsy as a socio-economic problem. There is a diagrammatic chart of how a model cerebral palsy program operates, and some hypothetical case histories illustrating the mechanics of the cerebral palsy program.

Available from the National Society for Crippled Children and Adults, Inc., 11 S. La Salle Street, Chicago 3, 25 cents.

State Administration of School Health, Physical Education and Recreation is a status study by the U. S. Office of Education. It gives the current legal and administrative provisions in the various states for the development of school programs of health, physical education and recreation. One section is devoted to coöperative arrangements between state departments of health and education.

Available from U. S. Government Printing Office, Washington 25, D. C., 15 cents.

Public Health in Foreign Periodicals

GEORGE ROSEN, M.D., PH.D.

DURING World War II, it was realized that a complete and accurate study of the influence of the war and of war conditions on public health would not become possible until the end of hostilities.¹ When the fighting ceased, public health workers in various countries began to survey the situation. Attention was turned to the problems of infant mortality, tuberculosis, venereal disease, and nutrition, that is, those problems that were found to be most pressing. So far, information has become available only in piecemeal form, relating to individual countries or to specific restricted problems. At the same time, new problems have not been neglected. In illustration of these comments, a number of investigations dealing with European countries have been selected for review.²

INFANT MORTALITY IN FRANCE

In France, the natural decrease of population already existing prior to the war was accelerated during the war years. French authors are, therefore, inquiring into the problem of infant mortality. Lesné and Debré point out that infant mortality, which had steadily declined during the years preceding the war, in 1940 showed an abrupt and considerable rise. From a rate of 110 per 1,000 live births in 1914, infant mortality had fallen to 64 in 1939. As a result, however, of conditions arising from the war and the occupation, e.g., the exodus in the summer of 1940, food difficulties, and infections, infant mortality rose to 91 in 1940, dropped to 77 in 1944, and reached 102 in 1945. It should be recalled that this was the severe winter of 1944-1945 when there

was great scarcity of food and fuel. In 1946, however, throughout France there was a sharp drop in infant mortality. The rate for France as a whole was 70 per 1,000 live births.

The authors state that about 100,000 infants under 1 year of age die annually in France. The highest infant death rate occurs before the age of 3 months; and approximately one-third of all deaths under 1 year fall under the heading of neonatal mortality. These deaths are due to various pathological conditions, and to biological, social, and economic causes. Lesné and Debré are more concerned about the latter, for it is their contention that attention to the social and economic problems could save for France three-quarters of the infants who die before the age of 1 year.

The problem of breastfeeding is considered at length. Intensification of the campaign for breastfeeding is advocated. This involves education of doctors and midwives, as well as the general public in the value of breastfeeding. Economic assistance and extra rations should be provided for every nursing mother obliged to work. Breast-milk depots should be established in every large town. Ignorance, carelessness, and poor home conditions contribute to a high infant mortality. Alleviation of these conditions requires a combination of the efforts of doctors and social workers, and an improvement in economic conditions. Furthermore, families with young children should have a priority of fuel. Finally, the authors emphasize the necessity for periodic medical supervision during pregnancy, and during the first year of life. Prenatal clinics and infant

consultation centers must constantly carry on a campaign of education with mothers.

MORTALITY AND MORBIDITY IN DENMARK DURING RECENT YEARS

A survey of public health conditions in Denmark during 1946 presents an interesting comparison with conditions preceding and during the war.⁴ The general mortality rates recorded in Denmark are lower than those observed before the war. The years 1942 and 1943 were record years, with the mortality rate dropping to a low of 9.6 per 1,000 population. Tuberculosis mortality is a sensitive index of prevailing social and economic conditions, especially the factors of nutrition and work. War, influencing as it does both of these factors, might be expected to result in a significant increase in tuberculosis mortality. Such was not the case in Denmark. The pre-war downward trend of tuberculosis mortality was checked at first, but was later stabilized. At present, the trend is again downward. During the period 1936-1940, the tuberculosis mortality rate was 40 per 100,000, whereas in the period 1941-1945, it dropped to 34 per 100,000. In 1945, the tuberculosis mortality rate was the lowest yet recorded. It is reported that deaths from all forms of tuberculosis, both pulmonary and other, were even less numerous in 1946 than in 1945.

On the other hand, the war exerted an unfavorable influence on the incidence of typhus fever, typhoid fever, dysentery, scabies, syphilis and gonorrhea. The incidence of scabies achieved a record peak in 1945. Venereal diseases spread considerably after the beginning of the war. Syphilis is reported to have been eight times more frequent in 1944 than in 1940. The number of cases of syphilis reported for these two years was 4,053 and 485 respectively. The trend with respect to gonorrhea was similar. From 1940 to 1944 the incidence of

the disease is reported to have increased threefold. The peak incidence for gonorrhea was reached in 1945. During the war there was also a rise in the mortality rate from heart disease.

BCG VACCINATION IN SWEDEN AND RUSSIA

Among the problems remaining in the wake of the war, tuberculosis occupies a prominent place. In dealing with this problem many countries are today using BCG vaccination.

The use of the Calmette vaccine in Sweden dates back to 1925 when the first trials were carried out by the oral route.⁵ Intradermal introduction of the BCG vaccine was first employed in 1927 at a children's hospital in Gothenburg, and has since been the preferred mode of administration. During the succeeding two decades the number of persons vaccinated has increased progressively. By the beginning of 1947, 500,000 persons had been vaccinated at least once. The progress of this movement has been promoted by the coöperation of governmental organizations and voluntary agencies. The Swedish National Association Against Tuberculosis has played a leading role in these developments.

Russia, too, has made extensive use of BCG.⁶ The Soviet Union was one of the first countries to undertake the study of the Calmette vaccine. In 1924, Tarashevich at Kiev received a culture from Calmette's laboratory at Paris. Belonovsky at Leningrad received a second one in 1926. After a period of preliminary studies, the first vaccinations were carried out in 1926 in the Ukraine. In 1928, vaccination was started in Leningrad, and a year later, the operation was extended to cover five large cities (Leningrad, Moscow, Saratov, Kazan, and Rostov on the Don). It was not until 1937, however, that a widespread movement was started. This movement continued even during the war. By 1940, more than two million

infants had been vaccinated. In the majority of cases the oral route has been used for vaccination. A small number of infants have been vaccinated subcutaneously.

HEMORRHAGIC FEVER IN THE CRIMEA

The Russians have also been active in the field of medical parasitology.⁷ In the spring and summer of 1944 and 1945, a mysterious hemorrhagic fever prevailed, often with fatal results among farmers and peasants in the Crimea. Investigation by a group of scientists showed that this disease was caused by a virus transmitted by the tick, *Hyalomma marginatum* Koch.

Grobov studied the local fauna in order to establish possible reservoirs of infection. After investigating various rodents, he found that only hares (*Lepus europaeus transsylvanicus*) harbor the larvae and nymphs in large numbers.

When the nymphs mature in the spring, they bite cattle and human beings, in this way transmitting the disease. The author suggests that birds may also play a role in the transmission of this fever, since nymphs of *H. marginatum* were found on several avian species.

REFERENCES

1. Biraud, Y. M. Health in Europe. A Survey of the Epidemic and Nutritional Situation. *Bull. Health Organ., League of Nations*, 10:559-699, 1943-1944.
2. As far as the available foreign literature will permit, it is planned in the near future to deal similarly with South America, Africa and Asia.
3. Lesné, E., and Debré, R. Sur la mortalité infantile. *Bull. Acad. Nat. Méd.*, 131:372-377, 1947.
4. Lindhardt, M. Sygelighed og Dødelighed i 1946. *Ugeskrift f. Læger*, 109:363-373, 1947.
5. Wallgren, A. Calmette-vaccinationen i Sverige. *Kvartalskrift Svenska Nationalföreningen mot Tuberkulos*, 42 (2), 1947.
6. Abolnick, S. A. La prévention de la tuberculose par le B.C.G. en U.R.S.S. *Ann. Inst. Pasteur*, 73: 373-378, 1947.
7. Grobov, A. G. On the Question of Carriers of the Crimean Haemorrhagic Fever (K Voprosy o Perenoschikach Krimskoye Gemorrhagicheskoye Lichoradki). *Meditinskaya parazitologiya i parazitarnye bolezni*, 15 (6):59-63, 1946.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted. All books reviewed in these columns may be purchased through the Book Service.

Applied Medical Bacteriology—
By Max S. Marshall, with the collaboration of Janet B. Gunnison, Alfred S. Lazarus, Elizabeth Morrison, and Marian C. Shevky. Philadelphia: Lea and Febiger, 1947. 340 pp. Price, \$4.50.

It is a pleasure to review a book whose title so aptly describes its contents. The authors have succeeded in presenting an amazing amount of information in 340 pages, in a clear, concise, and well organized manner. The method of approach conveys the practical aspects of medical bacteriology as applied to and used by clinicians, public health workers, laboratory workers, nurses, and teachers. An attempt is made to present medical bacteriology in such a way that it will be more understandable to those who come in contact with its many ramifications.

A unique feature of the book is the 160 pages devoted to a discussion of diseases from the viewpoint of etiology, epidemiology, type of specimen for examination, laboratory procedures, and methods of reporting. Excellent judgment is shown in the choice of laboratory procedures, which are clear and up-to-date.

Other chapters deal with specific procedures, such as cultivation, isolation, general techniques as used in bacteriology, the use of laboratory animals and culture media, and general information regarding virology and mycology. An excellent chapter on the collection of specimens and the principles involved adds materially to the value of the book for clinicians and laboratory workers.

The appendix is exceptionally well treated, with clear tables regarding diseases, causative agents, specimens for

examination, pertinent animal and serologic tests, stains, reagents, and diagnostic antigens and antisera.

This well organized text, with its abundance of factual information, should be available in every laboratory doing bacteriologic and serologic diagnostic tests. MELVIN E. KOONS

The Pathology of Nutritional Disease—By Richard H. Follis, Jr., M.D. Springfield, Ill.: Thomas, 1948. 291 pp. Price, \$6.75.

This book fills a real need and both Dr. Follis and the publisher are to be congratulated, the former for getting together in one place the pertinent pathology involved in many nutritional deficiencies, and the latter for doing a good job of printing and reproduction of the pathology plates. The best sections of the book deal with the author's own work on the pathology of scurvy and rickets. The subtitle of the book is "Physiological and morphological changes which result from deficiencies of the essential elements, amino acids, vitamins, and fatty acids." In general, the sections dealing with physiological changes are so brief that one might question whether they should even have been included, but certainly not in the subtitle. The book is well written and reads easily. The author's frequent use of the phrase "of course"—"such changes are, of course, partially explained by the deranged calcium and phosphorous metabolism . . .—arginine is probably one of the precursors of creatine and, of course, acts as a catalyst in the synthesis of urea . . ." tends to over simplify many statements. Everyone in the field of experimental nutrition will enjoy and

thank Dr. Follis for his splendid contribution.

FREDERICK J. STARE

Hearing and Deafness—A Guide for Laymen—*Edited by Hallowell Davis, M.D. New York and Toronto: Murray Hill Books, Inc., 1947. 496 pp. Price, \$5.00.*

According to the Editor, "This book is written for the deaf and the hard of hearing and for their families, their parents, their teachers and their friends. It is written for physicians, for educators, for social workers, and for all who are concerned with the conservation or improvement of remaining hearing; or with the approach to normal living for those who have suffered either complete or partial hearing loss." Dr. Davis and his thirteen contributors have written an admirable book which should be on the shelves of public health workers whose programs include, or should include, programs of hearing conservation.

Certain sections are too difficult for some readers; however, they are clearly posted in advance so they may be omitted if the reader wishes. For the most part the book is easy to understand. It is interesting and scientifically sound.

Public health workers will find the chapter on testing for hearing especially useful. That on the psychology of the hard of hearing and deaf is illuminating. The chapter on hearing aids has many practical tips for the user of aids. The reader cannot fail to be impressed by the many professional skills, including speech reading, auditory training and vocational guidance that must be utilized to meet the needs of patients adequately, and by the large number of hard of hearing and deaf people in the United States.

The public health administrator will be interested in the chapter on the military program of aural rehabilitation. By analogy he can learn of the organization of services required for many civilian needs. Although organizations for

the aurally handicapped are discussed, the administrator will look in vain for a complete discussion of the efforts made in the United States to develop Conservation of Hearing Programs as part of community health programs. An additional chapter summarizing programs such as those stimulated by the Children's Bureau would have made this fine book even better—at least for the health administrator, for whom it was not primarily written.

WILLIAM R. WILLARD

Communicable Disease Control—*By Gaylord W. Anderson, M.D., and Margaret G. Arnstein, R.N. (2nd ed.). New York: Macmillan, 1948. 450 pp. Price, \$5.00.*

The seven years that have elapsed since the publication of the first edition of this excellent work on public health have witnessed many important changes in communicable disease control, most of which have been included in this new edition. New antibiotics, sulfonamides, and antigens have come into common use for the prevention and control of many infections, and their application to preventive medicine has been capably described.

As in the previous edition, the first part of the book deals with the control of the communicable diseases in general; the second with the prevention and treatment of particular diseases. A chapter on rheumatic fever has been added. On the whole, an excellent textbook on preventive medicine has been achieved and only a few minor criticisms can be made.

On page xiii the list of tables spread through the text fails to give the page numbers where the tables can be found. Incubation periods mentioned are not all in entire agreement with those usually found in medical texts. For instance, that of mumps is given as 3 weeks instead of the more usually stated 16 to 18 days. In the bibliographies,

although this is a 1948 book, there are very few references to articles appearing in 1947; and for the chapter on poliomyelitis, a subject on which there has been a great deal written in the last two years, there is no 1947 reference and only one for 1946.

This book can be very warmly recommended to doctors and nurses working in the public health field, and pediatricians interested in preventive medicine will also find much of interest and value in a study of this text.

PHILIP M. STIMSON

Public Health Administration in the United States—*By Wilson G. Smillie. (3rd ed.) New York: Macmillan, 1947. 637 pp. Price, \$6.50.*

This third edition, published seven years after the second, is divided into four parts.

The first presents an analytical and historical development of the public health movement. The functions of public health are listed by Smillie as Sanitation, Control of Communicable Diseases, Public Health Education, Individual Health Protection, and the Development of a Nation-Wide Program of Adequate Comprehensive Medical Care.

Part two summarizes the many scientific and administrative developments in the control of communicable diseases: particularly streptococcal infections, as a group of diseases; tuberculosis with case finding rules and mass surveys; malaria and chemotherapy; meningococcus meningitis and sulfonamide prophylaxis. Critical evaluation of community immunization procedure is an important contribution. The numerous charts, maps, diagrams, and an extensive bibliography add to the value of the text.

Part three contains a chapter on each of eleven basic activities of a health department. The child health chapter covers the entire gamut of services from maternal hygiene and the EMIC pro-

gram through school health, with emphasis on dental hygiene.

Part four is the most outstanding of the book. For the student or teacher of public health practice it is a good summary of the federal agencies and the types of administration existing in the states, municipal, and rural areas. It includes a discussion of voluntary agencies and disaster relief. Final chapters span administrative problems from public relations with the medical profession to budgets and personnel training.

An appendix contains personnel qualifications for some of the key positions of the health department.

The text reflects the experiences brought to public health from World War II. It is an excellent text for students of public health, particularly those without experience or a medical background. It is a reference book which each health department should make available to its personnel.

VLADO A. GETTING

A Synopsis of Hygiene—*By G. S. Parkinson, D.P.H., assisted by Kathleen M. Shaw, M.B.E. (9th ed.) London: J. and A. Churchill Ltd., 1947. 791 pp. Price, \$8.25.*

The Jameson and Parkinson textbook on hygiene has been revised faithfully since the first edition appeared in 1920. This ninth edition is the first to indicate the influence on public health practice of the Education Act of 1944, the National Health Service Act and the National Insurance Act of 1946. Further modifications in the text result from changes in British hospitalization policies and from changes in the requirements for the Diploma of Public Health. The reader of this edition is constantly impressed with the impact of social legislation and increasing authority of the Ministry of Health upon British public health.

The material in this book is a veritable treasury of technical information

on public health and preventive medicine. Organization of material differs considerably from that found in American textbooks. The epidemiologist will find no particular order of presentation of disease control; the industrial hygienist will have to browse through at least four of the nine sections; there is little help for those who are interested in the public health laboratory or in nursing. But public health and hospital administrators, engineers, nutritionists, maternal and child hygienists, and those interested in public health law will find this volume constantly useful as a reference guide. CHARLES E. SHEPARD

A Manual of Medical Parasitology, with Techniques for Laboratory Diagnosis and Notes on Related Animal Parasites—By C. Courson Zelif, M.S., Ph.D. State College: Pennsylvania State College, 1947. 159 pp. Price, \$3.75.

This is a paper-bound, lithoprinted volume of typewritten notes, tables, and keys, describing the appearance and morphology of parasites—principally of man—and laboratory methods, direct and indirect, of recognizing various types of parasitic infection. The symptomatology, treatment, and prevention of parasitic disease are scarcely mentioned. A classification of human parasites by phylum, class, order, family, genus, and species is included, and special sections deal with medical protozoology, helminthology, arachnology, and entomology. These are illustrated by some 68 figures on 13 plates. None of these are original with the author and many of them are so reduced in size and poorly reproduced as to be worthless; in many instances the captions cannot be read without a reading glass. Numerous tables of differential characteristics and keys for the separation and identification of related forms are presented; the majority of these are reprinted from well known texts on parasitology. The typescript

was poorly proof-read and abounds in errors of punctuation, spelling, grammar, and diction. The compilation of notes on laboratory techniques is useful, as it includes very recent observations and developments in this field, but these are not treated critically. References are given throughout the text, in footnotes and at the end of the volume.

JUSTIN M. ANDREWS

American Medical Research, Past and Present—By Richard H. Shryock, Ph.D., New York: The Commonwealth Fund, 1947. 350 pp. Price, \$2.50.

This monograph, one of the studies prepared under the auspices of the Committee on Medicine and the Changing Order of the New York Academy of Medicine, is a very worthy addition to that series. Dr. Shryock presents an account of the development of American medical research from the middle of the 18th century to the present. Particular emphasis is placed on the developments of the past half century and on their relevance for the present state of medical research.

Beginning with the formative influences that shaped American medical research—British, 1750–1820; French, 1820–1860; German 1860–1895—the author traces the factors that led, around the turn of the century, to the emergence of American medicine on “a level of cultural independence.” The multifarious elements that enter into the activity known as research are dealt with judiciously and in proper perspective. Dr. Shryock examines the rôles of institutions (Johns Hopkins Medical School) and of persons (William H. Welch), and appraises the significance of private support and the rise of the great philanthropic foundations for the maturation and growth of medical research.

Within the brief compass of this volume, the author examines such important questions as the relation of research to teaching, academic salaries,

medical publications, trends in medicine, and the impact of the changing social and economic background on private and public agencies in supporting research. Finally, he points out that mere technical advance is not enough. What is needed in addition is an appreciation of the cultural significance of science itself. This can be obtained by means of historical perspective. Toward this end Dr. Shryock's volume is a solid contribution. GEORGE ROSEN

Health Instruction Yearbook, 1947
—*Edited by Oliver E. Byrd, M.D.*
Stanford, Calif.: Stanford University Press, 1947. 325 pp. Price, \$3.00.

The 1947 edition of the *Health Instruction Yearbook* will take its place as a welcome companion volume to the *Yearbooks* of preceding years. Because of the increasingly rapid flow of experience in medicine, public health, and allied fields, there is great need for a volume such as this which records in a most convenient form summaries of recent health developments.

As in previous editions of the *Yearbook*, the editor has cast his net wide and has secured information on subjects ranging from the vitamin content of mushrooms to the details of the charter of the World Health Organization. Very little of importance on the health scene of 1947 has been omitted. One feels, however, that certain items might have been deleted. For instance, there seems little reason for the entry about a former postmaster general and his high blood pressure. Nevertheless, this item is indicative of the miscellany of health information to be found in the *Yearbook's* pages.

The editorial labor involved in compiling a book of this sort is exemplified by the editor's prefatory statement in which he says that 1,672 articles and news sources were reviewed. Of this number 323 were culled for inclusion in the 1947 edition. Thus, one can be as-

sured that the text touches on practically every aspect of health that excites interest today. Moreover, the editor's introductory comment to each chapter are as interesting and useful as the factual items treated.

The book is highly commended. As a ready reference source, it is admirably compiled and organized. Every public health library should possess this volume for the *Yearbook* is not only a notable undertaking but an unmixed blessing to those who want to keep abreast of progress in the profession.

JOHN LENTZ

Opiate Addiction—By Alfred R. Lindesmith. *Bloomington, Ind.: Principia Press, 1947. 235 pp. Price, \$3.00.*

In this volume, Professor Lindesmith "... aimed to develop ... an interpretation that would ... cover all instances of drug addiction." His understanding of the physiological and emotional mechanisms of drug addiction is meager, his arguments specious and his proposed "reforms" dangerous to the public health. The book and other writings of Professor Lindesmith represent arm-chair philosophical rumination on material obtained from "sixty to seventy" addicts about fifteen years ago. He declined, as unnecessary, an opportunity to study several hundreds of addicts before writing the book.

The author's thesis is that habitual users of narcotic drugs do not become addicts until after they have experienced withdrawal distress, known its nature, experienced relief of withdrawal symptoms by readministration of the drug, and have learned the name of the drug. This explanation will not satisfy most students of drug addiction. In the first place, it does not explain why the habitual user or "future addict" takes the drug often and regularly enough to become physically dependent on it, nor does it explain animal addiction. In the

second place, Professor Lindesmith does not understand that addiction and read-diction depend upon personality characteristics and emotional needs; he does not recognize the "addiction-prone" individual repeatedly described by Kolb and others. Most readers will be astonished at the naivete with which the author, without knowledge or regard for psychiatric concepts, has the temerity to discuss dynamics of drug addiction.

In spite of known weaknesses of "police" control of narcotic addiction in the United States, which the author proposes to abolish, the fact remains that since the Narcotic Act was passed in 1915 there has been a substantial decline in the number of addicts in this country, although the author leaves one in doubt as to whether he believes a decrease in drug addiction is really desirable.

Professor Lindesmith approves federal hospitals for treatment of drug addiction for those who wish to go voluntarily, but fails to realize, or thinks it immaterial, that only a very few would choose treatment if drugs were freely available on prescription, as he recommends. He believes the common rationalization of addicts, that drugs make them more efficient. The truth is that addicts who have the quantity of drug they desire become inefficient, lazy, somnolent, and careless of person. Professor Lindesmith mentions as an advantage of this free prescription that contraband drug traffic would be wiped out, and the addicts would be able to get their required drugs at a reasonable price, as if that were desirable. Public clinics and free prescription of drugs for addicts have been tried several times with disastrous results; addicts deceive the physicians and get extra drugs which they peddle in contraband channels, or give to their friends, who then become eligible for dispensation of drugs and a

vicious spread of addiction is thus established.

Proposal for unrestricted prescription of narcotics for addicts is naïve in the extreme and dangerous to the public health of the nation. Fortunately, sounder judgment than the author's will prevail and there is no likelihood of the "reforms" which he proposes being carried out.

VICTOR H. VOGEL

Symposium on Medicolegal Problems. Under the Co-sponsorship of the Institute of Medicine of Chicago and the Chicago Bar Association—*Edited by Samuel A. Levinson, M.D., Ph.D. Philadelphia: Lippincott, 1948. 255 pp. Price, \$5.00.*

On those rare occasions when doctors and lawyers get together to discuss mutual problems both groups invariably learn something. At six notable meetings of this sort the members of these two professions in Chicago gathered to listen to papers and to ask questions about: (1) the medical witness; (2) artificial human insemination; (3) the practice of pathology; (4) operations for sterility; (5) trauma and cancer; and (6) blood tests for paternity and chemical tests for intoxication. These vexing problems were clarified and explained, if not exactly solved, by speakers representing the medical and legal points of view, supplemented by discussion from the floor, which is fully reported and sometimes is more brilliant than the original paper. Although based mainly on Illinois experience, the material is of general interest and value, and might well set a pattern for similar assemblies in other states or in the larger cities. This well printed book will appeal to those who are concerned with the six special medicolegal problems which are so ably discussed in it.

JAMES A. TOBEY

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

In Battle Array—What the National Cancer Institute will do with the fourteen millions entrusted to it should prove an effective antidote against despair. It's assuring just to read of the magnitude and the scope of the work, being done without fanfare, fireworks, or benefit of radio comedians.

ANON. The Program of the National Cancer Institute. *Pub. Health Rep.* 63, 16:501 (Apr. 16), 1948.

From the Experts—Though a half million syphilitics have been treated with penicillin, and though that drug is now the principal agent employed, treatment is not yet entirely standardized. This report is the last word in that direction.

ANON. The Status of Penicillin in the Treatment of Syphilis. *J.A.M.A.* 136, 13:873 (Mar. 27), 1948.

"Theirs Not to Reason Why"—Having proved himself to be an effective delinquent case chaser-upper the put-upon Western Union messenger was sent out to bring in reported venereal disease contacts. Of the 1,500 he called upon, 47 per cent reported within 3 days, a better response than health board visitors procured.

BAUER, T. J., *et al.* The Telegram as a Case-Finding Technic in Venereal Disease Control. *Ven. Dis. Inform.* 29, 2:42 (Feb.), 1948.

Human Souls, Not Cases—This is an effective plea for more and better social work in connection with the detection and care of the quarter million tuberculosis patients we have on our national hands.

BLOOM, S. Some Economic and Emotional Problems of the Tuberculosis Patient and His

Family. *Pub. Health Rep.* 63, 14:448 (Apr. 2), 1948.

One in Six Gets It—It's time we did something more about trichinosis, this distinguished committee says. It recommends excluding from New York pork from hogs fed uncooked garbage, prohibiting shipment of uncooked garbage from town, and its feeding in-town, among other measures.

CORWIN, E. H. L., and STICE, L. Control of Trichinosis (Committee Report) *Pub. Health Rep.* 63, 15:478 (Apr. 9), 1948.

Incidental Intelligence—Reported cases of polio were fewer in 1947 than any year since 1942. Epidemics occurred in only small areas. England and some of the continental countries were hard hit.

DAUER, C. C. Incidence of Poliomyelitis in 1947, (and) BRADLEY, W. H., and GALE, A. H. Poliomyelitis in England and Wales in 1947. *Pub. Health Rep.* 63, 13:393 (Mar. 26), 1948.

Science Marches On—Don't let the word "therapy" in the title persuade you that this paper is for practising physicians only. It is for every professional worker who wants to know what's back of the rule-of-thumb nutritional precepts he preaches to others, or neglects to apply to himself. Not to be missed!

ELVEHJEM, C. A. Recent Progress in Nutrition and Its Relation to Drug Therapy. *J.A.M.A.* 136, 14:915 (Apr. 3), 1948.

Canners, Take a Bow!—From a year-long nation-wide survey of canned, frozen, and fresh fruit and vegetables comes the conclusion that canned foods cost least and offered the best nutri-

tional values from an economic standpoint.

KREHL, W. A., and COWGILL, G. R. Comparative Cost and Availability of Canned, Glassed, Frozen, and Fresh Fruits and Vegetables. *J. Am. Dietet. A.* 24, 4:304 (Apr.), 1948.

They're Still at Large—Note for your book: penicillin applied locally cleared up diphtheria carriers.

LEVY, A. J. Local Treatment of Carriers of Virulent Diphtheria with Penicillin. *J.A.M.A.* 136, 13:855 (Mar. 27), 1948.

Facts About Food—Promised as the first of a series of papers on nutrition (to be published later in book form), this one is full of facts about cereals, legumes, vegetables, and fruit. I can't remember ever reading an article with more facts heaped up, pressed down, and pounded in, than this one.

MAYNARD, L. A., and NELSON, W. L. Foods of Plant Origin. *J.A.M.A.* 136, 16:1043 (Apr. 17), 1948.

As Our Population Ages—First of a series of statistical papers on heart disease morbidity and mortality, this one presents two graphs you should find useful, the percentage of population in age groups and percentage of deaths in these groups. A more dramatic presentation of the fact that our saving of lives has been in childhood and early adult ages would be difficult to conceive.

MORIYAMA, I. M., and GOVER, M. Statistical Studies of Heart Disease. *Pub. Health Rep.* 63, 17:537 (Apr. 23), 1948.

Anent Healing Thyself—How are you? Do you bite your nails, drink too much, take barbiturates? Does your anger or fit of tension persist beyond natural limits? Do you enjoy ill-health? You may still not be beyond gaining a better insight into your own condition by reading this dissertation on psychosomatic medicine, which, the writer points

out, is akin to preventive medicine in many ways.

RUESCH, J., and BOWMAN, K. M. Personality and Chronic Illness. *J.A.M.A.* 136, 13:851 (Mar. 27), 1948.

1948 Complications—Ping-pong syphilis is a new descriptive for your vocabulary. The infection is batted back and forth from the infectious partner to the one who has just completed treatment. Under penicillin therapy the situation is not rare. Ways to stop it are discussed.

SCHAMBERG, I. L., and STEIGER, H. P. Syphilitic Relapse vs. Reinfection. *Ven. Dis. Inform.* 29, 4:92 (Apr.), 1948.

State Paper—Preventive geriatrics, mental health, and research seem to be uppermost in the mind of the new Surgeon General as he takes command of the U.S.P.H.S. You'll want not to miss this address.

SCHELLE, L. A. The Road Ahead in Public Health. *Pub. Health Rep.* 63, 15:472 (Apr. 9), 1948.

You'll Be Surprised—As part of their course of training these students were required to go out and start a group along the road to better health. Some of the unusual enterprises the youngsters thought up are briefly described.

STEINHAUS, A. H. Adventures in Health Education. *J. School Health*, 18, 4:103 (Apr.), 1948.

DeLuxe Model—This is about an agreement worked out between the executive officers of the Rochester (Minn.) Public Schools and the Public Health Department, to provide complete school health services by a staff of 25 qualified physicians, nurses, and educators—for 5,000 children.

THOMAS, M. J. Unifying Health Services Through Public Education. *Pub. Health Nurs.* 40, 4:168 (Apr.), 1948.

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

- ASEPTIC TREATMENT OF WOUNDS.** Carl W. Walter, A.B., M.D. New York: Macmillan, 1948. 372 pp. Price, \$9.00.
- BIOLOGY AND HUMAN AFFAIRS** (new ed.). John W. Ritchie. New York: World Book Company, 1948. 818 pp. Price, \$3.40.
- CARDIOVASCULAR SYPHILIS.** New York: Social Hygiene Committee-N. Y. Tuberculosis and Health Association, 1948. Reprinted from Vol. IV., No. 2, February, 1948. pp. 248-278. American Journal of Medicine.
- CARE AND MANAGEMENT OF LABORATORY ANIMALS.** Edited by Alstair N. Worden, M.A.B.Sc. Baltimore: Williams & Wilkins, 1947. 368 pp. Price, \$8.50.
- DENTAL HEALTH TEACHING OUTLINE.** Nos. I, II, III, IV. No. I for Grades 1, 2, and 3. No. II for 4, 5, and 6. No. III for 7, 8, and 9. No. IV for 10, 11, and 12. Vern D. Irwin, D.D.S., M.P.H., and Netta W. Wilson, M.A. St. Paul, Minn.; Bruce Publishing Co., 1948. Price, \$1.00 for 4.
- DETOXICATION MECHANISMS.** R. Tecwyn Williams, Ph.D., D.Sc. New York: Wiley, 1947. 288 pp. Price, \$5.50.
- ESSENTIALS OF NURSING.** Helen Young, R.N., Eleanor Lee, A.B., R.N., and Associates. New York: Putnam's, 1948. 556 pp. Price, \$3.75.
- GLOMERULAR NEPHRITIS: DIAGNOSIS AND TREATMENT.** Thomas Addis, M.D. New York: Macmillan, 1948. 338 pp. Price, \$8.00.
- HEALTH IN SCHOOLS. TWENTIETH YEARBOOK.** Washington: American Association of School Administrators, 1948. 400 pp. Price, \$1.50.
- HEALTH IN YOUR DAILY LIVING.** Josephine L. Rathbone, Francis L. Bacon, and Charles H. Keene, M.D. Boston: Houghton Mifflin, 1948. 442 pp. Price, \$2.60.
- INTERESTING AND USEFUL MEDICAL STATISTICS.** Edited by William H. Kupper, M.D. Dubuque, Iowa: William C. Brown, 1948. 528 pp. Price, \$6.50.
- MEDICINE IN THE POST WAR WORLD—THE MARCH ON MEDICINE, 1947.** Number XII of the New York Academy of Medicine Lectures to the Laity. New York: Columbia University Press, 1948. 109 pp. Price, \$2.00.
- MOTIVATION IN HEALTH EDUCATION.** The 1947 Health Education Conference of the New York Academy of Medicine. New York: Columbia University Press, 1948. 53 pp. Price, \$1.00.
- NOAH WEBSTER: LETTERS ON YELLOW FEVER ADDRESSED TO DR. WILLIAM CURRIE.** Supplements to the Bulletin of the History of Medicine. No. 9. Introductory Essay by Benjamin Spector. Baltimore: Johns Hopkins Press, 1947. 110 pp. Price, \$2.00.
- ORAL VACCINES AND IMMUNIZATION BY OTHER UNUSUAL ROUTES.** David Thomson, D.P.H., Robert Thomson, M.B., Ch.B., Assisted by James Todd Morrison, M.D., D.P.H. Published for the Pickett-Thomson Research Laboratory. Edinburgh, Scotland: E. S. Livingstone, 1948. 329 pp.
- PHYSIOLOGIC THERAPY IN RESPIRATORY DISEASES.** (2nd ed.). Alvan L. Barach, M.D. Philadelphia: Lippincott, 1948. 408 pp. 74 illus. Price, \$9.00.
- PHYSIOLOGY OF EXERCISE.** Laurence E. Morehouse, Ph.D., and Augustus T. Miller, Jr., Ph.D. St. Louis: Mosby, 1948. 353 pp. Price, \$4.75.
- PLANNING THE NEIGHBORHOOD.** American Public Health Association, Committee on the Hygiene of Housing. Chicago: Public Administration Service, 1948. 90 pp. Price, \$2.50.
- PRACTICAL FOOD INSPECTION.** Vol. II. FISH, POULTRY AND OTHER FOODS. C. R. A. Martin, M.R., San. I. London: H. K. Lewis, 1948. 284 pp. Price, 18s. net.
- PROBLEMS OF HOSPITAL ADMINISTRATION.** A Report of a Study Based upon Interviews with 100 Hospital Administrators Located in Various Sections of the United States. Charles E. Prall, Director. Chicago: Physicians' Record, 1948. 106 pp.
- RECENT PROGRESS IN HORMONE RESEARCH.** Vol. II. The Proceedings of the Laurentian Hormone Conference. Edited by Gregory Pincus. New York: Academic Press, 1948. 427 pp. Price, \$8.00.
- RECLAIMING USED GAUZE SPONGES.** Dewey H. Palmer. New York: Hospital Bureau of Standards and Supplies. 7 pp. Price, \$5.50.
- RHEOLOGY IN RELATION TO PHARMACY AND MEDICINE.** G. W. Scott Blair, M.A., D.Sc. London: The Pharmaceutical Press, 1947. 20 pp. 2s.
- SOCIETY AS THE PATIENT.** Lawrence K. Frank. New Brunswick, N. J.: Rutgers Uni-

- versity Press, 1948. 395 pp. Price, \$5.00.
- SYNOPSIS OF PEDIATRICS.** (5th ed.). John Zahorsky, A.B., M.D., F.A.C.P. Assisted by T. S. Zahorsky, B.S., M.D. St. Louis: Mosby, 1948. 449 pp. Price, \$5.50.
- TAKING THE CURE.** Robert G. Lovell, M.D. New York: Macmillan, 1948. 93 pp. Price, \$2.00.
- THERAPEUTIC AND INDUSTRIAL USES OF MUSIC.** Doris Soibelman. New York: Columbia University Press, 1948. 374 pp. Price, \$3.00.
- TO YOUR HEALTH AND EMOTIONS LADY!** Margaret W. Metcalf. New York: Woman's Press, 1948. 40 pp. Price, \$.50.
- TRENDS IN SOCIAL WORK.** As Reflected in the Proceedings of the National Conference of Social Work 1874-1946. Frank J. Bruno. New York: Columbia University Press, 1948. 387 pp. Price, \$4.50.
- TUBERCULOSIS REFERENCE STATISTICAL YEARBOOK 1946.** New York: N. Y. Tuberculosis and Health Association, 1947.
- USE OF AIRCRAFT IN THE CONTROL OF MOSQUITOES.** Sponsored by the American Mosquito Control Association. T. D. Mulhern, Secy-Treas. New Brunswick, N. J. American Mosquito Control Asso., Bull. No. 1, 1948. 46 pp. Price, \$1.50.
- WATER PURIFICATION CONTROL.** (3rd. ed.). Edward S. Hopkins. Baltimore: Williams & Wilkins, 1948. 289 pp. Price, \$4.00.
- THE FOLLOWING REPORTS HAVE BEEN RECEIVED**
- AMERICAN NATIONAL RED CROSS, THE.** Annual Report for the Year Ending June 1947. Washington, D. C.: The American National Red Cross. 201 pp.
- CHARLES V. CHAPIN HOSPITAL.** 38th Annual Report for the Year Ending September, 1947. Providence, R. I. Oxford Press, 1948. 88 pp.
- EDMONTON, CITY OF.** Report of the Local Board of Health 1947. Alberta, Canada, 1947. 23 pp.
- FEDERAL SECURITY AGENCY.** Annual Report 1947. U. S. Office of Education. Washington, D. C. Supt. of Documents, U. S. Gov. Ptg. Office, 1948. 248 pp. Price, \$.20.
- INSTITUTE OF INTERNATIONAL EDUCATION.** 28th Annual Report of the Director. New York: Institute of International Education. 115 pp.
- MASSILLON, CITY OF.** Health Report 1947. Wm. B. Wild, M.D., Health Commissioner. Ohio: Massillon Health Department. 64 pp.
- METROPOLITAN HEALTH COUNCIL OF COLUMBUS AND FRANKLIN COUNTY.** Annual Report Year Ending February 1948. Columbus, Ohio: Metropolitan Health Council, Council of Social Agencies, 1948. 11 pp.
- MORBIDITY AND MORTALITY REPORT 1946.** Welby W. Bigelow, M.D., Acting State Health Commissioner. Salt Lake City, Utah: State Department of Health. 42 pp.
- NEW BRUNSWICK DEPARTMENT OF HEALTH.** 30th Annual Report of the Chief Medical Officer to the Minister of Health and Social Services. 1947. New Brunswick, Canada: Department of Health, 1948. 140 pp.
- ROCKEFELLER FOUNDATION, THE.** A Review for 1947. Raymond B. Fosdick. New York: The Rockefeller Foundation. 64 pp.
- TUBERCULOSIS IN THE BRITISH ZONE OF GERMANY.** With a Section on Berlin. Report of an Inquiry made in September-October, 1947. M. Daniels, M.D., D.P.H., and P. D'Arcy Hart, M.D. London: His Majesty's Stationery Office, 1948. 32 pp. Price, sixpence.
- WEST VIRGINIA MERIT SYSTEM COUNCIL.** 5th Report. January 1, 1946 to June 30, 1947. Charleston, W. Va. Office of the Supervisor. 26 pp.

cations are accepted up to August 1 each year for consideration by the Governing Council at the fall meeting. It is important to make clear that members themselves should take the initiative in submitting such applications. Neither the Sections nor the A.P.H.A. administrative staff are authorized to solicit applications. This means that, although nearly 3,000 persons have been duly recognized with this grade of affiliation since 1922, there are other persons well qualified who have never initiated the process of applying for Fellowship. It should be clear that members should not await action by others if they wish to attain Fellowship. It is necessary and proper for them to take the first step.

An application for Fellowship requires sponsorship by two Fellows of the Section with which the applicant desires to be affiliated. These personal signatures are to be obtained by the applicant before submitting the completed application. The A.P.H.A. office will assist, on request, in determining the Section with which prospective sponsors are affiliated. Applications from persons not wishing to be identified with a particular Section and requesting unaffiliated Fellowship may be sponsored by any two Fellows of the Association.

When properly sponsored and otherwise completed, the application is sent to the A.P.H.A. office, after which the list of persons applying is published in the *American Journal of Public Health*, usually in the September issue, but in any case not less than 15 days before the date for the Annual Meeting. An established routine is followed for review by the Section Councils (unaffiliated applications are reviewed by the Executive Board) and by the Commit-

tee on Eligibility. This Standing Committee of the Association is made up of one Fellow from each of the 12 Sections, plus a Chairman elected by the Executive Board. This group is under instructions from the Governing Council to examine each application in accordance with the provisions of the clause of the By-laws chosen by the applicant, and to apply the criteria with precision in each case. Final election is by the Governing Council at the second meeting at each annual session.

The privileges of Fellowship include eligibility to serve as an officer of the Association or one of the Sections, Chairman of an Association or Section Committee (over one hundred in number), a member of one of the four Standing Committees, a member of the Governing Council or Executive Board, and the right to vote at the Annual Meeting for the elective members of the Governing Council and on amendments to the Constitution. Some Civil Service and merit system records depend upon Fellowship in the American Public Health Association as an achievement deserving recognition in applicants.

The dues of Fellows are \$12.00 annually, and include a subscription to the *American Journal of Public Health* and other services to which members are eligible. Life Membership is available at \$200, covering all future annual dues.

Applications for Fellowship to be considered at the 76th Annual Meeting in Boston, Mass., November 9-12, 1948, should be filed with the Association as soon as they are completed, and in any case not later than August 1. For further information, address the Membership Department, American Public Health Association.

THE 76TH ANNUAL MEETING

Boston, Mass., November 8-12, 1948

Hotel Reservation Form

The hotels listed below have rooms available for Association delegates at the rates indicated. Please note that **NO RESERVATIONS WILL BE ACCEPTED DIRECTLY BY HOTELS.** Make your reservation through:

The Convention Bureau, Boston Chamber of Commerce, 80 Federal Street, Boston 10, Mass.

Hotels	Singles	Doubles	Twin Beds	Suites
Bellevue	\$4.00-\$6.00	\$6.00-\$8.00	\$7.25-\$10.00	\$12.00-\$15.00
Bostonian	3.00- 4.50	5.00- 6.50	5.00- 7.00	8.00- 10.00
Bradford	4.00- 6.00	6.00- 7.00	6.50- 8.00	12.00- 14.00
Braemore	4.40- 6.60	6.40- 9.90	6.60- 9.90	9.90- 25.00
Continental	3.50- 4.00	6.60	7.00	8.00- 25.00
Copley Plaza	4.50- 6.60	7.75- 8.80	8.80- 10.00	15.00- 25.00
Copley Square	4.00- 5.00	6.00	7.00	10.00- 14.00
Gardner	2.50- 5.00	4.00- 6.00	4.00- 6.00	7.50
Hemenway	3.00- 3.85	4.40- 5.50	4.40- 5.50	None
Kenmore	4.00- 6.00	6.50- 8.50	6.50- 8.50	10.00- 12.50
Lenox	3.75- 5.00	5.50- 6.50	7.50	10.00- 16.00
Manger	3.85- 5.50	5.00- 7.50	5.50- 7.50	None
Minerva	3.00- 5.00	4.00- 6.00	5.00- 7.00	5.00- 8.00
Myles Standish	3.85- 6.50	5.50- 7.50	6.50- 7.50	6.50- 15.00
Parker House	4.00- 6.50	6.25- 8.50	7.50- 10.00	14.00- 16.00
Puritan	4.40- 6.60	6.60- 8.80	9.90	13.20- 17.60
Sheraton	4.00- 4.50	7.00- 8.00	7.00- 8.00	7.00- 16.00
Somerset	5.00- 9.00	7.00-11.00	7.00- 11.00	10.00- 20.00
Statler	4.00- 9.50	6.50-12.00	8.50- 14.00	17.50- 27.00
Touraine	4.00- 6.00	6.00- 9.00	7.50- 9.00	14.00- 16.00
Vendome	3.75- 7.00	5.50- 8.75	6.50- 8.75	10.00- 15.00

MAKE ROOM RESERVATIONS EARLY

APPLICATION FOR HOTEL ACCOMMODATIONS AMERICAN PUBLIC HEALTH ASSOCIATION

76th Annual Meeting and Meetings of Related Organizations, Boston, November 8-12, 1948

(Note that the Meeting opens Monday, November 8, at 9.30 A.M.)

Please make hotel reservation as indicated below:

Give three choices of hotels.

Hotel 1st Choice; Hotel 2nd Choice; Hotel 3rd Choice

.... Room with Double Bed at \$..... per day for persons

.... Room with Twin Beds at \$..... per day for persons

.... Room for three people at \$..... per day for persons

.... Single room at \$..... per day

.... Suite at \$..... per day for persons

ARRIVING. NOVEMBER Hour LEAVING: NOVEMBER Hour

Please print (or type) names and addresses of all occupants including persons making reservation.

NAME	STREET ADDRESS	CITY	STATE
.....
.....
.....

Name

Street Address

City State

MAIL to: The Convention Bureau, Boston Chamber of Commerce, 80 Federal St., Boston, Mass.

RESERVATIONS WILL BE HELD UNTIL 6:00 P.M. ONLY, UNLESS
THE HOTEL IS NOTIFIED OF LATE ARRIVALS

APPRECIATION OF DR. CARL E. BUCK
BY THE C.A.P.

At its meeting in New York in March the Executive Committee of the Committee on Administrative Practice adopted the following resolution with respect to Dr. Carl E. Buck who resigned his position as Field Director of the Association in February to become Resident Lecturer in Public Health at the University of Michigan School of Public Health:

BE IT RESOLVED that we, the members of the Executive Committee, for ourselves and for all the members of the Committee on Administrative Practice, express herewith our deep regret that Dr. Carl E. Buck, Field Director, has found it necessary to resign from this important position after seventeen years of continuous service.

Since his appointment in 1931 he has completed surveys of 17 states, the Territory of Alaska, and the Province of Manitoba. His studies have included 36 local communities—cities and counties—and follow-up consultant and advisory visits to the number of 64 in states where studies had been made.

This formidable list of detailed inquiry and recommendation for the administration of state and local health departments does not include a multitude of services to states, cities, and counties in connection with the Evaluation Project or his participation at conferences, institutes, and national, state, and local public health meetings.

His loyalty to the professional objectives and standards of the American Public Health Association, his critical and constructive analyses of official and voluntary health services, and his persuasive and courageous expressions of sound opinion for the betterment of these, often in the face of political, popular, or press criticism, have marked his labors with high quality and consistency.

Dr. Buck's personal and professional contributions to the work he undertook have left a permanent mark upon the purpose and pattern of public health service in the United States and Canada.

The committee wishes him many years of further productive contribution to the teaching of the principles of public health administration in the friendly and coöperative atmosphere of an academic environment.

COMMITTEE ON ADMINISTRATIVE PRACTICES OF THE INDUSTRIAL HYGIENE SECTION

Omitted inadvertently from the Committee List published in the *Year Book* was the following committee of the Industrial Hygiene Section:

COMMITTEE ON ADMINISTRATIVE PRACTICES
J. G. Townsend, M.D., *Chairman*, Industrial Hygiene Division, U. S. Public Health Service, Washington 25, D. C.
W. E. Frederick, Ph.D.
J. M. MacDonald, M.D.
V. A. Nasatir, M.D.
M. F. Trice, B.S.
Miss J. Y. Ziano

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

J. R. Brandon, M.D., City Health Dept., High Point, N. C., City Health Officer
Arthur F. Chaisson, M.D., C.M., Provincial Dept. of Health, Fredericton, N. B., Canada, District Medical Health Officer
Gerald R. Clark, M.D., 411 Capitol Bldg.,

Phoenix, Ariz., Senior Asst. Surgeon, U.S.P.H.S., Director of Tuberculosis Control, State Health Dept.
Catherine E. Coleman, M.D., Clay County Health Dept., West Point, Miss., Health Officer
William E. Gregson, M.D., M.P.H., Sick Mari-

ners' Clinic, Immigration Bldg., Vancouver B. C., Canada. Quarantine Officer in Charge

Vane M. Hoge, M.D., U. S. Public Health Service, Washington, D. C., Medical Director and Chief, Division of Hospital Facilities

Philip A. Klieger, M.D., Cass Lake Indian Hospital, Cass Lake, Minn., Senior Physician, U. S. Indian Service

Adolph G. Liedloff, M.D., 222 South Front St., Mankato, Minn., Acting Director, District No. 2, State Dept. of Health

E. E. McClellan, M.D., Kaparoulis Bldg., Williamson, W. Va., Mingo County Health Officer

Ruth McDougall, M.D., D.P.H., Red River Health Unit, Ste. Anne des Chenes, Man., Canada, Medical Director

Alejandro Guevara-Rojas, M.D., M.P.H., Martires de Tacubaya 70, Mexico, D. F., Mexico, Director, Unidad de Salubridad y Estacion de Adiestramiento de Xochimilco

John W. Spies, M.D., M.P.H., State Board of Health, Marshallton, Del., Director, Divisions of Cancer Control and Communicable Diseases, State Board of Health

Leroy K. Young, M.D., U. S. Public Health Service, Manila, Philippines, Consultant on Tuberculosis to Philippine Public Health Rehabilitation Program and Chief, Tuberculosis Control Division, U.S.P.H.S.

Laboratory Section

Rena L. Dodd, 1026 New Scotland Road, Slingerlands, N. Y., Bacteriologist, State Dept. of Health

E. H. Garrard, M.S., Dept. of Bact., Ontario Agricultural College, Guelph, Ont., Canada, Professor and Head, Dept. of Bacteriology

Roderick D. Hamblin, 3086 Stoddard Ave., San Bernardino, Calif., Laboratory Director, San Bernardino County Public Health Laboratory

Dorothy Lewis, Richards Chemical Works, 190 Warren St., Jersey City 2, N. J., Research Bacteriologist and Laboratory Supervisor

Irving J. Lipovsky, M.S., Biology Dept., Univ. of Massachusetts, Fort Devens, Mass., Asso. Professor of Bacteriology

Denys R. Lock, M.A., 1709-21st St., Everett, Wash., Director of Laboratory, Providence Hospital

Frank R. Martuccio, 1422½ Barry Ave., West Los Angeles, Calif., Bacteriologist, U. S. Veterans' Center

Celia Rubin, 2839 India St., San Diego, Calif., Senior Laboratory Technician, City Public Health Laboratory

Helen R. Seraichekas, 19 Barrett St., Cranston,

R. I., Medical Technician, U. S. Veterans' Administration

Kenneth E. Shull, 762 Lancaster Ave., Bryn Mawr, Pa., Chief Chemist and Superintendent of Purification, Philadelphia Suburban Water Co.

Kenneth W. Stewart, 1217 Harrison, Kansas City, Mo., Production and Quality Control, Franklin Ice Cream Co.

Vital Statistics Section

Vira Anderson, R.N., Salem Memorial Hospital, Salem, Ore., Medical Record Librarian

Stephen S. Henkin, 555 Prospect Place, Brooklyn 16, N. Y., Chief Record Librarian, Jewish Hospital of Brooklyn

Judith Killeen, 6300 Beacon Ave., Seattle 8, Wash., Advisory Field Clerk, State Dept. of Health

Virginia M. Riley, Barre City Hospital, Barre, Vt., Chief Record Librarian

Henry S. Robinson, 23 Grove St., New York 14, N. Y., Field Statistician, American Cancer Society

Martha C. Wood, 237 Pontotoc, Houston, Miss., Business Manager and Medical Record Librarian, Houston Hospital

Engineering Section

Irwin G. Bircher, D.V.M., 50 University Ave., Rochester 5, N. Y., County Veterinarian

Harlan G. Formo, M.P.H., 115 Court House, Duluth, Minn., Public Health Engineer, District IV, State Health Dept.

Alfred A. Gannon, 16205 Tracey, Detroit 27, Mich., Sanitarian, Wayne County Health Dept.

Pharm. Ralph T. Goerner, Jr., (HC) USN, U. S. Naval Station, Treasure Island, San Francisco, Calif., Sanitarian

Eric J. Hannemann, 806 Highland Ave., Austin, Tex., Graduate Work in Sanitary Engineering, Univ. of Texas

Bernard L. Jacobson, Box 2892, University, Ala., Student, Univ. of Alabama

C. C. Potter, 3520-54th, Des Moines 10, Iowa, Asst. Sanitary Engineer, State Dept. of Health

Thomas J. Rinaldo, 465 Concord St., Framingham, Mass., Asst. Sanitary Engineer, Water Division, Metropolitan District Commission

Major Clyde M. Turner, MSC, 9839th TSU, Engineer School, Ft. Belvoir, Va., Sanitary Engineer

Industrial Hygiene Section

George G. Richards, 1940 South 16th East, Salt Lake City 5, Utah, Industrial Hygiene Technician, State Health Dept.

Food and Nutrition Section

Marian L. Arnold, 172 Westminster St., Hamden 14, Conn., Nutrition Director, Connecticut Dairy and Food Council

Slava Malec, 217 E. Broad St., Bethlehem, Pa., Staff Nutritionist, State Dept. of Health

Margaret A. Ohlson, Ph.D., Michigan State College, East Lansing, Mich., Head, Foods and Nutrition Dept.

Maternal and Child Health Section

Catherine D. Carlson, M.D., International House, Berkeley 4, Calif., Student, School of Public Health, Univ. of California

Ernest W. Hancock, M.D., 1103 State House, Lincoln, Neb., Chief, Division of Services for Crippled Children, Dept. of Assistance and Child Welfare

Pedro Magana-Erosa, M.D., 10/a. de Puebla 204, Depto. 6, Mexico, D. F., Mexico, Pediatrician, Unidad Sanitaria y Estacion de Adiestramiento de Xochimilco

Henrietta L. Marquis, M.D., Medical Arts Bldg., Charleston, W. Va., Pediatric Consultant, State Health Dept.

Ursula G. Sanders, M.D., 17 Capitol St., Concord, N. H., Asst. Director, Maternal and Child Health Division, State Dept. of Health

Jessie J. Turnbull, Sc.D., Elizabeth Steel Magee Hospital, Pittsburgh 13, Pa., Supt.

Public Health Education Section

Samuel J. Barham, 601 Topeka Blvd., Topeka, Kans., Exec. Director, Kansas Hospital Service

Francis G. Bean, M.D., 223 Washington Ave., Bennington, Vt., Administrator, Putnam Memorial Hospital

Mary I. Cawley, 364 Edison St., Staten Island 6, N. Y., Public Health Analyst, Venereal Disease Research Laboratory, U.S.P.H.S.

Louie H. Crowl, D.D.S., 3201 Cutter Way, Sacramento 17, Calif., Director of Health Education, McClellan Air Force Base

Ruth L. Flater, 526 Goodwyn Institute, Memphis, Tenn., Sec., Health Section, Community Council of Memphis-Shelby County

Arden E. Hardgrove, 231 West Oak St., Louisville 3, Ky., Administrator, Norton Memorial Infirmary

Ruskin King, M.D., 10 West Taylor St., Savannah, Ga., Private Pediatrician

Fraser D. Mooney, M.D., C.M., 100 High St., Buffalo 3, N. Y., Supt., Buffalo General Hospital

Mary H. Parks, M.P.H., 18 Dove St., Albany, N. Y., Asso. Public Health Educator, State Dept. of Health

Willard C. Rappleye, M.D., Sc.D., 630 West 168th St., New York, N. Y., Dean, Faculty of Medicine, Columbia Univ.

Lauritz S. Ylvisaker, M.D., Fidelity Mutual Life Insurance Co., 25th and Parkway, Philadelphia, Pa., Vice-President and Medical Director

Lawrence Zuccolo, 723-17th St., Union City, N. J., Student, New York Univ.

Public Health Nursing Section

Maude C. Bailey, M.A., 4217 Blossom St., Columbia, S. C., Hospital Consultant, Maternal and Child Health Division, State Board of Health

Margaret G. Bennett, c/o North American Embassy, Montevideo, Uruguay, S. A., Consultant Public Health Nurse, Institute of Inter-American Affairs

Anna K. Bergstrom, R.N., 307 Court House, Springfield, Mo., Public Health Nurse, State Crippled Children's Service

Judith S. Cantor, 500 Riverside Drive, New York, N. Y., Student, Teachers College, Columbia Univ.

Florence M. Clark, R.N., 17 Capitol, Concord, N. H., Director, Public Health Nursing Division, State Dept. of Health

Elizabeth Dills, R.N., B.S., George A. Hormel & Co., Austin, Minn., Nurse Consultant and Visiting Nurse

Amelia M. Engel, 2300 Bronx Park East, Bronx 67, N. Y., District Supervising Nurse, City Dept. of Health

Hylde A. Harp, R.N., M.P.H., 2825 N. 58th St., Milwaukee, Wis., Supervisor of School Hygiene, City Health Dept.

Lucile M. Johnson, R.N., B.S., 805 Sixth St., Eureka, Calif., Supervising Public Health Nurse, Humboldt County Dept. of Health

Genevieve S. Jones, 2405 First St., N. W., Washington, D. C., Senior Asst. Nurse Officer and Tuberculosis Nursing Consultant, U. S. P.H.S.

Marjorie A. McIntosh, Ottawa Civic Hospital, Range Rd., Ottawa, Ont., Canada, Instructor of Nurses and Asst. Supervisor, Communicable Disease Unit

Birdie M. McKee, R.N., B.S., Red Cross Nursing Service, 14 Park Ave., Caldwell, N. J., Supervising Nurse

Eleanor J. Pingrey, 2019 E. 3rd Ave., Durango, Colo., Student, Univ. of Colorado

Jeanne Richie, R.N., B.S., R.F.D., Rialto, Calif., Public Health Nurse, Imperial County Health Dept.

Eula P. Rogers, 4173 S. Elati, Englewood, Colo., Supervisor of Public Health Nurses, Arapahoe County

Jeanne W. Walvoord, R.N., M.S.P.H., c/o American Mission, Amoy, South Fukien,

China, Supervisor of Public Health Nursing, Board of Foreign Mission of Reformed Church

Epidemiology Section

Carl M. Eklund, M.D., Rocky Mt. Laboratory, Hamilton, Mont., Senior Surgeon, U.S. P.H.S.

Major John H. Scruggs, V.C., Fort MacArthur, San Pedro, Calif., Station Veterinarian

School Health Section

Leo J. Wade, M.D., Washington Univ., St. Louis 5, Mo., Director, Student Health Service and Asst. Professor of Preventive Medicine and Public Health

Dental Health Section

Howard M. Johnston, D.D.S., 2300 Durant Ave., Berkeley 4, Calif., Dentist

Perley J. Lessard, D.D.S., 51 Deering St., Portland 4, Me., Dentist

Carlos E. de Oliva Paz, D.D.S., 782 Uruguay St., Buenos Aires, Argentina, S. A., Dentist for President and Senate of Argentina

Unaffiliated

Philip D. Bonnet, M.D., 750 Harrison Ave., Boston 18, Mass., Administrator, Massachusetts Memorial Hospitals

H. Robert Coler, M.D., 55 Shattuck St., Boston 15, Mass., Student, Harvard School of Public Health

Dean Conley, 22 East Division St., Chicago 10, Ill., Exec. Secy., American College of Hospital Administrators

Mark H. Eichenlaub, 4800 Friendship Ave., Pittsburgh, Pa., Supt., Western Pennsylvania Hospital

Albert G. Engelbach, M.D., 330 Mt. Auburn St., Cambridge 38, Mass., Administrator, Mount Auburn Hospital

Lee C. Gammill, 6221 South Main St., Houston 5, Tex., Administrator, St. Luke's Episcopal Hospital

Marianne S. Hahn, M.D., School of Public Health, Univ. of North Carolina, Chapel Hill, N. C., Student in Public Health Administration

John N. Hatfield, Pennsylvania Hospital, 8th and Spruce Sts., Philadelphia 7, Pa., Administrator

Edgar C. Hayhow, Ph.D., East Orange General Hospital, East Orange, N. J., Director

A. J. Hockett, M.D., Wilmington General Hospital, Wilmington, Del., Medical Director
F. Stanley Howe, Orange Memorial Hospital, Orange, N. J., Director

Stuart K. Hummel, Silver Cross Hospital, Joliet, Ill., Supt.

Clement W. Hunt, M.A., 25 N. 26th St., Camp Hill, Pa., Exec. Director, Capital Hospital Service, Inc.

Lt. Col. James T. McGibony, M.C., New Tripler General Hospital, APO 958, San Francisco, Calif., Commanding Officer

C. Rufus Rorem, Ph.D., 311 South Juniper St., Philadelphia 40, Pa., Exec. Secy., Hospital Council of Philadelphia

Charles M. Royle, 133 East Ave., Rochester 4, N. Y., Exec. Manager, Rochester Hospital Council

Jean Savage, 130 Broadway, Chicopee Falls, Mass., Director of Social Service, Holyoke Hospital

Moir P. Tanner, 219 Bryant St., Buffalo 9, N. Y., Supt., Children's Hospital

Peter D. Ward, M.D., C.M., 125 West College Ave., St. Paul 2, Minn., Director, Charles T. Miller Hospital

George O. Whitecotton, M.D., 2701-14th Ave., Oakland 6, Calif., Medical Director, Alameda County Institutions

Norbert A. Wilhelm, M.D., 721 Huntington Ave., Boston 15, Mass., Director, Peter Bent Brigham Hospital

DECEASED MEMBERS

Mrs. Edna M. Kech, Harrisburg, Pa. Elected Member 1940, Elected Fellow 1946, Public Health Education Section

Conrad Kinyoun, Savannah, Ga., Elected Member 1926, Elected Fellow 1933, Laboratory Section

Edward L. Miloslavich, M.D., Zagreb, Yugoslavia, Elected Member 1926, Elected Fellow 1932, Elected Life Member 1933, Industrial Hygiene Section

Florence A. Gates, South Nyack, N. Y., Elected Member 1946, Public Health Nursing Section

Harold J. Halligan, M.D., Jersey City, N. J., Elected Member 1946, Public Health Education Section

Mrs. Harriett M. Williams, Akron, Ohio, Elected Member 1945, Public Health Education Section

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

(Supplemental to list in May Journal)

POSITIONS AVAILABLE

Qualified Director of Public Health Nursing program within Department of Nursing Education in College of Arts and Sciences in Eastern University. Annual salary \$5,000. Write Department of Nursing Education, University of Rochester, Rochester 3, N. Y.

Public Health Nursing Education Director, leading to Director of Nurses position within a year. Salary \$275-\$300; good experience and background.

Also, opening for Public Health II, \$230 beginning salary.

Write: Director, Weld County Health Department, Court House, Greeley, Colo.

Graduate in Bacteriology with some background in chemistry and experience in field of sewage and water research or treatment. To take charge of section in newly organized research project, Eastern U. S. Salary \$3,200-\$4,200 depending upon qualifications. Write Box A-11. Employment Service. A.P.H.A.

Nurses are needed for public health work in Texas. The program is conducted under a Merit System. Compensation range for Sr. Public Health Nurses from \$2,277 to \$2,553 per year. Compensation range for Jr. Public Health Nurses from \$2,001 to \$2,415. Compensation for War Emergency Nurses from \$1,725 to \$2,139. In addition to above salary; possible provision of approximately \$600 car allowance annually. Write Box A-12. Employment Service. A.P.H.A.

District Health Officer. Two positions opened in progressive areas. Salary \$7,440 to \$9,120 per annum, plus traveling expenses. Applicant should possess three years of experience in professional medical work and one year graduate study in public health. Address inquiries to Arthur L. Ringle, M.D., State Director of Health, 1412 Smith Tower, Seattle, Wash.

Public Health Nurses. Several excellent positions available in full-time health departments in attractive areas in State of Washington. Salary range \$2,640 to \$3,360 per annum, plus traveling expenses.

Applicant should possess one year of experience in public health work and one year of graduate study in public health. Address inquiries to: Anna R. Moore, R.N., Chief, Public Health Nursing Division, 1412 Smith Tower, Seattle, Wash.

City Health Commissioner for New England city; 55,000 population. Progressive city. Excellent environment. Salary \$6,000. Reply in detail. Mayor's office, City Hall, Pittsfield, Mass.

Veterinarian for modern (quality) milk control program. Beginning salary \$3,120, annual increments. Car furnished. Position provides for vacation, sick leave, retirement benefits, permanency. For further particulars write Charles A. Neafie, M.D., Director, Department of Public Health, Pontiac 15, Mich.

Pathologist, certified by American Board of Pathologists. Salary commensurate with ability and experience. Excellent opportunity. Large addition under construction. Write in detail to Superintendent, South Side Hospital, Pittsburgh, Pa.

Three openings for Public Health Nurses in Santa Cruz County. Salary \$248-\$260 monthly. General services in rural area. Must furnish own car, mileage paid. Apply to: Charles C. Gans, M.D., Santa Cruz County Health Department, 21 Front Street, Santa Cruz, Calif.

Openings in Public Health Department, New Mexico

Public Health Nursing Consultant	\$325-\$420
Public Health Nurse-Midwife Consultant	325- 420
Public Health Nursing Supervisor	250- 325
Public Health Nurse-Midwife..	225- 290
Public Health Nurse.....	200- 260
Graduate Nurse	170- 200

Write to: Merit System Council, Box 939, Santa Fe, N. M.

Physicians Wanted

The Tennessee Valley Authority announces openings for well qualified physicians. Training and experience in Public Health and Employee Medical Services are desirable. Salaries are based on 40 hour week schedule with periodic within-grade increases. Retirement, annual and sick leave benefits are provided. Interested candidates should write the Tennessee Valley Authority, Division of Personnel, Knoxville, Tenn.

Graduate Assistantships in Bacteriology

Candidates must enroll in Graduate School. Eight credit hours of graduate work leading to master's or doctor's degree permitted per semester. Stipend \$1,000 for the academic year. Approximately 12 hours of laboratory teaching or preparations required per week. Send application for admission to Dean of Graduate School. Send personal data, transcript, and recommendations to Chairman of Department of Bacteriology, University of Michigan, Ann Arbor, Mich.

Public Health Opportunities in Connecticut

Openings for epidemiologist; crippled children's physician; child hygiene physician and local health consultant at \$6,300-7,500 salary range. Clinical psychiatrist, salary range \$6,840-8,280. Three years' employment or training including experience in child psychiatry required.

Write: Personnel Department, State Capitol, Hartford, Conn.

Sanitary Engineer or Sanitarian, recent graduate, with engineering or science degree. Generalized sanitation program. City of 50,000 population. Car allowance. Vacation, sick leave and retirement benefits. Starting salary \$3,600 per annum. Communicate with J. Burris Perrin, M.D., C.P.H., Health Officer, City of La Crosse, Wis.

Dental Hygienist. City of 50,000 population, twenty-four schools. Dental clinic. Starting salary \$2,900 per annum with vacation, sick leave and retirement benefits. Communicate with J. Burris Perrin, M.D., C.P.H., Health Officer, City of La Crosse, Wis.

Neuropsychiatrist with pediatrics training to direct child guidance program being conducted by private foundation on state-wide basis, New Mexico. Must be diplomate of his board. Also assistant to Director, some general qualifications. Salaries at general level paid for similar services in comparable locations. New Mexico Health Foundation, 819 East Central, Albuquerque, N. M.

Health Officer for six county unit in Northeast Colorado with offices in Sterling. Estimated population of district 59,000. Budget provides for personnel of 16. Minimum salary \$6,000 plus travel, and may be increased depending upon qualifications of applicant. Write Dr. Paul R. Hillebrand, Brush, Colo.

Community Health Educator for Mid-western city. Demonstration program under joint sponsorship of city health department and a local voluntary agency.

Program will eventually be absorbed by the official agency. University center. Challenging opportunity of demonstrating value of health education to community. Write Box A-13. Employment Service. A.P.H.A.

Laboratory openings requiring professional training and experience in State Health Department, East.

1. Research Microbiologist
2. Principal Biochemist
3. Senior Sanitary Chemist
4. Dairy technologist

Write Box A-15. Employment Service. A.P.H.A.

Public Health Staff Nurses for Linn, Yamhill, and Union Counties. Applicants must have had at least one year in approved program of study in Public Health Nursing. Under Merit System. Salary range \$2,700-\$3,300 plus travel allowance. Address correspondence to: Dr. Harold M. Erickson, State Health Officer, Portland 5, Ore.

Public Health Nurse: Generalized public health nursing program in progressive official agency in rural-suburban area adjoining Washington, D. C. Beginning salary \$2,400. Trainees accepted. Fifteen day vacation and sick leave, 35½ hours per week. Mileage allowed for use of personal car. Write Director of Nurses, Montgomery County Health Department, Rockville, Md.

Director with supervising experience in public health nursing to direct newly re-

organized visiting nurse association in industrial city of 22,000. Salary, car allowance and other details upon request. Write Box A-14. Employment Service. A.P.H.A.

Full-time Health Officer, town of 26,000, convenient to medical and cultural centers, salary \$6,000 plus mileage. Write: Chairman, Board of Health, Milford, Conn.

Public Health Nurse. Salary range \$2,640-\$3,120 (probably more beginning July 1). One year of postgraduate public health nursing training. Generalized service. Merit system and good personnel policies. Write: Division of Public Health Nursing, Kern County Department of Public Health, P. O. Box 120, Bakersfield, Calif.

Alaska Territorial Department of Health. Health Education Consultant wanted. Salary range \$4,104-\$4,644; minimum requirements college degree and one year graduate work in public health. Experience: one year full-time paid employment in public health education plus additional one year employment in any of allied fields. Write Box 1931, Juneau, Alaska.

Hearing and Vision Consultant. Minimum of two years' practical experience in hearing and vision programs; college graduate plus one year graduate training in psychology, speech, or related field with studies of handicapped children; \$3,360 to \$4,260. Civil Service status. Retirement. Permanent. Apply to: Harold M. Erickson, M.D., State Health Officer, Oregon State Board of Health, 1022 S.W. 11th Ave., Portland 5, Ore.

Qualified Public Health Nurse for itinerant work in tuberculosis in areas without local public health nursing services. Beginning salary \$230 per month with \$100 expense account. Furnish own car. Write: Public Health Nursing Section, State Dept. of Public Health, 515 Majestic Building, Denver 2, Colo.

Commissioner of Health, well established county health department, New York State. Salary \$7,500 plus necessary traveling expenses. Write Box A-17. Employment Service. A.P.H.A.

Two qualified **Public Health Nurses** for staff duty in well established generalized program for California city and county population of 65,000. Full staff consists of supervisor and 9 staff nurses. Salary \$2,916 to start, 5 increments to \$3,540. Car required, 6¢ mileage. 5½ days, 38 hours; 15 days' annual vacation; 5 days' annual

sick leave. Apply: H. O. Swartout, M.D., Dr.P.H., County Health Officer, P. O. Box 360, San Luis Obispo, Calif.

Sanitary Engineer for permanent connection with established company manufacturing sanitary equipment. Duties include technical advisory functions with the company as well as educational work with health departments and trade groups. No direct selling involved. Headquarters Northeast, travel half time. Desire man experienced in public health work and, if possible, sewage disposal work. Starting salary \$4,000, plus actual traveling expenses. Write Box A-16. Employment Service. A.P.H.A.

Supervisor Health Education Department for Chicago and Cook County Tuberculosis Institute, man preferred. Candidates must have public health background and experience in community education programs. Salary open. Excellent opportunity for developing broad education in tuberculosis control programs. For further information write: Dr. E. E. Kleinschmidt, Tuberculosis Institute of Chicago and Cook County, 1412 Jackson Boulevard, Chicago 7, Ill.

Bacteriologist with Ph.D. for full-time research in medical institute; research experience. Salary \$6,000 annually, dependent upon training and experience. Write Box A-18. Employment Service. A.P.H.A.

Engineering Graduate, age 35-40, not less than 5 years' experience in water pollution correction work. Technical competence as well as knowledge control techniques; experience in dealing with industrial management and municipal officials; required residency western part of state. Salary range \$4,020-4,740, plus expenses outside home station. Civil Service appointment. Apply Michigan Stream Control Commission, Box 87, Lansing 1, Mich.

Physician for well established California health department serving mixed urban and rural population of about 65,000. Male or female. Work largely in child hygiene conferences but moderate amount of time spent in field epidemiology; immunization campaigns; diagnosis and treatment venereal diseases. Five and one-half days; 38 hours; 15 days' vacation, 5 days' sick leave annually. Car needed, 6¢ mileage. Salary \$5,232 to start, five increments to \$6,360. Experienced candidate may start at higher level. Apply: H. O. Swartout, M.D., Dr.P.H., County Health Officer, Box 360, San Luis Obispo, Calif.

Three Staff Nurses, postgraduate work public health nursing or acceptable public health experience. Salary range

\$2,640-2,940. Starting rate based on training and experience. Own automobile required; 7¢ mileage. Write J. B. Eason, M.D., City Health Officer, City Hall, Spokane, Wash.

County and District Health Officers. \$7,200 to start; ample travel allowance. Openings coastal and north central Oregon; merit status; written examination unnecessary. Graduation from approved medical school including one year internship and preferably one year graduate study in public health. Permanent. Apply to: Harold M. Erickson, M.D., State Health Officer, 1022 S. W. 11th Avenue, Portland 5, Ore.

Public Health Nurses for attractive rural area; southern Michigan; short distance several important urban centers. Opportunity for supervised experience and university study. Salary excellent, dependent upon experience and qualifications; systematic increments; 40 hour week, liberal travel allowance. Write Director, Eaton County Health Department, Charlotte, Mich.

Physician to head established health and medical service center in Greenbelt, Md. Population 8,000. Planned community, 30 miles from Washington, D. C. Prepayment plan in effect now. Minimum annual income guaranteed as agreed upon. Housing available. Write Greenbelt Health Association, 30 D Ridge Road, Greenbelt, Md.

1. Health Officer

2. **Public Health Nurses** for six county health unit in Northeastern Colorado. Population 59,000, essentially rural 2½ hours from Denver. Staff of 16 anticipated. Health Department will be housed in a new wing of the local hospital. Write: P. O. Box 1296, Sterling, Colo.

Public Health Staff Nurses in new Quadri-County Health Department, Southern Illinois. Generalized service. Salary \$2,400 plus mileage. Write or wire: Medical Director, Quadri-County Health Department, Golconda, Ill.

Statistician, graduate accredited college or university. Statistics or higher mathematics major. At least 2 years' experience in Public Health Statistics within past 5 years. Salary range \$2,700-3,900 with excellent opportunity for promotion. Liberal retirement privileges. Write: State Health Officer, P. O. Box 210, Jacksonville, Fla.

Assistant Director of Public Health in city public health department of 150 employees. Southern city of approximately 200,000. Must have M.D. and either Master's degree in public health or equivalent in experience. Salary \$6,144-7,368.

Superintendent of Sanitation. Degree in sanitary engineering with municipal experience. Salary \$4,080-4,896. Write: Box A-19. Employment Service. A.P.H.A.

Tuberculosis Clinician to serve as Assistant Director of Bureau of Tuberculosis Control and Director of Clinics for Tuberculosis Control, Florida State Board of Health with residence in Jacksonville, Fla. Must be graduate of approved A.M.A. School of Medicine and have minimum of 4 years' full-time paid experience in Public Health or Tuberculosis Control. Salary up to \$7,200 depending upon training and experience. Daily allowance of \$6.00 while traveling. Must obtain license to practise in Florida within one year of appointment. Write Wilson T. Sowder, M.D., State Health Officer, P. O. Box 210, Jacksonville 1, Fla.

Public Health Nurses for staff positions in generalized program. Rural and urban. Forty hour week. Vacation and sick leave according to Washington State Merit System. Monthly salary scale \$200-\$280. Car essential; mileage allowance. Write District Health Officer, Clark County-City Health Department, Box 149, Vancouver, Wash.

Public Health Nurse Supervisor in generalized program. Rural and urban. Vacation and sick leave according to Washington State Merit System. Monthly salary scale \$250-\$310. Write District Health Officer, Clark County-City Health Department, Box 149, Vancouver, Wash.

Field Associate with a national voluntary health agency at interesting salary in an interesting job. Experience, training, ability, and personality are factors which will be equally important in determining eligibility. Offers opportunity to implement national policy in program development and community organization for public health action on state and local levels. Male or female, over 30 and under 50, willing and able to travel, with graduate degree in public health or social work, and at least three to five years' executive experience. Retirement plan, one month vacation. For further details, communicate with Box A-20, Employment Service, A.P.H.A.

POSITIONS WANTED

Academic position as Professor of Bacteriology or Preventive Medicine. Ph.D.; M.D. expected in spring, 1948. Sixteen years' experience in teaching and research (7 years as Professor of Bacteriology). Many publications including textbook of bacteriology for medical students. Write Box Ph-2. Employment Service. A.P.H.A.

Statistician-Administrator. Ten years' professional experience. Completing assignment in nation-wide health survey as chief of staff of 40-80 professional and clerical personnel doing following operations: coding, IBM tabulations, computations, analyses, etc. Intensive training in statistics, mathematics and accounting. Write Box St-1. Employment Service. A.P.H.A.

Physician, Woman, New York University graduate 1945, M.P.H. expected May, 1948; interested in position in or outside the U. S. Predominant interest communicable disease control. Write: Box Ph-3. Employment Service. A.P.H.A.

Engineer, ASCE, June; B.S., Public Health Eng.; M.S., Sanitary Eng.; desires to develop idea for "Model Communities" as adapted to rural areas in Southern Asia; South America. Interested in employment with organization or government engaged in redeveloping existing communities with regard to housing, sanitation, water supply, and general municipal facilities. Experienced overseas and domestic; single; 24. Write: Box E-3. Employment Service. A.P.H.A.

Clinician, 12 years' practice in surgery, gynecology, and general medicine abroad and in the U. S. Citizen, male, married. Interested in clinical opening in group practice hospital, industry, or health department. Write Box Ph-4. Employment Service, A.P.H.A.

Dentist, male, 30 years old, single. M.P.H. expected in June, 1948. Three years' experience in clinical and administrative work. Interested in administrative dental opening with or without clinical responsibilities. Write Box D-1, Employment Service, A.P.H.A.

Veterinarian, M.P.H. degree; 2 years' experience federal meat inspection; 2 years' teaching milk hygiene and assistant in bacteriology in large university. Interested in public health openings. Will consider full-time positions (or part-time with practice opportunities) in state or local work, agencies or institutions. Available between July 1 and August 1. Write Box V-3, Employment Service, A.P.H.A.

Sanitary Engineer, B.S., M.S., M.P.H.; seven years' experience with State Health Department; three years in Army Sanitary Corps; two years in industry, desires position in public health engineering. Write Box E-4, Employment Service, A.P.H.A.

Bacteriologist, M.S., minor chemistry, 9 years' extensive experience in research, clinical bacteriology, and industrial development. Interested in responsible position in public health, industrial laboratory, or teaching institution. Write Box L-D-1, Employment Service, A.P.H.A.

Health Educator, female, six years' experience in community organization for health with voluntary agency; 5 years' experience as supervisor of a community health center; 5 years' experience in university health service, R.N., B.S. Seeks opportunity in health education or administrative opening. Write Box H-E-3, Employment Service, A.P.H.A.

Physician, woman, considerable experience in practice of pediatrics and school health administration, consultant to professional and voluntary agencies, desires interesting position part or full time in greater New York area. Write Box Ph-6, Employment Service, A.P.H.A.

Advertisement

Opportunities Available

WANTED—(a) Public health physician for appointment as state commissioner of health; Master's or Doctor's degree in public health medicine with minimum five years' experience; \$12,000. (b) Young physician, preferably with military experience and interest in field of preventive medicine, to direct student health department; university medical school; full-time appointment with opportunity to engage in teaching and research; \$7,000. (c) Young dentist experienced or trained in public health dentistry; regional consultant position; South. (d) Public health administrator, key position in one of the leading cities of the Middle West; outstanding candidate required. (e) Medical director, division of communicable disease control; duties include supervising school of health; town of 100,000 located short distance from university medical center; Middle West. (f) Several well qualified public health physicians and dentists for appointments to Germany, Austria, and Italy; headquarters of organization in Paris. (g) Public health physician to direct health department of rapidly growing county; present population 155,000; staff of 30 personnel, Pacific Coast. **PIIG-1** Medical Bureau (Burneice Larson, Director) Palmolive Building, Chicago 11.

WANTED—(a) Health educator to direct division of county community fund and council of social agencies; newly created position; \$4,000. (b) Sanitary chemist, with working knowledge of chemistry of water and sewage; experience in water filtration plants and sanitary engineering laboratories advantageous; chemist, Ph.D., with interest in sanitary chemistry field eligible; health department of modern community, new research institution; \$4,900-\$5,900; Southwest. (c) Superintendent of sanitation; city health department;

150 employees; Southern city, 200,000; \$4,080-\$4,896. (d) Vital statistician to supervise and maintain system of registration; degree with graduate training in public health or statistics required; state department of health; West. (e) Sanitary engineers experienced with drainage problems, insect control, water purification and sewage disposal; knowledge of Spanish advantageous; South America. (f) Sanitarian; health department serving three counties; Michigan. (g) Young women, Ph.D.'s or M.D.'s for academic appointments; university having highly organized program of professional training in health field for teachers; one should be qualified in teaching correctives; other in health education; students, undergraduates and graduates; ranks dependent upon qualifications. **PIIG-2** Medical Bureau (Burneice Larson, Director) Palmolive Building, Chicago 11.

WANTED—(a) Public health nurse to direct nursing service serving two residential towns; generalized program; eventual staff of twenty public health nurses; minimum \$4,000. (b) Assistant professor of public health nursing; preferably one with Master's degree and supervisory experience; collegiate school; \$4,000-\$5,000; ten month year; additional income for summer teaching. (c) Public health supervisor to direct staff of thirty nurses; metropolitan health department, Middle West. (d) Student health nurse; young women's college; Pacific Coast. (e) Public health nurses with executive ability to supervise modern health center in South America; knowledge of Spanish, Portuguese or French desirable. (f) Public health nurse for position of health coordinator; public school system, small town in Wisconsin. **PIIG-3** Medical Bureau (Burneice Larson, Director) Palmolive Building, Chicago, Ill.

Opportunities Wanted

Young dentist; D.D.S., M.S., degrees; recently received Master's degree in Public Health; has done considerable research work on problem of dental caries; prefers public health dentistry or teaching position in pedodontia; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Chemical engineer; B.S. in Chemical Engineering; year's graduate training in Sanitary Engineering, Harvard; seven years, communicable disease control, major part of work in malarial control; for further information please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Sanitary engineer; B.S. in Civil Engineering with Sanitary option; considerable work toward Master's degree in public health engineering; eight years, director of sanitation, state health department, four years, sanitary engineering in foreign fields; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health physician; M.D., southern university; M.P.H., Johns Hopkins; 10 years' experience as administrative health officer; for further information, please write Burneice Larson, Director, Palmolive Building, Chicago 11.

Public health nursing executive; M.S. degree, Health education and Public Health; six years, executive secretary, county tuberculosis association; seven years, director, metropolitan public health nursing association; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Health educator; A.B., middle western school, Sc.D., Johns Hopkins; eight years, director, health education, state tuberculosis association; past several years on faculty of school of hygiene, eastern university; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

NEWS FROM THE FIELD

REGIONAL CONFERENCE ON LOCAL HEALTH UNITS

The first in a series of regional conferences to get home town action on the problem of getting every person in every county under the umbrella of local health protective services was held in Mitchell, Ind., on April 21 and 22. Under the sponsorship of the National Health Council, and planned with the co-operation of the health departments of the five states of Indiana, Kentucky, Michigan, Ohio, and Wisconsin, this conference brought together representatives of a variety of voluntary health and citizen agencies.

The Indiana State Health Department was host to the conference and made arrangements for the details of recording, publicity, stenographic, and other services. It also had the largest delegation.

Except for several resource persons the conference group was selected by the respective state health officers to bring together those interests that could develop most effectively favorable opinion for extending local public health services in their states. The keynote of the conference was accented by Bailey B. Burritt, Executive Director of the National Health Council, in his opening address with a quotation from Woodrow Wilson to the effect that, "The highest and best form of efficiency is the spontaneous coöperation of free people."

The plan of the conference was for a general session the first morning to explore the problem areas to which working committees should devote the afternoon session. The problem areas were resolved into three major groupings, each of which was assigned to a working committee. These committees, each with a discussion leader and a recorder, grappled with their problem during an after-

noon session. Their reports were then presented to the entire conference at an evening session.

The three main problems were defined as (a) securing public demand and support, (b) organization of a plan for each community including a consideration of the legislative and political factors affecting the development of such a plan, (c) accomplishing the plan through provision of adequate funds, a strong state health department, and qualified personnel. The discussions were active, with everyone participating and with colorful illustrations of specific conditions or achievements in the various states. There was universal agreement that local upsurge must be stimulated; that lasting results cannot be achieved by superimposing a state program upon local lack of knowledge and interest. The state's role, both of official and voluntary agencies, is that of stimulation, information, consultation, and assistance. The importance of local assistance in recruitment of personnel was also emphasized as was the necessity for training facilities. Inadequate salaries and an anomalous situation with respect to prestige, particularly as it affects the medical profession in public health, are the chief stumbling blocks to recruitment of personnel in adequate numbers.

The second morning discussions were carried on by the separate state groups. Here the plan was to apply the general findings of the previous day to the particular problems of the respective states. On this day the afternoon was devoted to the state group reports and general discussion of them and to a summing up.

The various state situations were reviewed. Michigan, for example, has nearly 100 per cent coverage but is currently struggling with the problem of personnel and with political currents that

are detrimental to effective completion of coverage. Kentucky, because of the constitutional limitations on salaries of public workers, is under the necessity of holding back demands for additional county units because of failure to secure personnel.

The Wisconsin Legislature has just passed a permissive health unit law and many citizen agencies throughout the state are demanding local action. There is hope that many areas may be organized in the near future. A meeting of 25 representative citizens was held on May 12 to develop a strategy for getting widespread public understanding of and demand for the services of local health departments throughout the state.

Ohio is handicapped by its public health law dividing the state into 203 health districts, a separate one for each city of 5,000 or more, and one for each county outside these cities. Since the law provides for consolidation of districts, however, the state health department has developed a plan for 37 county, city-county, and multi-county health departments to replace its 203 health districts. Some score of voluntary and citizen agencies in the state plan a survey of the various state public health laws as a basis for proposing amendments to the Ohio law.

Indiana's recent legislature passed a permissive health unit act and there is hope that the 1949 legislature will provide state aid to local health departments. One bi-county department has already been organized and sufficient income has been created in enough areas so that if they become organized half of the state's population will be served instead of the less than one-quarter now served.

In summing up the two day discussions, Mr. Burrill used Haven Emerson's Catechism on "What are the Seven Steps to the Temple of Health," which was used as display at the Princeton Conference on Local Health Units in

September, 1947. These seven steps are:

1. A plan by the state health department
2. The organization of a state-wide citizen committee of voluntary and citizen agencies and approved by the governor
3. Completing legislative authority
4. Legal authorization for personnel and salaries
5. Agreement upon tax sources of support—local, state, and federal, for the local health department
6. Recruitment and training of personnel
7. Local community health council follow through to secure results and tax support

About 50 persons attended the conference. Chairmen and reporters of problem and state committees were drawn from the conference membership. Delegates represented parent-teacher associations, the Farm Bureau, CIO, state medical societies, Federation of Women's Club, American Association of University Women, state branches of such national agencies as the National Tuberculosis Association, National Society for Crippled Children, National Foundation for Infantile Paralysis, American Red Cross, as well as representatives of official health agencies. State health commissioners of three of the five participating states attended the conference.

The National Health Council staff is now analyzing the results of the conference with a view to determining whether it represents a pattern for similar conferences in other regions of the country.

AWWA OFFICERS

The following officers of the American Water Works Association were elected recently to take office on May 7, 1948:

President—Linn H. Enslow, Editor, Water and Sewage Works

Vice President—A. P. Black, Professor of Chemistry, University of Florida

Treasurer—William W. Brush, Editor, Water Works Engineering

Harry E. Jordan is the permanent secretary of the Association, which has headquarters at 500 Fifth Avenue, New York.

AUSTRALIA'S MEDICAL CARE PROGRAM INCLUDES PHARMACEUTICALS

According to a federal Act, passed in 1947, pharmaceutical benefits now are included in the Australian government's health and social services program. Compiling and reviewing at regular intervals a formulary defining the scope of the benefits is in the hands of a permanent committee, of seven members, including three medical practitioners and pharmacologists and pharmacists.

A prescription, in authorized form consisting of items included in the formulary, and signed by a physician, will be presentable without charge to the patient to any chemist or dispensary approved under the Act.

In reporting on this development, the Australian Information Service says, "It is hoped that the public will receive a service not only as good as present practice, but actually better, because of the elimination of drugs long superseded."

DR. PARRAN TO CHILDREN'S FUND

Thomas Parran, M.D., who retired as Surgeon General of the U. S. Public Health Service on April 6, leads a temporary mission to the Far East of the United Nations International Children's Emergency Fund. He is making a study preparatory to the extension of special forms of Children's Fund aid to mothers and children. Dr. Parran's mission is in line with the Fund's Executive Board recent directive that future allocations give special consideration to the needs of children in countries outside Europe. Five and a half million dollars has already been allocated for a child aid program in China, and a million and a half for other Far Eastern Countries.

Dr. Parran's tour of duty, which began late in April and will take about two months, will cover the Philippines, China, Hong Kong, French Indo-China, Malaya, Singapore, Indonesia, Thailand, Burma, Ceylon, India, and Pakistan.

PROFESSOR STARIN RETIRES

William A. Starin, Ph.D., Chairman of the Department of Bacteriology, Ohio State University, was honored at a dinner in Columbus on May 8. He will retire from active service at the end of the academic year, after 38 years of teaching at the university. He is known particularly for his work on filtrable viruses, pathogenic fungi, immunology, and pathogenic bacteriology. He has been a member of the American Public Health Association since 1933 and a Fellow since 1943.

The William A. Starin Lectureship has been established at the university by Professor Starin's friends and former students. Those wishing to share in this permanent tribute may send contributions to Dr. Margaret D. Heise, Department of Bacteriology, Ohio State University, Columbus, Ohio.

NEW BI-COUNTY HEALTH DEPARTMENT IN ILLINOIS

Fred O. Tonney, M.D., is the Health Officer of the recently organized joint health department of Effingham and Shelby counties in Illinois. This department was established as a result of a referendum in 1946. The combined population of the two counties in 1946 was nearly 50,000.

ARMY MEDICAL DEPARTMENT EXPANDS TRAINING PROGRAM

The United States Army Medical Department announces an expansion of its educational and training program, the primary goal of which is an unequalled high standard of medical care for the U. S. Army. Public health training is part of this program with courses in public health, sanitary engineering, hospital administration, and related fields. Medical officers who desire to be certified by American specialty boards can participate in officially recognized programs leading to examination for specialist certification, including the In-

terim Specialty Board in Preventive Medicine recently announced for the medical officers of the services.

All six Corps of the Army Medical Department—Medical, Dental, Nurse, Veterinary, Medical Service and Women's Medical Specialist Corps—and both enlisted men and women and commissioned officers, are represented in these training courses. The Army Medical Department arranges for personnel to take the courses and pays the tuition when required. Full pay and allowance is offered for the period of study at civilian and Army institutions.

PEDIATRICS, A NEW JOURNAL

In January, 1948, *Pediatrics*, the Journal of the American Academy of Pediatrics, began publication. It is "the medium of expression of the Academy to the medical profession and the public," "brings to its readers a comprehensive survey of the pediatrics field," and "publishes original articles on scientific and clinical investigations in the field of pediatrics."

Hugh McCulloch, M.D., is the Editor-in-Chief. Contributing editors are Leona Baumgartner, M.D., of New York, John P. Hubbard, M.D., Director of the Academy's study of child health services, and Dr. Felix Hurtado of Havana.

Annual subscription to this new monthly journal is \$10.00. Manuscripts, books for review, and correspondence concerning editorial matters should be sent to the Editor-in-Chief, 325 North Euclid Ave., St. Louis 8, Mo.; correspondence concerning subscriptions, advertising, and business matters to Charles C. Thomas, Publisher, 301-327 East Lawrence Ave., Springfield, Ill.

CECIL K. CALVERT, 1886-1948

On April 19, 1948, Cecil K. Calvert died at the age of 61. For forty years he served in various capacities in water purification work in Indianapolis, Ind.

In 1908, Mr. Calvert joined the staff of the Indianapolis Water Company becoming Superintendent of Purification in 1936, which position he held at the time of his death. Among his more prominent accomplishments in the field of sanitary engineering was his work with the American Water Works Association, in which he was Chairman of the Water Purification Division and of the Committee on Control of Chlorination. He joined the American Public Health Association in 1927 and became a Fellow in 1946.

LONG ISLAND COLLEGE CONCLUDES POST-GRADUATE COURSE IN INDUSTRIAL MEDICINE

The Fifth Postgraduate Course in Industrial Medicine offered by the Department of Preventive Medicine and Community Health, Long Island College of Medicine, Brooklyn, N. Y., was concluded April 16 after running for two weeks.

Thomas D. Dublin, M.D., Professor and in charge of the course reports that the total enrollment of full- and part-time students was 75, the second largest of the postgraduate courses so far offered. Thirty-one of the matriculants were physicians, 26 nurses, and 18 members of other professions. Students from Belgium, China, and Egypt were included, as were representatives of 26 different organizations in 6 different states. The lectures given for the students are expected to be published in a volume of proceedings.

KANSAS PUBLIC HEALTH ASSOCIATION MEETS

The Kansas Public Health Association held its Sixth Annual Meeting in Topeka on April 16 and 17. At the meeting a feature was a dinner honoring Charles H. Lerrigo, M.D., for forty-seven years of public health service in the state.

The officers who will serve the Kansas

society during the forthcoming year are:

President—M. Leon Bauman, M.D., Parsons

President-elect—James M. Mott, M.D., Lawrence

Secretary-Treasurer—Evelyn Ford, Topeka

The 1949 Annual Meeting of the K.P.H.A. will be held in Pittsburg April 25 to 27.

MICHIGAN PUBLIC HEALTH ASSOCIATION

At its recent annual meeting the following officers of the Michigan Public Health Association were elected:

President—Mildred Cardwell, R.N., Ingham County Health Department

President-Elect—E. Frank Meyer, D.V.M., Grand Rapids

Vice-President—Joseph G. Molner, M.D., Deputy Commissioner and Medical Director, Detroit Department of Health

Secretary-Treasurer—Marjorie Delavan, Director, Bureau of Education, State Department of Health

Representative on Governing Council, A.P.H.A.—Kenneth R. Gibson, D.D.S., Dental Director, Children's Fund of Michigan

ILLINOIS PUBLIC HEALTH ASSOCIATION ANNUAL MEETING

The Illinois Public Health Association held its 8th Annual Meeting in Chicago on April 15 and 16. The attendance was well over 500. New officers were elected as follows:

President—Maude B. Carson, R.N., Springfield

President-Elect—Baxter K. Richardson, Springfield

Secretary-Treasurer—Harold M. Cavins, Ed.D., Charleston

WHO CHARTER RATIFIED

The final meeting in Geneva of the Interim Commission of the WHO on February 7 was climaxed by an announcement that 29 United Nations, 3 more than necessary, had ratified the charter of the WHO. By April 7, 26 of the ratifications had been deposited with the United Nations, thus bringing the WHO officially into being. In addition, 8 nations not members of the

United Nations have ratified the constitution. This announcement was made by its Chairman, Dr. Andrija Stampar of Yugoslavia, who announced that the first session of the World Health Assembly will open in Geneva probably on June 24, 1948.

The United States is not among the member nations that have ratified the charter, the House Rules Committee having tabled the resolution indefinitely on March 12.

The budget of \$6,000,000 adopted by the Interim Commission provides for fellowships, teaching equipment, and medical supplies to meet post-war health problems, world-wide campaigns against malaria, tuberculosis, and venereal diseases, and a top-priority program for mother and child welfare.

LATIN AMERICAN NUTRITION CONFERENCE

In an effort to encourage all Latin American countries to provide their peoples with a healthy diet, the Food and Agriculture Organization of the United Nations will hold a regional meeting of leading nutrition workers at Montevideo, Uruguay, starting July 28. Delegates have been invited from 18 Latin American countries and from France, the Netherlands, the United Kingdom, and the United States. The Argentine Republic, which is not a member of FAO, and interested international organizations have been asked to send observers.

The delegates will determine the gaps in existing knowledge about dietary habits, the state of nutrition, and the prevalence of deficiency diseases. They will plan measures to fill these gaps and attempt to develop and dovetail their national plans into a concerted attack to improve the nutrition of the people.

Serious malnutrition due to deficiency of protein, certain minerals, and vitamins, exists in many Latin American countries. Despite the fact that total

food production has increased in parts of Latin America, a large proportion of the population still exists on inferior and ill-balanced diets.

Recommended by the FAO Geneva Conference last summer, the 10 day meeting is the second of a world series planned by FAO on nutritional problems. The first, held in the Philippines in February, 1948, was concerned mainly with ways and means of improving rice diets in South East Asia.

PROGRESS IN STREAM POLLUTION CONTROL

About the time you read this paragraph, the Ohio River Valley Water Sanitation Compact will become effective. This Compact commits 8 states, comprising the Ohio River system, to a program of stream pollution abatement. To aid in carrying out the Compact a "Symposium on Water and Waste Treatment" will be held on October 16, 1948, in the Engineering Society Headquarters Building, Cincinnati, Ohio, for the purpose of providing a medium for disseminating the technical information essential to the solution of stream sanitation problems. For further information, write to Robert C. Head, Publicity Representative, American Institute of Chemical Engineers, 795 Greenville Avenue, Glendale, Ohio.

CANADA'S PUBLIC HEALTH FILM SURVEY

Supplement 3 of the *Medical and Biological Films Catalogue*, of the National Film Board of Canada, brings up to date the master list published in March, 1945, and two subsequent supplements published in July, 1946, and March, 1947. As with the previous lists, the films are classified according to the public health specialty such as industrial health and safety, cancer, personal hygiene, with the names and brief descriptions of specific films under each heading, also a comment of the suitability of each film for certain purposes. Ad-

ditional information may be obtained from the Distribution Officer, Health and Medical Films, National Film Board, Ottawa.

NEW ANTIBIOTICS DIRECTORY

Second edition of *Antibiotic Substances, Their Biological and Chemical Properties*, has recently been published by the antibiotic section in the Division of Research Grants and Fellowships, National Institute of Health. It contains current material on source, biological activity, unit, potency, and miscellaneous properties of more than 150 antibiotic substances ranging alphabetically from actidione to viridan. The compilation includes a number of unnamed factors, as well as named chemotherapeutic agents from non-microbial forms (quercetin, tomatin, etc.). First edition of the guide was published early in 1947.

NEGRO HEALTH AND MEDICAL CARE

In January the Health and Medical Care Collection of Meharry College was a year old. By way of celebrating its first birthday it published an annotated list of books, periodicals, pamphlets, leaflets, and articles relating specifically to the health of the Negro. With the coöperation of state health departments, national organizations, and individuals the Collection now numbers nearly 500 items.

Thomas A. LaSaine, M.D., the director, renews his invitation to share with this Collection available material concerning the health of the Negro. The address is Health and Medical Care Collection, Meharry Medical College, Nashville 8, Tenn.

DR. NORTON SUCCEEDS DR. REYNOLDS AS NORTH CAROLINA STATE HEALTH OFFICER

The retirement of Carl V. Reynolds, M.D., Secretary and State Health Officer of North Carolina, Raleigh, as of July 1, 1948, has been announced. Dr.

Reynolds will move to California and live in Altadena.

John W. R. Norton, M.D., M.P.H., of Chattanooga, Tenn., has been appointed to succeed Dr. Reynolds. Dr. Norton is a native of North Carolina, born in 1898, a graduate in medicine of Vanderbilt University in 1928, and with a Master's degree in Public Health from the Harvard School of Public Health in 1936. Dr. Norton served four years as Health Officer of the City of Rocky Mount, N. C., and served for several years with the North Carolina State Board of Health in the Divisions of County Health Work and Preventive Medicine. Dr. Norton served in the Army Medical Corps during World War II, since which time he has been Chief Health Officer of the Health and Safety Department, Tennessee Valley Authority, Chattanooga, Tenn.

DEATH OF DR. RUPERT BLUE

Rupert Blue, M.D., Ex-Surgeon General of the U. S. Public Health Service, died on April 12 in Charleston, S. C., at the age of 80. Dr. Blue retired in 1932 after 39 years in the Service, 12 of them as Surgeon General by appointment of President Taft in 1912 and reappointment by President Wilson in 1916.

Dr. Blue was noted for his bubonic plague campaigns in San Francisco in the early 1900's. He conducted extensive rat extermination drives there. During the first World War he was adviser on sanitation for military establishments in the United States. In 1923 he was American delegate to the Opium Conference of the League of Nations.

Dr. Blue became a member of the American Public Health Association in 1912 and a charter Fellow in 1922.

VIRGINIA'S MODEL ALCOHOLIC CARE BILL

The Virginia Legislature, one of the few that meet in the even numbered

years, has enacted a bill that sets up a Bureau of Alcohol Studies and Rehabilitation in the State Department of Health. Including an appropriation of \$200,000 for the biennium, the new law places the initial responsibility for the study and treatment of alcoholics upon medical schools and hospitals.

The first of several state research centers will be located at the Medical College of Virginia in Richmond where patients will receive both hospital and clinic care.

In reporting the Virginia law, Joseph Hirsh, Acting Director of The Research Council on Problems of Alcohol, said it would "undoubtedly serve as a model for the rest of the country." He pointed out that none of the other seven states that have already established medical programs for the care of alcoholics provides such an integrated program as that of Virginia.

EDUCATIONAL OPPORTUNITIES IN INDUSTRIAL HYGIENE

Industrial Hygiene Newsletter for April, 1948 (Vol. 8, No. 4), has a list of schools that give complete courses in industrial hygiene. Classified into the 9 U. S. Public Health Districts and into courses for physicians and dentists, nurses, engineers, and chemists, this list gives the name and address of the school and a short description of the courses, the time required to complete them, and degrees offered.

The Industrial Hygiene Division of the U. S. Public Health Service, which publishes this monthly *Newsletter*, carefully warns that the list is not a complete one. It is recommended to readers, however, as the most complete such listing that has come to hand.

PUBLIC HEALTH SECTION OF EXCERPTA MEDICA

Excerpta Medica, the project for abstracting the world's medical literature was mentioned in the August, 1947,

vacated by Dr. Scheele. Dr. Heller's position in the Division of Venereal Diseases will be assumed by Dr. Theodore J. Bauer who is at present on duty with the Chicago Board of Health as municipal venereal disease control officer.

INSTITUTE IN PUBLIC HEALTH ADMINISTRATION

The University College of Northwestern University, in coöperation with the U. S. Public Health Service, has announced a two week Institute in administration for principal administrative officers of state and local health departments. The Institute, July 12-23, will concern itself with administrative problems, and its registration is limited to 40 persons who must be health officials with managerial responsibilities.

The Institute was planned at an earlier regional conference of state and local health officers to meet gaps in the health officer's knowledge of such items as press and public relations, personnel administration, budget presentation, etc. Registration fee for the Institute is \$100, of which \$10.00 must accompany registration request. Provision will be made for room and meals in Abbott Hall of the university at \$60 per person for the period. Application should be made before June 21 to the University College, Northwestern University, 710 Lake Shore Drive, Chicago 11, Ill.

"THE AMERICAN ENGINEER" UNDER NEW MANAGEMENT

The National Society of Professional Engineers announces the appointment of Franklin F. Page as Editor of the *American Engineer*, the monthly publication of that Society. Prior to joining the staff of the NSPE, Mr. Page had had considerable experience in newspaper work and has been editor of *Constructor and Engineer*, a publication serving the northwestern part of the United States.

PERSONALS

Central States

RICHARD F. BOYD, M.D., M.P.H.,* who has served for some years as Chief of the Division of Local Health Administration, Illinois State Department of Health, Springfield, Ill., has resigned, effective May 17, to accept a position of Medical Officer, Welfare and Retirement Fund, United Mine Workers of America with offices at 900-15th Street, N.W., Washington 5, D. C. In this capacity Dr. Boyd will be associated with R. R. SAYERS, M.D., who is Chairman of the Medical Advisory Board, and who is responsible for developing plans for the medical care and hospitalization of approximately 400,000 bituminous coal miners in 26 states.

DORIS G. CHANDLER, M.P.H.,† has been appointed Director of Health Education of the National Society for the Prevention of Blindness, New York, N. Y. For the last few years she has been Executive Secretary of the Metropolitan Health Council of Dayton and Montgomery Counties, Ohio.

CHARLES T. DOLEZAL, M.D.,† has been appointed Assistant Director and Secretary of the Council on Professional Practice of the American Hospital Association, Chicago, Ill., to succeed HUGO V. HULLERMAN, M.D.,* resigned. Dr. Dolezal was formerly Superintendent of City Hospital of Cleveland, Ohio.

WINSTON H. TUCKER, M.D.,* Commissioner of Health of Evanston, Ill., represented the A.P.H.A. at a meeting on April 5 and 6 on a Subcommittee of the American Medical Association Council on National Emergency Medical Service, for the purpose of planning for the most effective use of the overall medical resources of the nation in case of another national emergency. HAROLD S. DIEHL, M.D.,* Dean of the University of

Minnesota School of Medicine, Minneapolis, is Chairman of the Committee.

JOSEPH R. WAGNER, widely known in the fields of biochemistry and nutrition, has joined the staff of the Quartermaster Food and Container Institute for the Armed Forces, Chicago, Ill., as Chief of the Fruit and Vegetables Branch, Food Development Division. He was formerly head of the Nutritional Research Section in the General Laboratory of Libby, McNeill & Libby, Blue Island, Ill.

E. EUGENE WEHR, M.D., is now Assistant Health Commissioner in the Cincinnati, Ohio, Department of Health. WATSON DERSHAM† recently took up his duties as Health Educator of the Department.

WALDO W. WILMORE† has been appointed Associate Executive Secretary of the Kansas Tuberculosis and Health Association, Topeka. He was formerly Personnel Officer under FLOYD C. BEELMAN, M.D.,* Kansas State Board of Health.

E. V. THIEHOFF, M.D.,* has been appointed Professor and Head of the Department of Public Health and Preventive Medicine of the University of Kansas, Lawrence. He resigns as Commissioner of the Peoria City, Ill., Health Department on April 1.

Eastern States

STANHOPE BAYNE-JONES, M.D.,* who is President of the Joint Administrative Board, New York Hospital-Cornell Medical Center, New York City, has been awarded the insignia of Honorary Commander of the Military Division of the Most Excellent Order of the British Empire. The presentation was recently made in Washington by Lord Inverchapel, Britain's Ambassador.

CONRAD BERENS, M.D., of New York City was elected President of the Pan

American Association of Ophthalmology at the Third Pan American Congress of Ophthalmology held in Havana, Cuba, January 4-10.

ELSIE M. BOND has retired as Assistant Secretary of the State Charities Aid Association, New York, N. Y., after 25 years of service with the Association. Miss Bond served as the legislative representative of the S.C.A.A. in Albany during the administrations of Governors Alfred E. Smith, 1923-1929; Franklin D. Roosevelt, 1929-1932; Herbert H. Lehman, 1933-1942; and Thomas E. Dewey, 1943-1948.

THOMAS E. CONNOLLY was recently appointed Executive Secretary of the Onondaga Health Association, Syracuse, N. Y., to succeed ARTHUR W. TOWNE, retired recently as Executive Secretary of the Association after 24 years of notable service.

VLADO A. GETTING, M.D.,* was reappointed April 7 as Commissioner of Public Health of Massachusetts by GOVERNOR ROBERT F. BRADFORD. Dr. Getting, who is also President of the State and Territorial Health Officers Association, was first appointed to his present post in 1943 after having served as Worcester City Health Officer.

CUSHMAN D. HAAGENSEN, M.D., Associate Professor of Surgery at Columbia University's College of Physicians and Surgeons, New York, N. Y., has been named Coördinator of Cancer Teaching for the college's cancer research program. He is developing a project on cancer research designed to obtain close coöperation among major divisions of the university's medical sciences and clinical departments.

JOSEPH HIRSH,* who has been on leave of absence to WHO, has returned to the Research Council on Problems of Alcohol, New York, N. Y., and is now its Acting Director, following the

resignation of LYMAN C. DURYEA, M.D.,* to return to active service with the U. S. Army Medical Corps. Mr. Hirsh also serves as consultant to WHO.

THEODORE G. KLUMPP, M.D., President of Winthrop-Stearns, Inc., New York, N. Y., was elected President of the American Pharmaceutical Manufacturers Association at its recent annual convention in Havana, Cuba.

ESMOND R. LONG, M.D.,* Director of Medical Research and Therapy, National Tuberculosis Association, and Director of the Henry Phipps Institute, Philadelphia, Pa., has been named Editor-in-chief of the *American Review of Tuberculosis*, official journal of the National Tuberculosis Association's Medical Section, The American Trudeau Society, to succeed the late MAX PINNER, M.D.

WALSH McDERMOTT, M.D., Associate Professor of Medicine, Cornell University Medical School, New York, N. Y., has been appointed to the newly created post of Managing Editor of the *American Review of Tuberculosis*, New York City.

GORDON W. MOLYNEUX,* formerly Supervising Milk Inspector for the Westchester County, New York, Department of Health has resigned from the county service to manage the Rock Gate Dairy Farm, Bedford Hills, N. Y.

HOWARD A. RUSK, M.D.,† New York, N. Y., received the first annual Survey Award for "an imaginative and constructive contribution to social work" on April 22, for his outstanding work in translating into civilian life what was learned about rehabilitation in the armed forces. The award was presented by EDUARD C. LINDEMAN, M.D., for *The Survey* Midmonthly during the 75th Anniversary Meeting of the National Conference of Social Work held in Atlantic City, N. J.

AUSTIN SMITH, M.D.,* Secretary of the Council on Pharmacy and Chemistry of the American Medical Association, Chicago, Ill., has been appointed Science Editor of *American Druggist Magazine*, New York, N. Y. Dr. Smith will continue his work with the A.M.A., and will maintain his office at the A.M.A.'s headquarters in Chicago.

Southern States

DANIEL BLAIN, M.D., formerly Chief of Neuropsychiatric Service for the Veterans Administration, Washington, D. C., has accepted the newly established position of Medical Director of the American Psychiatric Association.

FRANCIS G. BLAKE, M.D., Sterling Professor of Medicine at Yale University, New Haven, Conn., has been appointed to head the Medical Science Committee of the Federal Research and Development Board, Washington, D. C. Dr. Blake is a member of the Lasker Awards Committee, A.P.H.A.

JOHN M. DAVID† has accepted a position with the Layne-Atlantic Well Company, Albany, Ga. He was formerly Regional Engineer with the Georgia State Department of Public Health in the Southwest Region of Georgia.

LAWRENCE MACHEMER FISHER,* Sanitary Engineer Director of the Public Health Service, was recently appointed by PRESIDENT TRUMAN to the Interstate Commission on the Potomac River Basin. Other commission members serving by presidential appointment are C. C. BURGER, Department of the Army, and ABEL WOLMAN,* Johns Hopkins University.

ROBERT A. HINGSON, M.D., has been

* Fellow A.P.H.A.

† Member A.P.H.A.

American Journal of Public Health and THE NATION'S HEALTH

Volume 38

July, 1948

Number 7

Some Concrete Problems of Health Administration*

A GROUP of outstanding health administrators (on state, city and county levels) were asked to prepare for

* Special Review article prepared at the request of the Editorial Board.

the JOURNAL brief statements with regard to specific problems of administration which they had faced during the past year. The general significance of these contributions is discussed editorially on page 1008 of this issue.

Staff Education in Chicago

HERMAN N. BUNDESEN

During the depression years, the food inspection section of the Chicago Health Department had been operating with a totally inadequate force, due to insufficient appropriations.

Previous to the passage of the appropriation bill for the year 1947, it was the practice of the Board of Health, in submitting budget estimates for each year, to ask for additional personnel for the food inspection section in order to maintain a reasonable inspection standard. However, these requests for funds to employ additional personnel went unheeded year after year.

During the year 1946, the U. S. Public Health Service made a survey of the activities of the Health Department of the City of Chicago, together with other official and voluntary health agencies

in the city and Cook County. Among the recommendations made in the report of that survey was that the food inspection section be provided with added personnel, and that a revision of the food control ordinance, based on the requirements of the U. S. Public Health Service recommended code, be adopted by the City Council. As a result of this report, twenty-five additional food inspectors and three additional supervisors were provided, and the revision of the *Municipal Code* was made.

The coming of new inspectors upon the staff necessitated a change in the existing in-service training program for the purpose of teaching these new men the fundamentals of sanitation and inspection technique.

At about the time these men were first

employed, a program of food handler education was being carried on in co-operation with the Chicago Restaurant Association. Newly appointed food inspectors were first required to attend these food handler courses, in order that they might acquaint themselves with what was necessary from the food handler's standpoint. Following this, an intensive course in ordinance requirements and recognition of satisfactory compliance was carried on. Instructions were given especially as to the public health reasons for ordinance requirements. Inspectors were required to spend some time in the laboratory to observe the method of making plate swab counts and to learn the technique of making swab tests.

Newly appointed inspectors were sent out in groups of three with a supervisor accompanying each group, in order to observe the supervisor's method of making food inspections; then, after a week, the new men made the inspections themselves under the personal observation of the supervisor. Following this part of their training, they were required to spend at least 2 weeks in the field with qualified inspectors, and in some cases more time, until they were able to make a satisfactory inspection and report. The In-Service Training School has continued to operate after the new inspectors completed this training and were out working on their own responsibility. Weekly sessions of the school were held to give them specialized training on such subjects as milk inspection, meat inspection, poultry inspection, refrigera-

tion of foods, food poisoning, disinfection of utensils, plumbing and back siphonage, particularly as applied to restaurants and hotels, construction of dishwashing machines, courtesy and tact in dealing with the public, fumigation of foods for destruction of vermin infesting the foods, procedures in license approval, preparation of drastic measures where warranted, and other subjects with which the food inspector should be familiar.

It is the opinion of the Chicago Health Department that food inspectors do not become efficient merely by grace of an appointment. In addition to such knowledge and experience as a man may have when he receives an appointment, he must also have a will to learn and the capacity to absorb and use the knowledge that is given to him in the In-Service Training School and by supervisors in the field.

The food inspector, on entering a food establishment, is the representative of the Board of Health. As such, he should be able to conduct inspections in such a way as to render to the citizens of his community all the service which the city ordinance requires the head of the Health Department to render in food establishments and to reflect credit upon the department which he represents.

There is no set formula by which one can convert a new inspector from raw, untrained material to the ideal which is needed. It is only by constant education within our own service that this goal can be reached.

Housing the Health Department in Detroit

BRUCE H. DOUGLAS

Local conditions will have much to do with the housing of the health department. Much will depend too on whether

it is a small or a large health unit, a state health department, a county unit in a rural area, or a municipal depart-

ment serving a populous urban community. It would seem, however, that there are certain principles that should prevail in providing housing for a health department in order to contribute good public health administration in the best interest of the people.

Too often the space provided for a health department is some inaccessible, reconverted building or basement location which is assigned because of limited budget or lack of vision by public officials. Frequently there is little appreciation of the needs of the health department or of the place it should occupy in the area to be served.

Of course it is to be conceded that the housing of a health department is not as important as the matter of having well qualified personnel, but nevertheless, appropriate housing will make for better service and greater appreciation by all concerned, including the public, as to the importance of the role the health department plays in the community.

With new public building programs under way or projected, it is timely to give consideration to this matter. Several large cities are planning new provisions varying from a separate building for public health administration to combination with one or more other governmental departments or, finally, inclusion in a large municipal building where all administrative offices of the city or the city-county government will be housed.

There are points in favor of each of these arrangements as well as points against them. It is also true that variations in the functions performed by different health departments may affect

the arrangements for housing. For instance, when the health department is responsible for the operation of a hospital or hospitals, it may be desirable to have the administrative offices of the health department located in or near the hospital plant.

The principal point in favor of a municipal health department being housed with other city administrative offices is the convenience afforded those who must secure certain permits, license approvals, and similar records or information, often related to other public departments, so that if housed together, the individual visitor can transact all his business within one building.

Much of the work of a health department, however, is not related directly to other departments of government. For example, services to physicians, provision for clinics, and issuance of vital records make it highly desirable to have these activities housed within easy access for those coming to the health department for such services. In addition, the ease with which field staff may come and go in carrying out their duties must be given consideration. Of course, in a large city some services can and should be decentralized by providing health centers for certain functions in locations where they are near the people needing the services and out of which the field staff may more readily work. These may profitably be located in or near hospitals or medical centers.

There is therefore good justification for the health department having its own building properly located, thereby emphasizing the importance of its services as well as making possible greater accessibility for those it serves.

Coöperation with Voluntary Organizations in Montgomery County, Maryland

V. L. ELLICOTT

The year 1947 has shown no decrease in voluntary organizations. Each one still remains a pressure group for a special interest. The health officer's attitude is usually one of caution so as to keep these people from getting out of hand. My suggestion is to take the risk of encouraging them and working with them in order to get the advantage of their public support.

The progressive health officer does not want a static health program but one geared for growth, the growth being directed toward unmet health needs. So few health departments approach adequacy at present that provision for growth should be a basic principle of organization. This means successive increases in personnel and budgets. The simplest way to obtain them is by direct request of the health officer to the county commissioners or other appropriating body, the appeal being based on a clear, logical statement of needs. This appeal often fails, however, because the county commissioners expect new proposals to be supported by public interest as well as logic. Can the health officer utilize voluntary organizations to gain this support?

Since voluntary organizations may be pulling in different directions, the health officer's problem is to get them to pull together and pull with him. In Montgomery County we believe we have found an effective way of doing this. Each organization is encouraged to take

an interest in the general county-wide program in addition to its special interest. Each of our eleven local public health lay committees, for example, does this by recognizing the dependence of the local public health nurse on the county nursing group. As a result, local committees vigorously supported the 1947 successful drive for more adequate nursing salaries. The Tuberculosis Association and many other similar groups are joining in a concerted effort to secure a new county health center in Rockville. The most important part of this county-wide interest, however, is the agreement among the organizations and the Health Department as to what the principal health needs are and what is the order of their importance. We depend largely upon the American Public Health Association's *Evaluation Schedule* for this important step. The *Schedule*, we point out, represents the opinions of leading nation-wide health authorities. It therefore has a common appeal to all intelligent public spirited citizens, the same appeal as the recommendations of an important survey. It also proves that the current proposals for meeting the needs are something more than the special interests of the health officer. This approach—agreement between voluntary agencies, other citizen groups, and the health officer—has one other advantage—it works better with each year of usage.

Procurement of Personnel in Massachusetts

V. A. GETTING

Today health agencies are faced with a critical shortage of professional and technical personnel. An analysis of the factors for this ever increasing shortage reveals some of the major difficulties which make positions in public health unattractive to candidates seeking fields for professional training. This is true in spite of the fact that the words "public health" are more in the mouths of the everyday citizen, and the importance of health is better recognized than at any time previous. The obstacles in procurement of personnel must be overcome in order to procure staffs of adequately trained and experienced workers. Some of these difficulties may be summarized as follows:

1. Inadequate compensation — Although many health agencies have increased their salaries, the new salary schedules are still far below those which exist in the federal government agencies, in private practice, and in industry. Further substantial increases are indicated to overcome this obvious shortage.

2. Procurement policies—Merit systems and civil service procurement facilities cannot be relied upon exclusively. Health agencies, particularly state health departments and large voluntary agencies, must carry on detailed procurement programs from the secondary schools, professional and technical schools, to the public as well. Special personnel may be assigned to such programs.

3. Political interference—Freedom of exercise of the responsibilities of the health department is an absolute necessity. This must be unhampered by political interference if these positions in public agencies are to attract capable administrators. Too often administra-

tors drift from public to voluntary agencies because they are unable to discharge their duties without regard for political policies.

4. Dramatizing the job—General information which is both current and interestingly presented must be supplied to the public and the professions in order to make the positions and the work of health departments known. Today, as a matter of fact, only a relatively small number of physicians realize what health departments are doing. The significance of the work and accomplishments of health departments must be so dramatized and pictorialized that high school and college students will become enthusiastic about seeking positions in this field.

5. Security of tenure—With forty state health officers being replaced within a period of 5 years, it becomes apparent that the top administrative positions in public agencies are insecure. Because of this insecurity, positions of staff members become less desirable. With every replacement of a state health officer, policies are revised and responsibilities shifted, and there result obvious limitations in promotions and lack of continuity in the content of programs. Thus, measures must be taken to insure security of tenure at all administrative levels.

6. Merit system limitations — Although the primary purpose of merit and civil service systems is the procurement of qualified personnel, too often such systems, especially those established many years ago, offer serious limitations in the procurement of personnel. The merit system has too often become a method for protecting the employee rather than the service. Thus, veterans'

preference, residential requirements, and lack of educational qualifications may actually be deterrents to the procurement of adequately trained and experienced personnel. Some method must be found whereby the procurement work of merit systems is improved, so that promotional advancements may be offered to employees, and the limitations of lack of educational requirements, total veterans' preference and residential requirements may be limited, modified, or, if necessary, removed.

7. Retirement, vacation and sickness benefits—As human beings, employees have certain rights which must be respected and certain privileges which must be offered in order to attract them to positions in public service. The provision of adequate retirement systems, vacation allowances, and sick leave are

necessary, especially in today's shortage of personnel. A specialty board for physicians in public health may be an added inducement in the procurement of adequate personnel.

8. Physical facilities—Cheerful, well furnished, well lighted and ventilated offices are a necessity to any department. Too often a health department is located either in a basement or on a top floor of a public building, in the least desirable quarters available.

9. Recognition of services—Professional and technical workers require recognition in the form of credit and praise both in professional and public circles. Ample opportunities should be provided to reward faithful and hard working health department employees in recognition of their work and accomplishments.

Financing Local Health Departments in Florida

F. M. HALL

In 1911, Dr. Hermann M. Biggs,¹ then Commissioner of Health of the City of New York, said, "Public health is purchasable. . . ." He might have added, "but not at bargain-basement prices."

Too frequently state health departments, in their overzealous ambition to see local health service established in all areas of their jurisdiction, have sold the services at bargain-basement prices to the local appropriating bodies, assuming that, once the local unit was established, it would sell itself to the community. However, if a health department is to render in the community the worth while services expected, from the beginning, the financial support must be adequate. If this adequate financial support is not available, the local health department must depend upon poorly

trained individuals to render public health services to the community. This procedure results in poor services to the people and an undesirable impression given to the local governing body as to quantity and quality of work. Thus, a health department that is inadequately financed from the beginning is unable to render the services expected, and the local governing body and the community are unfavorably impressed by such services. So, when additional funds are sought, the appropriating bodies are not interested in increasing the appropriations.

The local governing body must be given, and must assume, full responsibility for its health department, both financially and for the services to be rendered, with a minimum of supervisory or advisory control from the state and

federal levels. To secure adequately financed health services in a community there must be local autonomy, but it should be impressed upon the local officials of the community that with local autonomy goes a local responsibility—a responsibility to finance its health services adequately; and a responsibility, after such financing, that services be rendered to the community in a manner that is in accord with good public health practices.

A goodly number of local health officers today find themselves in a situation that is rather difficult to meet. The individuals responsible for the establishment of the initial budget for the area based their estimates upon a monetary situation that is entirely different from the present-day inflationary period. Emerson² and his Committee on Administrative Practices used as a guide an overall cost of \$1.00 per capita for complete coverage of six minimum full-time services.

With our ever-broadening concepts of public health, one would readily come to the conclusion, even in a non-inflationary period, that \$1.00 per capita would be inadequate in financing a program based on these six phases.

Even to carry a program embracing the basic requirements, plus a few additional programs that are needed in any area, if we consider the inflation of the day, the minimum total per capita should be at least \$2.50, with \$1.00 as local contribution. Since the services of a health department are available to the entire health jurisdiction which it serves, the local support for such a health department should come from the governing body that directs the entire health jurisdiction unless special services are requested by a municipality that is within the area. Then, of course, those special services should be financed by the municipality concerned.

When the Alachua County Health De-

partment was established in 1944, an agreement was made by the Director of Local Health Service and a local committee spearheading the formation of this health department that 53 cents per capita locally would be adequate. The area would have, after state and federal contributions, \$1.11 per capita for public health services. As inflation has progressed over the years, the governing body has always reminded the committee and the Director of Local Health Service, of their original commitments. It is felt that many health officers find themselves, through no fault of their own, bound by such commitments. Even the governing bodies themselves have been caught short by the ever-increasing cost of government.

The health officer has open to him two courses:

1. Reduce staff with a resultant curtailment of program in order that salary increases may be met.
2. Secure additional funds to maintain an adequate public health program.

The latter method is preferred. The services rendered must be maintained at the present levels because the general public, having once become accustomed to an efficient public health program, would not understand why these services were curtailed.

The method of securing additional appropriations to augment the local budget must be determined by the health officer in his own respective area. He should be, and is, better informed of the local conditions than any other individual. If the health department has rendered a service that has been adequate and efficient, the difficulties in breaking down the barrier that was once built is much easier than if, from the beginning, the services of the organization have been considered inadequate.

It is well before an attempt is made to increase the appropriations, to evaluate your own health program both as to services rendered and allocation of

time to each service. This evaluation should include the accomplishments of the department. If it can be shown from such an evaluation that progress has been made, then the health officer has in his possession one of the strongest arguments that can be presented, a

local governing body in a justification of his request for additional funds.

REFERENCES

1. Biggs, Hermann M. *Monthly Bulletin*, Department of Health, City of New York (cover), Oct., 1911.
2. Emerson, Haven. *Local Health Units for the Nation*. New York: The Commonwealth Fund, 1945, p. 2.

Fiscal Relationships Between the State and Local Health Departments in California

W. L. HALVERSON

The question of the fiscal relationship between the state and local health departments is squarely before us in California. This is occasioned by the passage of the Public Health Assistance law providing \$3,000,000 for local health services, which became effective September 19, 1947. This appropriation is in addition to approximately \$1,000,000 of federal funds available for local health services.

Federal funds have been allocated largely on the basis of the extent of the problem in the various areas rather than on a formula basis. Density of population, percentage increase in population, morbidity and death rates for specific diseases such as venereal disease and tuberculosis, infant and maternal mortality rates, have all been factors in the decision as to the allocation of the various federal funds available. However, these factors have not been crystallized into a definite formula. Local health departments organized during the war period were allotted relatively large amounts per capita. In a survey of the situation, allocations to local health departments were found to vary from nothing to approximately 50 cents per capita. This can be defended during periods of stress such as the recent world war, but not on a continuing basis.

The formula for the allocation of the \$3,000,000 state fund for local health services is written into the law. Each county receives a basic allotment of \$16,000 or 60 cents per capita, whichever is less. The remainder, after subtraction of $7\frac{1}{2}$ per cent of the total for administrative and consultative services and training, is allocated to health departments meeting standards on a straight per capita basis.

In effect, counties with a population of 26,000 or less, and meeting minimum standards, receive approximately 82 cents per capita regardless of whether they operate individually or as a part of multi-county health units. Larger health jurisdictions receive a gradually decreasing per capita allotment, so that the metropolitan areas receive between 22 cents and 23 cents.

With this fairly liberal allocation of state funds, especially to the smaller health jurisdictions, we ask ourselves the question, "Should not a large proportion of the federal funds available for local health services also be allocated on a formula basis?" This administrative question has not been answered.

Our Public Health Assistance Act officially sets up a California Conference of Local Health Officers. This Con-

ference has at present four standing committees:

1. Administrative Practice
2. Fiscal Affairs
3. Personnel
4. Records and Reports

By law, the Conference must approve standards for local health service before establishment by the State Department of Public Health. We now propose that this Conference shall actively participate in the development of policy regarding the allocation of the federal funds. To this end, the Committees on Administrative Practice and Fiscal Affairs have developed proposals, with the assistance of the Divisions of Adminis-

tration and Local Health Service of the State Department of Public Health. These proposals were submitted to a meeting of the Conference, in February.

This department subscribes to and promotes the concept that local health departments should have a high degree of local autonomy. In order to accomplish this, it is essential that local health officers actively participate in the planning and execution of the total statewide public health program. It is anticipated that the present California law will go far in facilitating close working relationship between the state and local health departments, and will preserve the basic concept of local control.

Program Plans for Public Health Action in New York State

HERMAN E. HILLEBOE

One of the most important administrative problems of an official public health agency is the creation of orderly and well defined procedures and plans for public health action. Such a master working plan should have sufficient flexibility to permit such changes as circumstances and new knowledge require, but still present a uniformity of principle to which all public health workers can unanimously subscribe.

During the past year, the administrative staff of the New York State Department of Health has been engaged in an intensive review and evaluation of every program carried on by the department. The knowledge, experience, and thinking of the men engaged in and responsible for rendering health service to the public were presented in frequent conferences. Eventually, through change and interchange, through criticism and attack, through accumulation of data in all fields, specific public health program plans have been developed.

It should be recalled that a general health program in a nation, state, or local community is no better than the quality of the special programs which compose it. The emphasis on each disease should be determined by the seriousness of that disease in the particular area involved, making each special attack on a disease strong, effective, and well financed in relation to the problem. This is the surest way of building a general health program that will meet the needs of all the people and that will be accepted by them and permanently supported.

Before any disease which affects the general public can be controlled or eliminated, it is essential that professional public health personnel attack the problem under three main headings:

- A. The need for the program
- B. Objectives to be achieved
- C. Functions and techniques to be used to gain the objectives

When these three categories are ade-

quately considered, it is interesting to observe that public health program planners arrive at a remarkable uniformity of procedure and policy. The conventional approaches to public health administration and action; such as, control of communicable diseases, maternal and child health, vital statistics, nursing service, health education, and environmental sanitation, undergo a functional regrouping so as to permit an enlarged scope of program and the application of multiple techniques that will bring improved health services to the people.

To reach our important goals, particularly in providing health services in local communities, an official public health program should have three specific objectives:

1. Prevention and control of mass diseases
2. The collection and analysis of vital records
3. The maintenance and improvement of a healthy environment

Such specific objectives postulate certain well defined activities and functions and the application of definite techniques. These techniques can be described briefly as follows:

1. Study the extent of the public health problem. This includes the making of a complete survey of a community either by state or local personnel or by both. It will be necessary to review this evaluation at regular intervals, possibly as frequently as every year.
2. Recruit, train, and use competent personnel. Plans for improvement of local health services can be carried out only if adequate numbers of well qualified physicians, nurses, sanitary engineers, sanitarians, dentists, physiotherapists, health educators, medical-social workers, nutritionists, and others are available for employment. With the present-day shortage of personnel this requires that health departments obtain recruits who are untrained and give them the necessary academic or field training and experience to perform the duties of the several positions. Such training should not cease with employment but provision should be made for continuous-on-the-job training to keep the employees informed of newer methods and techniques, as well as to qualify them for more responsible positions.

3. Provide adequate modern quarters and the necessary equipment and tools of the profession.

4. Demonstrate the newest methods and consult with all participating groups. Frequently, local appropriating authorities "must be shown." Demonstrations can be given through loan of state personnel and equipment. Unofficial agencies may participate in financing a program on a demonstration basis. Frequently, the "know how" in public health is essential in the starting of a new program and those with previous experience may be loaned to assist the local community in the inauguration of a new activity.

5. Provide financial assistance. The benefits of public health activities are not on the individual community basis, and provision must be made for the equitable distribution of the cost of public health work.

6. Do basic and applied research. The inception of new progress requires a trial and error period. This might best be confined to one or a few areas, and, when techniques and procedures are developed, these can be given to other communities with reasonable assumption that there will be considerable saving in time, effort, and money.

7. Coöperate with other agencies, both public and private. Health, both from the individual and community standpoints, results from the coöperative efforts of many official and unofficial agencies.

8. Develop and carry on extensive health education activities.

9. Obtain laws and prepare regulations that will permit the establishment and increase the effectiveness of local health services.

10. Analyze and evaluate public health programs to determine their effectiveness, achievements, and the attitude of the people toward them. This analysis should preferably be done annually. Frequently, it is advisable to have such analysis and evaluation performed by someone outside of the department concerned. For instance, the analysis and evaluation of a county health department might well be performed by members of the state health department. Self-analysis and evaluation is likewise important, and each administrator should make such analysis of his own activities and adjust his program accordingly.

These objectives and techniques are as applicable to public health work in Texas, California, or any other state as they are to public health in New York State.

Allocation of Funds to Local Programs

G. F. MOENCH, OAK RIDGE, TENN.

The subject, "Allocation of Funds to Local Programs," is assumed to apply to the adequate financing and support for the extension of local health units for the nation.

It is also assumed that patterns, methods, and formulae are available. Funds are now currently available; therefore, this discussion deals with some dangers and offers suggestions for an action program relative to responsibility of the three potential sources of funds: local, state, and federal.

The financing of local health units began with an effort by the local community and has remained largely a local responsibility. In the last twenty years, certain state governments have made feeble attempts to assist local communities in the financing of local health departments. And, today, several states are doing an admirable job helping local communities.

The principle of federal assistance to states is well established. Modest sums have been provided and earmarked to deal with special health problems, such as venereal disease, tuberculosis, nutrition, and cancer control. Relatively little of this money has filtered down to the local health units development. It is high time that professionally trained people in public health unite their efforts to support a fundamentally sound plan for adequately financing local health units. Responsibility is at least half that of the local community in accordance with local financial resources, and the state and federal government must step in where the local level reaches the end of its ability to pay. Health services, both preventive and curative, cost money and are worth paying for. The need is pressing. Fast moving events of

this Atomic Age demand that we change the tempo of our thinking and movements.

There are three sources of danger, or factors to consider, in efforts to allocate funds and support to local health units: (1) Professional conventions and conferences have admirably discussed organization problems, including finance. For five years, these meetings have closed with no definite action. (2) Public health-trained people are conditioned to the belief that the growth and development of a local health unit is a long, slow process. In the light of present-day needs and knowledge, this dull, inert, negative, defeatist, smugly complacent attitude is a serious threat to the security of our nation. (3) The increased responsibility for new programs, the constant insecurity, the frustrating effect of heavy case loads on limited staff, leaves little time for constructive planning and adequate financing on a long-range basis. If we are to convince the consumer public that health services are valuable to the community, local health workers must believe wholeheartedly in health service goals and show by administrative action that public health cannot be compromised, neglected, shortchanged, or curtailed.

Several specific suggestions for overcoming some of our difficulties in allocating support of local health service units are offered for consideration.

First, public health workers must maintain within themselves the firm conviction that the principles of the entire program are essential, sound, and worth upholding against all odds. Ask the questions, "Do we really believe in the concepts of health practice that we are trying to instill in the consumer public?"

If so, are we functioning or working half as well as we know how? If not, what can we do ourselves to fit ourselves better to the job at hand?"

The second suggestion is the need for professional health administrators' association on a state-wide basis.

The third suggestion is coöperation with other professional and lay leadership by the organization of local health committees or councils. Many suggestions and patterns for this type of local health council are available from such organizations as the National Health Council, the American Medical Association, the National Congress of Parents and Teachers, as well as educational organizations.

The fourth essential is closer coöperation with voluntary and lay organizations as a means of interpreting financial needs and obtaining legislative support for the extension of local health units. Nearly every organization in the country has a health committee, a health interest, or a health program, and it is a responsibility of the local health unit to know just how the program can be integrated with that of the local health department to prevent an overlapping of services and wasting of resources.

The fifth specific suggestion is awareness of pending legislation, studying it as to objectives and source of introduction and support, following through with action to back it if favorable to community health services, and fighting it just as hard if it appears to be a threat to the health and welfare of the local community.

A most significant piece of federal legislation, which has a direct bearing on providing financial assistance from the

federal government to state health departments for support and extension of local health units for the nation, has been introduced into our Congress this year. This is the first time in history that federal aid bills have ever been introduced solely for the purpose of extending local health units. This bill is identified in the Senate as S-2189 and in the House as Joint bills H.R. 5644 and 5678, and is known as the Local Health Services Act of 1948. This legislation is initiated and sponsored by the National Congress of Parents and Teachers. Over forty-five other national professional, voluntary, and lay organizations, support the National Congress of Parents and Teachers in their introduction of the bill into the Congress of the United States of America.

It is suggested that each local health officer, and all others interested, immediately contact their state health officer and coöperate with him and the state and local Parent Teachers Association to follow the bill through its various steps to becoming a law, and to initiate local action and support at the proper time that will inform Congressional, Senate, and House committees of the needs for immediate passage of this legislation.

The need for favorable action on this bill is unquestionable. Regardless of how good the professional help and guidance in technical matters may be, there is a time when the assistance of lay consumer groups is essential. Consumers are voters and voters have a responsibility to inform their senators and representatives as to their wishes regarding health legislation.

Let us all go into action.

Amalgamation of Health Departments in Seattle and King County

EMIL E. PALMQUIST

The amalgamation of the administration and the combining of the clinics and the laboratories of the City of Seattle and of the King County Health Departments became effective September 8, 1947.

The idea of amalgamation in our state is not a new one since several of the first class and second class cities, some of them for many years, have pooled their resources with those of their respective counties to form districts or health units. Seattle, however, is the first large city (over 100,000 population) to begin such an amalgamation. A merger of the City and County Health Departments was first recommended in the book *Local Health Units for the Nation*. The impetus for the present amalgamation began in May, 1947, when the Health Officer of King County resigned with the recommendation that such an amalgamation be effected. The Board of Commissioners of King County requested recommendations from the King County Medical Society, which appointed a special committee consisting of three of its members, who after investigation recommended to the Board that they approach the City of Seattle and request consideration of an amalgamation of the City and County Health Departments. The Seattle Municipal League also made a study of the problem and approved the plan and recommended to both the city and county governments that they get together and work out a plan of amalgamation as far as possible under existing laws. The state at present has no enabling legislation providing for combined health units for cities over 100,000 popu-

lation. On the other hand, there are no state laws making it illegal to work out a combination by agreement. The existing law covering smaller cities and counties was passed as recently as 1945 after several of the cities and counties in the state had been operating on a combined health unit basis for many years. There was a precedent, therefore, with which we had to work.

Since there is no law setting up a way of merging the two departments, it was agreed that the amalgamation would be worked out on the following basis:

The Director of Public Health for the City of Seattle was made Director for both the City and the County Health Departments.

The Division Directors of the following respective divisions of the City Health Department were put in charge of the same respective programs for the County Health Department:

- a. Acute Communicable Disease Control (Epidemiologist)
- b. Division of Tuberculosis Control
- c. Division of Venereal Disease Control
- d. Division of Maternal and Child Health Services
- e. Division of Public Health Nursing
- f. Division of Central Administration, which includes the Director's office combined with the Chief Clerk and his staff
- g. Director of Laboratories
- h. Public Health Education
- i. The Divisions of Sanitation of the City and County are kept on a separate basis, each with its own chief under the general direction of the Director of Public Health. They will be combined under the same administration at a later date.

The Division of Costs for the jointly employed people who are the administrative personnel indicated above, was

worked out according to the population ratio of 75 per cent for the City of Seattle and 25 per cent for King County. The population in the City being 470,000 and the population in King County outside of the City, being 155,000. Actually, what has taken place is the joint employment by the City and the County of the same people to carry out the administrative work and then on an agreement basis combining the clinics, leaving it up to the discretion of the Director of Public Health to use to the best advantage the available space of both departments and the assignment of the employees.

Enabling state legislation, now being prepared, is still needed to effect a complete merger. Many factors must be considered, among which are: that the city employees have civil service and retirement benefits, and the county employees do not; a plan for permitting a single budget and the pooling and disbursement of moneys from a single fund.

The above is a successful beginning. The amalgamation has removed much of the confusion, overlapping, and duplication which existed before, and is proving beneficial to both the City and the County.

Health Coördination in New Orleans

JOHN M. WHITNEY

In August, 1947, the Mayor of New Orleans decided that the city needed a cleanup campaign. He called in the Health Officer who first suggested that a citizens' committee be appointed, but at the same time recommended that some type of permanent organization be effected which would mobilize and utilize citizen participation in various health activities each year. Since there was a very effective organization of block leaders during the late war it was felt that a start could be made by reactivating this organization. Accordingly the war-time leader of the block organization, a prominent civic minded volunteer, was called in and she agreed to accept the job of securing the active participation of as many of the former block leaders as would respond. However, she was willing to do this only on the condition that a permanent organization be set up with funds available to provide office and clerical facilities as well as educational supplies. Neither she nor the Health Officer wanted to engage in the

stereotyped "annual cleanup" and then see the city lapse into the same old condition. It was further felt that the time and effort necessary to enlist wide citizen participation would not be justifiable for just a single project.

The Council of Social Agencies in New Orleans has a Health Division which includes the voluntary health agencies, and the professional groups, as well as the official health agency. This division has functioned as a health council in the accepted definition of such councils as a planning and coördinating group for community health. In addition, there is in the Council of Social Agencies a "Community Volunteer Service" whose function is to recruit volunteer workers for such organizations as hospitals, Red Cross programs, etc.

After much discussion and many conferences a "steering committee" was set up consisting of the Secretary of the Health Division of the Council of Social Agencies, representatives from each

of the nine voluntary agencies operating in the health field,* from the Association of Commerce, the Young Men's Business Club, the Junior Chamber of Commerce, the public and parochial school systems; the block system leader, the director of the Community Volunteer Service, and the Health Officer.

The city administration came through with a \$10,000 appropriation to the health department to implement the entire program. A coördinator with clerical assistance was employed and housed in the health department. This coördinator's job was to secure health chairmen from every woman's organization in town and to arrange for meetings with these chairmen, first to explain the purpose and planned functions of the "Health Council of New Orleans" (as it was then named), and then to funnel information and materials through the chairmen to their members. The chief purpose was to get approximately 100 groups working on the same program at the same time. Practically every one of these groups had health committees and was engaged at some time during the year in its own pet projects. It was thought that many projects of community-wide significance could be put into operation much more effectively by having everybody doing the same thing at the same time. The city clean-up campaign served as the first example, and was a "natural" because a hurricane descended on New Orleans at about this time (September, 1947), and there we had a most effective stimulus.

Since the purpose of this report is not to give an account of the activities of the Health Council, suffice it to say

that the clean-up campaign was accomplished by intensive publicity, with actual operations by both city crews and volunteers during a one month period.

The next thing we had to consider was how to keep alive the interest and active participation of all the groups concerned. It soon became apparent that there was considerable duplication by the Health Council with the Health Division of the Council of Social Agencies with respect to planning, and with the Community Volunteer Service in respect to direct services. Also, from the administrative viewpoint of the Health Officer, here was this "coördinator" and her staff standing out like a branch on the department and spending funds officially appropriated to the Health Department. Further, the Health Division of the Council of Social Agencies was justifiably disturbed over the developing situation. On the one hand the Health Council was composed of a much broader representation than the Health Division would ever have, such as women's civic clubs, auxiliaries, veterans' groups, church societies, etc. In addition, the Health Council program was designed to be one of direct services, such as actual distribution by group members of literature, rat poison, or any other service relating to a community-wide program. On the other hand, many of the women's groups in the Health Council were also a part of the Community Volunteer Service. But the direct services they were performing were limited to a few central points such as clinics and hospitals, and in addition did not include educational programs. So it was felt that there was a definite need for the services to be rendered by the Health Council, and the problem now was how to furnish these services without duplicating and overlapping the areas of operation of the Health Division of the Community Volunteer Service of the Council of Social Agencies.

We have proceeded to effect this re-

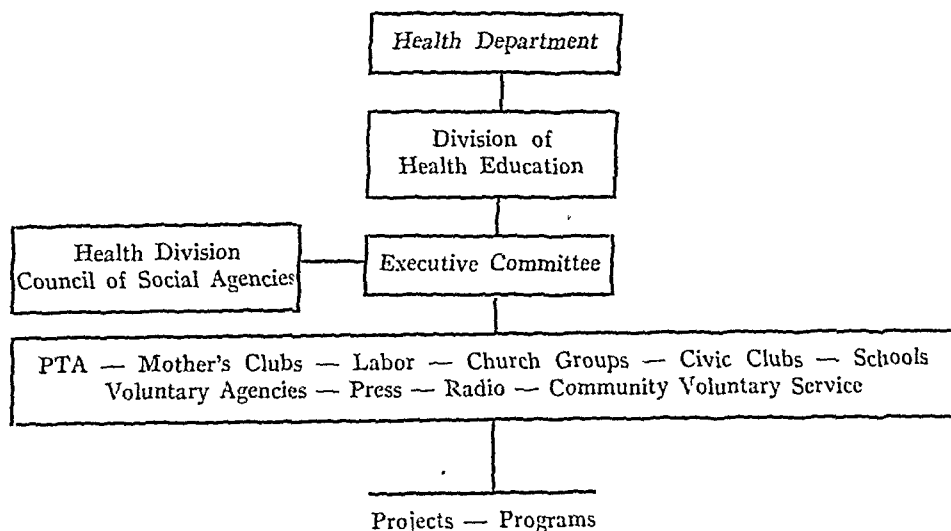
* Cancer Society
Red Cross
Community Health Association (geriatric nursing)
Mental Health Society
Tuberculosis Association
Better Hearing League
National Foundation for Infantile Paralysis
Crippled Children Society
Social Hygiene Association

organization by placing the paid staff of the Health Council in the division of health education of the Health Department. The name will be changed to some title such as "Citizens' Health Committee." An executive committee will be set up with representation from the professional societies, the voluntary agencies, and the official agency. To the Health Division of the Council of Social Agencies will still be reserved the planning and coördination of all community health, and it will act as an advisory committee to this executive committee. All organized groups, including the Community Volunteer Service, will then carry out the programs and policies as

determined by the executive committee with advice from the Health Division of the Council of Social Agencies.

The Citizens' Health Committee will be considered more as an organization to supplement official work of the Health Department in special programs.

During the period of reorganization two additional projects have been successfully carried out—food conservation in January, 1948, and a city-wide rat poisoning campaign in April, 1948. Other contemplated projects are chest x-rays on a city-wide basis, annual physical examinations, and any timely health programs projected on a national basis.



What's Happening to Malaria in the U.S.A.?

JUSTIN M. ANDREWS, Sc.D., F.A.P.H.A.

*Scientist Director, Deputy Officer in Charge, Communicable Disease Center,
U. S. Public Health Service, Atlanta, Ga.*

THE general decline of malaria in this country is believed to have begun during the last quarter of the 19th century,¹⁻³ some years before it was known how the disease is transmitted. At that time, malaria virtually blanketed the eastern two-thirds of the nation, except for the Appalachian highlands, and extended up the Central Valley of California.⁴ Its retreat has been interrupted, at least during the latter half of the intervening period, by resurgences in prevalence at such regular intervals that a 5 to 7 year cyclicity in epidemic manifestations has been postulated.^{4, 5} The last of these periods of enhanced transmission took place during the mid-1930's of this century. By that time, the principal areas of endemicity had contracted to the coastal plains and lime-sink sections of the southeastern states and the flood-plain areas of the lower Mississippi and its main tributaries. Since this last upswing, 12 to 14 years ago, reported malaria prevalence in the U.S.A. has decreased steadily as shown in the accompanying graphs (Figure 1). Making generous allowance for the traditional errors of omission and commission in malaria reporting, it is evident that consistent declines in recorded morbidity and mortality, unprecedented in their magnitude and

duration, have been in effect for the last decade or more. This downward trend is verified by the general testimony of residents and by special field studies^{6, 7} in areas where malaria has been highly endemic in the past.

What is the significance of this latest recession? Since 1935 there has been no reported increase in indigenous malaria case or death rates in the country as a whole. This indicates that the regular wave-like pattern of malaria epidemicity throughout the nation is not an immutable phenomenon. If the negative slope of the last 12 years' experience can be continued or accelerated, it can mean nothing more or less than the ultimate extinction of malaria in the United States. To exploit this trend, it is important to determine its causes, if possible, while they are still in effect.

Is malaria being treated out of existence? Has it stopped relapsing or has man become generally refractory to infection? Have infectible anophelines become so few that transmission is not possible? Have these species lost their susceptibility to plasmodial parasitism?—or their taste for human blood? Have all rural homes in the South been made secure against insects?—and do their occupants remain indoors after dark so punctiliously that they are no longer accessible to mosquitoes? A brief review of these and other possible nullifying influences seems desirable (1) to

* Presented before the Georgia Public Health Association, June 10, 1947, and the American Society of Tropical Medicine and the National Malaria Society in Atlanta, Georgia, December 4, 1947.

Figure 2—Per capita income payments, by years, in the continental United States and in eleven southeastern states (Alabama, Mississippi, United States, Georgia, Kentucky, Louisiana, Arkansas, Florida, South Carolina, Tennessee, Virginia).

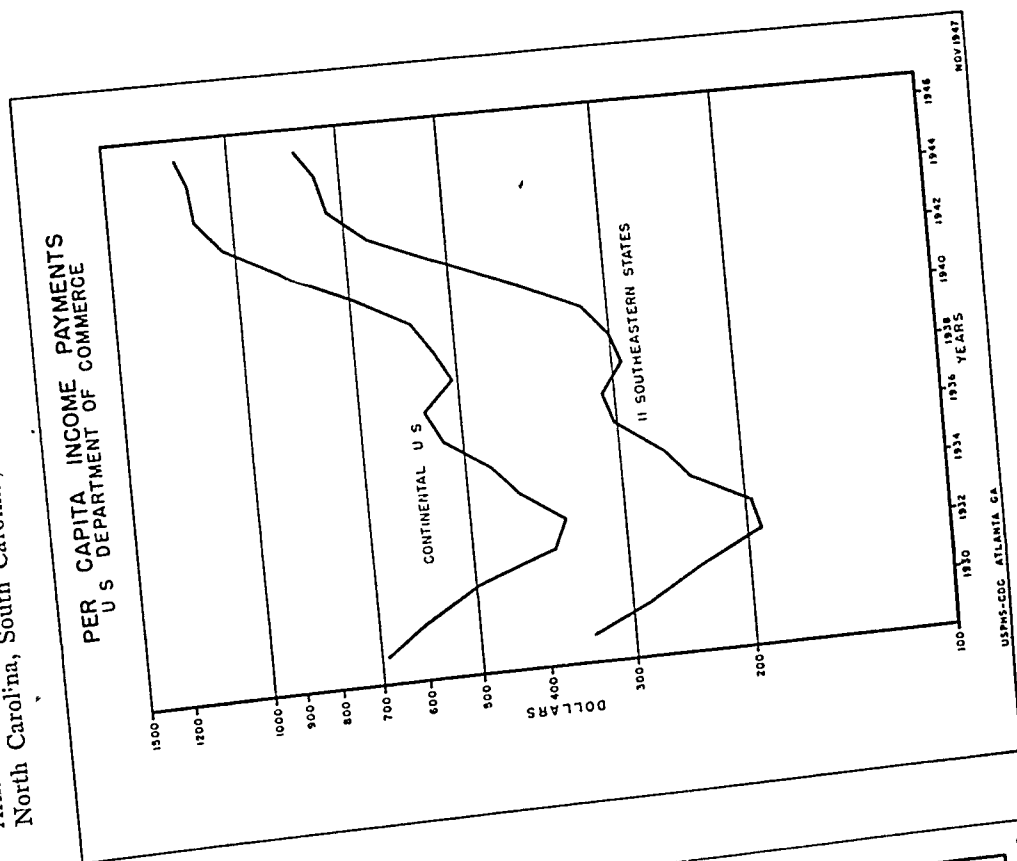
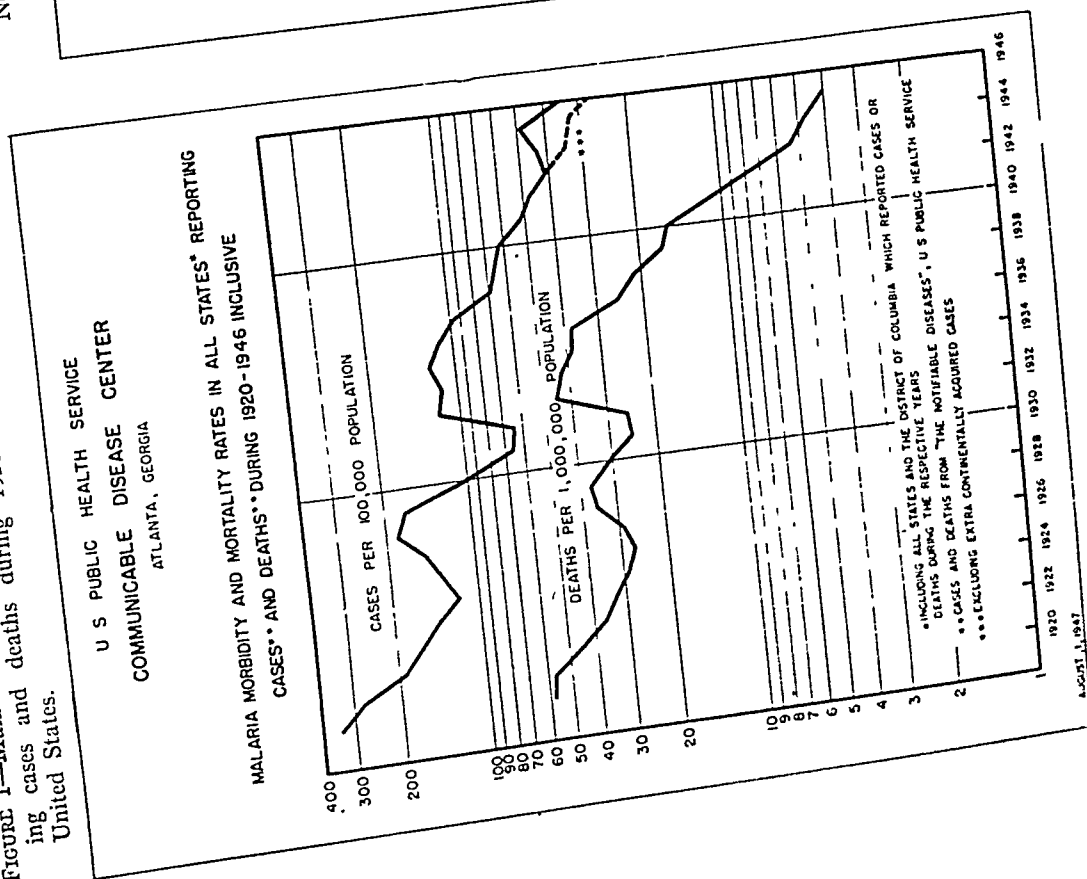


Figure 1—Malaria morbidity and mortality rates in all states reporting cases and deaths during 1920 to 1946, inclusive, in the United States.



assess the evidence for or against their causal participation in the current malaria regression, (2) to judge the extent, if any, to which these phenomena may be due to purposeful control efforts, and (3) whether it would be wiser, in view of the present low level of malaria incidence, to stop all organized attempts at further malaria prevention as unjustified expenditures, or to continue them with the hope and expectation that, within the foreseeable future, they will result in the total eradication of the disease.

Economic improvement in the South

—The South shared in the nation's present wave of prosperity which started its upward swing (see Figure 2) at about the time malaria rates commenced their latest descent. In connection with this circumstance, it is pertinent to note that socio-economic progress was believed to be the prime determinant in the extinction of malaria in the Upper Mississippi Valley by various authorities,¹⁻⁵ though they disagreed as to the most probable means by which it was achieved. Malaria is more firmly entrenched by environmental conditions in the South than it was in the North, nevertheless it seems probable that economic improvement is the basis for various pressures to which it is now yielding. Those which may be presumed to exert antimalarial influence include better housing, more medical and public health services, more drainage for agricultural and suburban development, enlarged use of insecticides in homes, enhanced animal husbandry, and increased industrialization with its attendant shift in population residence from rural areas to or near metropolitan centers. Wartime and post-war shortages of materials and professional personnel have doubtless prevented the fullest elaboration of these forces against malaria.

Human susceptibility — Considering first the human factors which may have

been involved in the present recession, there appears to be little reason for assuming that it is due to an American loss of susceptibility to initial infection or relapse. Well over a half million American soldiers and sailors,⁸ including many from the South, acquired malaria overseas from 1942 to 1945, inclusive, evidencing no resistance to the numerous strains of plasmodia encountered. Some of the tertian infections imported subsequently are still relapsing after three years. Paretics and other recipients of induced malaria in this country appear to accept and react to blood- or mosquito-transmitted infections with old or new strains of parasites in recent years as their predecessors did before them, according to observers whose investigations involve the extensive use of this procedure.⁹⁻¹²

Antimalarial medication—It is difficult to assess correctly the role of medication in the malaria decline. Since the days of "Sappington's Anti-Fever Pills," residents of endemic areas in the United States have consumed huge quantities of ethical and proprietary antimalarials with the object of treating or preventing malaria. It seems logical to expect that drugs which reduce parasite densities in man should diminish his infectiousness to mosquitoes at the same time, but this effect has not always been sufficiently realized to be of significance in the prevention of malaria.

Thus, while the world thankfully accords memorable prominence in medical history to quinine for the relief it has given to countless millions suffering from malaria, it is now well known that the drug possesses no prophylactic properties, except the ability to effect the temporary suppression of symptoms, nor can it be depended upon to extinguish completely any type of malaria infection. Therefore, it is doubtful if quinine interferes perceptibly with the transmission of the disease. Certainly there appears to be no reason for be-

lieving that it contributed any more to the control of malaria in the South since 1935 than before that date.*

Quinacrine hydrochloride (atabrine) was introduced into general use in the South during the middle and latter years of the decade when the present malaria recession was just getting under way. Its early experimental application as a mass therapeutic and prophylactic among predominantly Negro populations with almost exclusively falciparum malaria was associated with encouraging reductions in spleen, parasite, morbidity and mortality rates.¹⁴⁻¹⁶ Later observations in Panama,¹⁷ led to the conclusions that atabrine was no more dependable than quinine for malaria control purposes when used in treating parasite positives discovered at monthly blood surveys. Critical tests^{18, 19} and general experience in malarious areas during World War II concurred in establishing that this drug, while not much more effective than quinine against vivax and quartan malaria, is virtually a specific against falciparum infection, its use in therapeutic or suppressive dosages resulting in a high percentage of non-relapsing cures of this and no other type of malaria. This unique characteristic plus the temporal association of atabrine and the recent malaria decline qualifies atabrine medication as one of the possible causes of the recession, without defining its actual importance.†

Population migration out of rural areas—Since 1935, there has been a notable migration from rural to urban surroundings throughout the United

States. This was most marked during the first half of the present decade due, presumably, to military induction and to the attractions of higher wages and better living conditions in and near the more populous centers where materials and equipment for Defense and War Industries Programs were being fabricated.

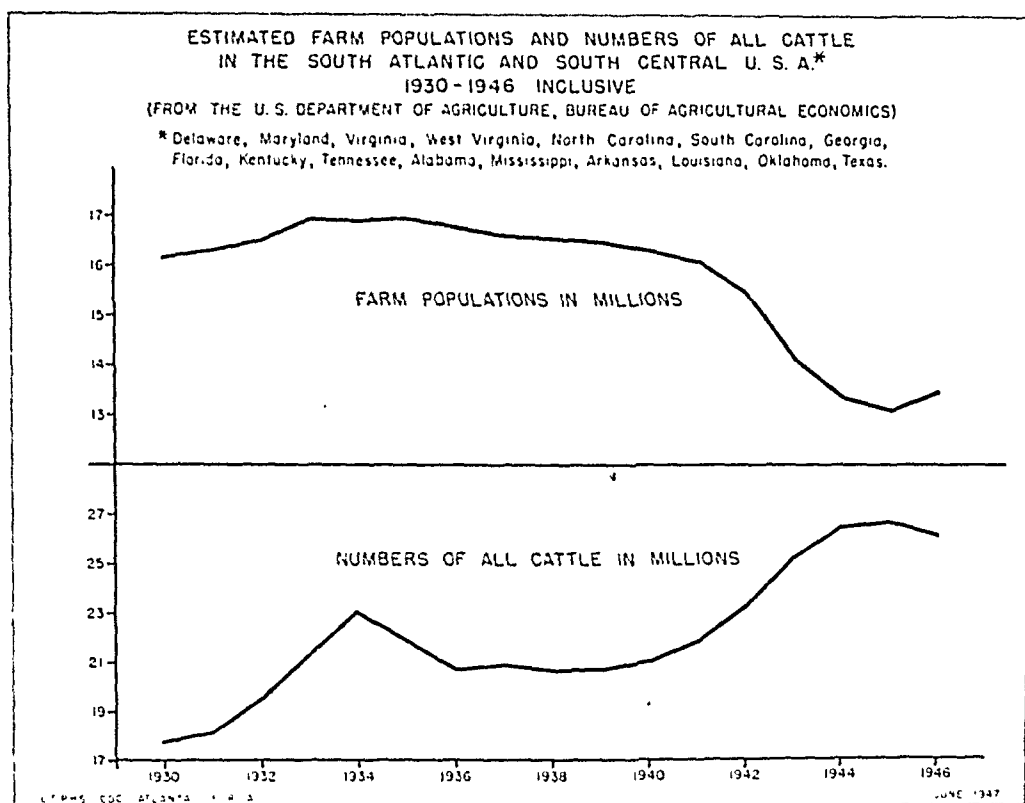
From 1917 to 1940, there was small but steadily increasing progress in the industrialization of the South as northern manufacturers shifted their factories to take advantage of more favorable labor conditions below the Mason-Dixon Line. From July, 1940 to May, 1944, the South received 24.4 per cent of the \$14,000,000,000 authorized by the War Production Board for manufacturing plants and equipment; this does not include the cost of plants whose post-war conversion to peacetime industry is doubtful.²⁰ During the same period, considerable numbers of Negroes travelled to the northern states to escape the effects of a waning cotton economy and with the hope of finding more productive and congenial surroundings.²¹

In many sections of the southeastern quadrant of this country, these events have resulted in transferring people *out* of rural areas where they might have had malaria and *into* urban situations where the chances of acquiring it were negligible. The total extent to which this phenomenon has taken place is not known at present, but some idea of its trend is conveyed by the upper curve in Figure 3, which indicates the progressive reduction in farm populations in the South Central and South Atlantic states from 1935 to 1945, inclusive. Thus it seems probable that a considerable depletion in rural population

* According to Norman Taylor, Director, Cinchona Products Institute, Inc. (personal communication), this country, prior to 1939, used roughly four million ounces of quinine each year, the annual variation being within 10 per cent of this figure. Its consumption "over a period of years" did not increase with the population. There is no way of determining the actual proportion used as an antimalarial in the South but, on the basis of available distribution data, it was estimated at the Institute that about two million ounces were used for that purpose.

† Information regarding the distribution and consumption of atabrine in this country could not be obtained from its principal manufacturer as the output of this product for the last six years has been controlled largely by the Army, Navy, and Public Health Service, and has been subject to use abroad as well as in the United States.

FIGURE 3—Estimated farm populations and numbers of all cattle in the South Atlantic and South Central United States, 1930-1946, inclusive.



has occurred. This may have assisted materially in malaria reduction in the last five or six years.

Anopheline susceptibility—Consideration must also be given to the possibility that changes in anopheline populations may have interfered with the transmission of malaria. Among such hypothetical factors, reduction in mosquito susceptibility to plasmodial parasitism due, perhaps, to environmental or cosmic influences would be of paramount significance if demonstrable. Such a phenomenon might be reasonably expected to manifest itself in insectary-reared as well as wild strains of mosquitoes. There is no published evidence to that effect with reference to the principal transmitting species in this country. Induced malaria for therapeutic and experimental purposes appears to have been transferred from

one person to another by means of mosquitoes with comparable degrees of regularity throughout and prior to the period under consideration.⁹⁻¹² While most of the naturally induced malaria has been transmitted with the Boyd strain of *A. quadrimaculatus*, established in 1932,²² other insectary stocks have been used and wild strains of this species have been brought into laboratories and their infectibility proved.^{12, 23, 24} Furthermore, it was shown in 1947 that native cases of falciparum and quartan malaria in South Carolinian Negroes, with or without symptoms, were readily infective to insectary-reared and wild-caught *Anopheles quadrimaculatus*, even though gametocyte densities were very low in some instances.¹³

Antilarval measures—Has the abundance of this transmitter diminished

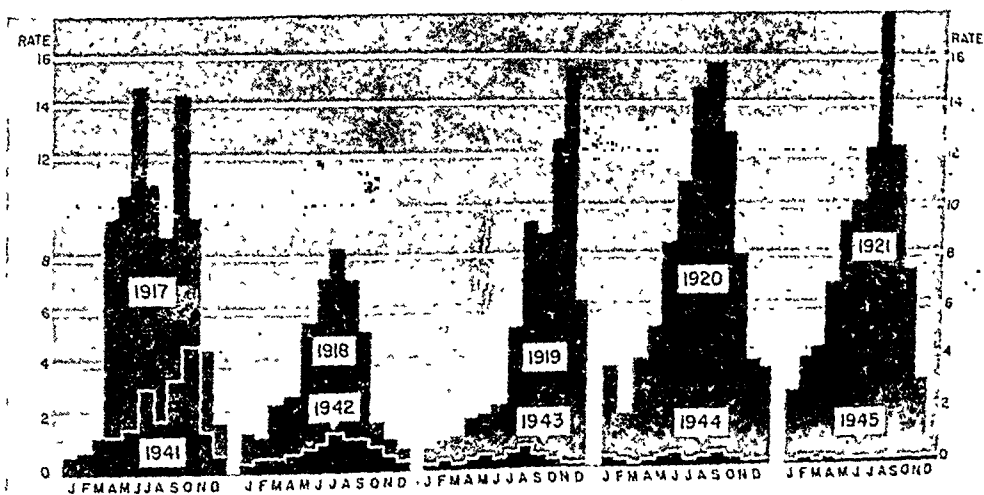
sufficiently during the last twelve years to account for the malaria reduction observed? During this period, efforts of considerable magnitude have been made by federal, state, and local health agencies, and by private interests aimed at reducing anopheline densities, both on a community-wide basis and within homes. Entomological evidence of success as a result of these endeavors is limited; their probable effectiveness must be inferred largely from the nature and scope of their physical accomplishments.

The U. S. Army's continental experience with malaria during World War I was severe enough (see Figure 4) to require environmental control measures around southern cantonments. These activities had to be financed jointly from federal and local resources, thus directing attention to the fact that local governments were unable to bear the costs of malaria control operations which, as then conceived, were mainly antilarval.

Thus, during the depression years which followed, federal relief organizations (Civil Works Administration and Federal Emergency Relief Administration established in 1933, and the Works Progress Administration in 1935) were called upon to supply man power for malaria control purposes. They completed a tremendous amount of drainage in 16 southeastern states. The exact total is uncertain as existing reports of accomplishment^{4, 25} are not in agreement, but from them it appears probable that something in the neighborhood of 32,000 miles of "average-size" ditches were constructed draining 623,000 watered acres. Most of them were dug by hand labor—machine and dynamite excavation accounting for only a minor percentage—and a few hundred miles of the ditches were paved with concrete.

From the standpoint of good malaria control practice, these projects had serious faults. In the fulfillment of relief objectives, operations could be

FIGURE 4—Malaria admissions per thousand men per year for the U. S. Army in the Continental United States during World Wars I and II. Note the reduced military malaria experience in this country during the last World War.



MALARIA ADMISSIONS PER THOUSAND MEN PER YEAR FOR THE ARMY
IN THE CONTINENTAL UNITED STATES. WORLD WAR I—WORLD WAR II.

carried out (1) where and only for as long as the numbers of locally unemployed were large enough so that crews could be manned for malaria control drainage as well as for other relief labor projects desired by the community, and (2) where locally provided materials and equipment were available for matching against federal funds. These conditions tended to concentrate malaria control drainage projects in the more populous and wealthy counties, not necessarily the more malarious ones. Justification for locating work units was frequently based on nothing more than lay testimony of past malariousness. Drainage construction was restricted to new works, which meant that existing drainage-ways could not be maintained or improved with relief labor nor could it be used to keep in serviceable condition the ditches which it dug originally. In many though not all instances, local governments have provided for the maintenance of the drainage facilities.

As the Defense Program gathered momentum in 1941, national unemployment declined and many of the WPA Malaria Control Drainage Projects were discontinued except in the neighborhood of military training camps. During 1942, these were taken over by the U. S. Public Health Service and, together with other environmental malaria control operations around areas of military or war industries significance, were continued during the war years as a coöperative works program of the federal and various state health services concerned. Their efforts were coördinated by the Office of Malaria Control in War Areas, headquartered in Atlanta, Ga.

During the period of maximal military training and industrial production, malaria control drainage, filling, and larviciding were accomplished by this organization around approximately 2,200 localities of military concern in 19 different states. Through 1945,

these activities included clearing and cleaning, incidental to larviciding, of 37,000 watered acres and 96,700,000 linear feet of ditches; 5,700,000 gallons of oil and 73,000 pounds of Paris green were used in larviciding 660,486 acres; approximately 10,900,000 linear feet of drainage ditch of varying cross-section were dug (90 per cent of them by hand labor, 5 per cent with dynamite, 3 per cent by heavy machinery, while the other 2 per cent were lined or tiled ditches); mechanical and hydraulic fill amounted to 315,000 cubic yards.

This program was a great improvement over the preceding one from the standpoint of malariologic principle. Maintenance operations could be undertaken as readily as new construction. Local contributions were required only when adjuncts to drainage works such as concrete ditch-lining or culverts, tile, dynamite, etc., were desired. Early in the development of the War Areas Program, the policy was adopted of basing operations on potential malariousness, i.e., presence of infectible species of anophelines, rather than on lay testimony of previous malariousness. Entomologic evaluations were made throughout the progress of the program to check operational accomplishments. These have been summarized in Figure 5 and show (1) that malaria-carrying types of mosquitoes were less numerous within the zones where mosquito control activities, exclusively antilarval until the calendar year 1945, were carried on than in adjacent unprotected areas, and (2) that anopheline abundance in uncontrolled areas was certainly no less; probably more, in 1946 than in 1942 when enumerative observations were commenced. Spleen and parasite surveys were also made for evaluative purposes but were not very meaningful because of their lack of sensitivity in the face of decreasing malaria prevalence. Community health education and information programs

point of public health insignificance the malaria prevalence which existed when construction was begun. It is interesting to note that, due to a combination of uncontrollable circumstances in the early spring of 1945, anophelism in the lower two-thirds of the Valley reached the highest level recorded in twelve years, but without evidence of an accompanying increase in malaria prevalence.⁷

This incomplete catalog of federally stimulated efforts at reducing anopheline production is impressive but the effect of these endeavors on malaria prevalence is hard to appraise. Their application extends over the period of malaria decline, a fact which should neither hastily be dismissed as fortuitous nor taken for granted to have causal significance. That malaria reduction occurred near many of these operation sites as a result of breeding place destruction and antilarval measures is indisputable, but that these areas were sufficiently numerous, extensive, or malariogenically important to produce a coalescent malaria depression throughout the South is hardly credible. Furthermore, malaria has diminished to a greater or lesser degree in areas beyond the influence of the TVA and untouched by WPA or MCWA. Thus, it is evident that other factors in addition to interference with anopheline production have been concerned in this phenomenon.

Measures against adult anophelines—In spite of active educational efforts, demonstration projects,²⁷⁻²⁹ and higher incomes, the amount and quality of domestic insect-proofing has increased significantly in only a few of the rural sections of the South where it would

have its greatest effect as a malaria reductive measure.^{30, 31} Doubtless, this is due to the excessively high ratio of insect-proofing construction and maintenance costs to the value of poorer type houses.^{32, 33}

On the other hand, the use of domestic insecticides has increased prodigiously during the period under consideration. Data concerning the actual amounts packaged and sold are difficult to obtain as these are viewed by dealers as competitive information; however, certain regional distributors (serving the southeastern states) and national manufacturers were willing to disclose production trends in terms of annual percentage increase. According to the estimates of the former, the distribution of these products, commencing with 1931, increased each year by amounts which varied with different concerns from 20 to 40 per cent until 1943, when output was crippled by lack of metal for containers and handsprayers. Compounded at the annual rate of 20 per cent, this would represent an overall increase of nearly 7½ times for this period.

One national producer wrote that the volume of his company's household insecticide distribution in the southeastern states increased 1,404 per cent from 1935 to 1945, but he believes that this was due to the energetic advertising of his concern and that competitive business did not advance to that extent. However, one of his principal competitors supplies the following indices expressing in terms of percentage relationships, based on business done in 1939, the amounts of domestic insecticides distributed by his dealers in 13 southeastern states (figure for 1939 being taken as 100 per cent).

Year	Per cent	Year	Per cent	Year	Per cent	Year	Per cent
1931	20	1935	52	1939	100	1943	160
1932	27	1936	64	1940	85	1944	139
1933	32	1937	75	1941	89	1945	140
1934	42	1938	79	1942	147	1946	56

This manufacturer is of the opinion that the sharp decrease in sales volume during 1946 was due to the large amount of "free" spraying which was done by local and federal government agencies during that year.

These indications, while remarkable, do not tell the whole story because numerous small operators commenced domestic insecticide production during this period, thus adding materially to the total made available to consumers. It is probably conservative to estimate that 10 to 20 times as much household insecticide was used in the southeast during the early war years as in 1931 to kill mosquitoes as well as other domestic insects.

In 1945, the Office of Malaria Control in War Areas embarked on its Extended Program of malaria control. This consisted of the application of residual DDT to the interior surfaces of homes and privies in counties where substantial mortality from malaria* had been reported during the period just before World War II. This was aimed at preventing the dissemination of malaria from home-coming veterans who had acquired infection overseas. From January 1, 1945, to September 27, 1947, nearly 3.2 million house-spraying applications were made in rural areas or small towns in 309 counties. The average number of sprayings per house varied from nearly two in 1945 to not quite one and one-half in 1947, when 875,534 different houses were treated.

Domestic insecticiding with residual chemicals such as DDT appears to be the most feasible single approach to malaria prevention now available in the South, considering the special problems of house construction, the distance be-

tween homes in rural sections, and the economy of the inhabitants. Most anopheline mosquitoes bite only at night and as more people are within their homes than elsewhere during the hours of darkness, it follows that measures which prevent mosquitoes from entering houses or which destroy the insects after they are inside are of transcendent importance in preventing malaria transmission. It is probable that the insecticidal applications, both ephemeral and residual, made within the home in the last 12 years have accomplished more than any other one measure to reduce malaria transmission in the South.

Anopheline deviation—Another circumstance which may have been of considerable assistance in reducing the domestic density of anophelines is the expansion of cattle raising in the southeastern states. The lower curve in Figure 3 shows the estimated cattle population in the South Atlantic and South Central states from 1930 to 1946. Cattle husbandry has increased in the South as cotton cultivation has receded in importance and as rural labor has migrated out of the region. Longer grazing seasons than are available elsewhere in the country, less labor requirements, accessibility to eastern markets, and better protective techniques now available against cattle diseases spread by biting arthropods are said to be factors contributing to this development. The presence of more cattle is believed to be important, malariologically, because *A. quadrimaculatus* has a strong preference for cattle blood.³¹ As these mosquitoes emerge from their breeding places and seek blood meals, they are less likely to enter human habitations in large numbers if they can satisfy their appetites more conveniently from cattle in the fields or in stables close to houses.

The trends of the two graphs in Figure 3 indicate that the decrease in

* In the calendar year 1946, counties were approved for Extended Program operation if the average annual malaria mortality rate during 1938 to 1942, inclusive, was 10 or more per 100,000 population. In 1947, the base was broadened to include rates down to 5 per 100,000. Counties with evidence of current malaria morbidity were included both years.

the farm population of the South occurred while the cattle population was on the increase. This suggests that the antimalarial influence of these two circumstances may have been compounded by their contemporaneous development.

DISCUSSION AND SUMMARY

Until medical and public health practices in the reporting of malaria cases and deaths are improved to the point of being more dependable measures of the actual morbidity and mortality due to this disease, certain reservations must be entertained concerning its real status and shifts in prevalence. It does appear to be diminishing, however, and on the basis of the foregoing, the following tentative deductions seem to be justified. Certain of these, derived from information collected over broad regional expanses, deserve more searching and precise investigation in restricted study areas to determine the nature and extent of their local impact on the incidence of malaria.

It appears that there has been no essential deterioration in the potentialities of the parasite-host-vector system of malaria transmission in the United States during the last twelve years. The infectivity of the various species of *Plasmodium* capable of parasitizing man and transmitting mosquito remains unimpaired. It seems more likely, therefore, that the malaria recession can be explained in terms of quantitative rather than qualitative changes.

The widespread efforts at areal reduction of anophelism in the South by antilarval measures have depressed and possibly extinguished malaria endemicity in certain localities, but it is doubtful that these programs were primarily responsible for the regional decrease. The reduction of *domestic* densities of anophelines by the use of insecticides, as a result of deviation by cattle, and to a lesser extent by insect-proofing of houses is held to be a more important

and uniformly extensive causal factor.

Other circumstances contributing to the general decline are (1) population movements from rural areas in the South where malaria could be acquired, to urban centers in the South or to other parts of the country where malaria does not occur, and (2) improved anti-malaria medication.

Economic advance has undoubtedly stimulated the development of most of these factors. A depression might be expected to send people out of the cities back to the country where unimproved housing would quickly deteriorate in the absence of maintenance. Money would not be spent for household insecticides and the most effective anti-malarials. Under such conditions, malaria could again become a public health hazard of great prominence.

If malaria can be eradicated in this country and its reintroduction prevented or controlled—and this possibility is viewed as reasonable^{8, 37, 40} economic depressions could have no malariogenic effect. Malaria prevalence and transmission have reached new lows. Control techniques are more effective today than ever before, though doubtless their efficiency can be still further improved. These considerations constitute compelling motives for taking advantage of our present strong position. They offer a challenge to national, state, and local health agencies to combine in effecting the complete annihilation of the "world's greatest scourge"³⁸ in the United States.

REFERENCES

1. Barber, M. A. The History of Malaria in the United States. *Pub. Health Rep.*, 44:2575-2587, 1929.
2. Boyd, Mark F. A Historical Sketch of the Prevalence of Malaria in North America. *Am. J. Trop. Med.*, 21:223-244, 1941.
3. Ackerknecht, E. H. Malaria in the Upper Mississippi Valley, 1760-1900. *Suppl. Bull., History of Medicine*. Baltimore: Johns Hopkins Press, 1945, 142 pp.
4. Williams, L. L., Jr. The Anti-Malaria Program in North America. A Symposium on Human Malaria. *Am. A. Advanced Sc.*, 1941, pp. 365-371.
5. Faust, Ernest Carroll. Clinical and Public Health Aspects of Malaria in the United States from an His-

torical Perspective. *Am. J. Trop. Med.*, 25:185-203, 1945.

6. Watson, R. B., Kiker, C. C., and Hess, A. D. A Review of Malaria Studies and Control in the Tennessee Valley in 1945. *J. Nat. Mal. Soc.*, 5:193-205, 1945.

7. Goodwin, Melvin H., Jr. Observations on the Recession of Malaria in an Area of Southwestern Georgia, 1948. (In Press).

8. Provisional data supplied by the Office of the Surgeon General, Department of the Army, National Military Establishment, Washington, D. C.

9. Young, M. D., Stubbs, T. H., Moore, J. A., Ehrman, F. C., Hardman, N. F., Ellis, J. M., and Burgess, R. W. Studies on Imported Malarías: 1. Ability of Domestic Mosquitoes To Transmit Vivax Malarías of Foreign Origin. *J. Nat. Mal. Soc.*, 4:127-131, 1945. See also later publications in this same series by these same and associated authors.

10. Boyd, Mark F. A Review of Studies on Immunity to Vivax Malaria. *J. Nat. Mal. Soc.*, 6:12-32, 1947.

11. Coatney, G. Robert, Cooper, W. Clark, Young, Martin D., and McClendon, Sol B. Studies in Human Malaria. I. The Protective Action of Sulfadiazine and Sulfapyrazine Against Sporozoite-Induced Falciparum Malaria. *Am. J. Hyg.*, 46:81-104, 1947.

12. Alving, A. S., Craig, B., Jr., Eichelberger, L., Pullman, T. N., Jones, R., Jr., and Whorton, C. M. Pentaquine (Sn-13,276): A New Drug Effective in Prevent-Relapse in Vivax Malaria, 1947. (In Press).

13. Young, Martin D., Hardman, Newton F., Burgess, Robert W., Frohne, William C., and Sabrosky, C. W. The Infectivity of Native Malarías in South Carolina to *Anopheles quadrimaculatus*, 1948. *Am. J. Trop. Med.*, 28(2):303-311, 1948.

14. Seckinger, D. L. Atabrine and Plasmochin in the Treatment and Control of Malaria. *Am. J. Trop. Med.*, 15:631-649, 1933.

15. Winchester, M. E. Individual Chemoprophylaxis Against Malaria. *South. M. J.*, 29:1029, 1936.

16. Winchester, M. E. Atabrine Prophylaxis in Malaria; Report of Third Year's Investigation. *Am. J. Trop. Med.*, 18:625-640, 1938.

17. Clark, Herbert C., Komp, H. W., and Jobbins, D. N. A Tenth Year's Observations on Malaria in Panama, with Reference to the Occurrence of Variations in the Parasitic Index, during Continued Treatment with Atabrine and Plasmochine. *Am. J. Trop. Med.*, 21:191-217, 1941.

18. Fairley, N. H. Chemotherapeutics, Suppression, and Prophylaxis in Malaria. Experimental Research Undertaken by Medical Research Teams in Australia. *Tr. Roy. Soc. Trop. Med. & Hyg.*, 38:311-365, 1945.

19. Boyd, Mark F., and Kitchen, F. F. On the Employment of Quinacrine Hydrochloride in the Prevention of Malaria Infections. *Am. J. Trop. Med.*, 25:307-315, 1945.

20. Thompson, Warren S. Population. *The Growth of Metropolitan Districts in the United States: 1900-1940*. Washington: Gov. Ptg. Office, 1947.

21. Murray, Florence. *The Negro Handbook*, 1946-

1947. New York: Current Books, 1947, 392 pp.

22. Boyd, Mark F. Successful Cage Rearing of *Anopheles quadrimaculatus*. *Science*, 76:370, 1952.

23. Boyd, Mark F. On the Susceptibility of *Anopheles quadrimaculatus* to *Plasmodium vivax* after Prolonged Insectary Cultivation. *Am. J. Trop. Med.*, 19:593-594, 1939.

24. Young, Martin D., Stubbs, Trawick H., Ellis, John M., Burgess, Robert W., and Eyles, Don E. Studies on Imported Malarías: 4. The Infectivity of Malarías of Foreign Origins to Anophelines of the Southern United States. *Am. J. Hyg.*, 43:326-341, 1946.

25. *Annual Reports of the Surgeon General of the Public Health Service of the United States, 1936-1941*.

26. *Facts about Major TVA Dams*, 1946.

27. Coogle, C. P. The Screening and Mosquito-Proofing of Tenant Houses. Mississippi State Board of Health, *Bull.* 2, 1928.

28. Meleney, H. W., and Crabtree, J. A. Results from Screening Rural Houses in Lake County, Tennessee. *South. M. J.*, 27:552, 1934.

29. Kiker, C. C. Housing with Special Reference to Mosquito-Proofing for Mosquito Control. A Symposium on Human Malaria. *Am. A. Advance. Sc.*, 1941, pp. 308-315.

30. Watson, R. B., and Maher, Helen C. An Evaluation of Mosquito-Proofing for Malaria Control Based on One Year's Experience. *Am. J. Hyg.*, 34:86-95 (Sec. C), 1941.

31. Watson, R. B., and Rice, Margaret. Further Observations on Mosquito-Proofing for Malaria Control. *Am. J. Hyg.*, 34:150-159 (Sec. C), 1941.

32. U. S. Public Health Service and Tennessee Valley Authority. Malaria Control on Impounded Water. U. S. Gov. Ptg. Office, 1948.

33. Kiker, C. C., and Breedlove, H. E. Mosquito-Proofing for Malaria Control from the Standpoint of Construction and Maintenance Costs. *Am. J. Hyg.*, 34:95-102 (Sec. C), 1941.

34. King, W. B., and Bull, C. G. The Blood Feeding Habits of Malaria-Carrying Mosquitoes. *Am. J. Hyg.*, 3:497, 1923.

35. Sawyer, Wilbur A. A Proposed Program to Prevent the Spread of Malaria in the United States from Infected Individuals Returned from Abroad. *J. Nat. Mal. Soc.*, 3:61-68, 1944.

36. Mountin, J. W. A Program for the Eradication of Malaria from Continental United States. *J. Nat. Mal. Soc.*, 3:67-74, 1944.

37. Russell, Paul F., West, Luther S., and Maxwell, Reginald D. *Practical Malariology*. Philadelphia: Saunders, 1946, 684 pp.

38. Simmons, James S. American Mobilization for the Conquest of Malaria in the United States. *J. Nat. Mal. Soc.*, 3:7-11, 1944.

39. Minutes—1943—National Malaria Society. *J. Nat. Mal. Soc.*, 3:151-154, 1944.

40. Andrews, Justin M., and Gilbertson, Wesley E. Blueprint for Malaria Eradication in the United States. *J. Nat. Mal. Soc.*, 1948. (In Press.)

Some Labor Union Enterprises in Public Health Economics

B. A. KOGAN, M.D., DR.P.H.

*Director of Maternal and Child Health, Department of Public Health,
Oakland, Calif.*

PUBLIC health is medical sociology. The broad scope and numerous tools of its practice necessitate specialization. Recently, and belatedly, an old specialty in the field has been newly defined as public health economics. Its rudiments, though inherent in social organization, have until recently been inadequately studied.

Mutual sickness and death benefits were not unknown among the ancient Hebrews, Greeks, and Romans. Many medieval guilds, despite primary religious or economic purposes, included provisions for such benefits in their charters. These primitive efforts were plagued with insolvency. In 1793, however, England saw the first legal restrictions designed to create financial security in friendly societies. More than a century of experience followed during which considerable opposition to increasing government interference developed; the National Insurance Act of 1911, an expression of majority rule, temporarily settled the argument. In this country the course of labor has been altered by basic differences in public health economic history; not the least important of these was the opposition of Samuel Gompers to any form of national health insurance. His social philosophy, in this respect, is essentially comparable to that of Senator Taft. By the mid-thirties, several great American unions were paying old age, death, disability, sick, and other benefits which had de-

veloped fortuitously and were frequently inadequate.

Space does not permit complete discussion of historical factors. The purpose here is to consider some recent efforts made by certain American labor organizations in redistributing the cost and thereby sharing the economic risk of sickness.

The First UAW Medical Research Institute—In June, 1937, an undue incidence of lead poisoning among auto workers, a desire to provide medical care for strikers, and interest in promoting both an industrial health education program and an industrial disease law led the UAW-CIO to open a Medical Research Institute. The purpose was research in the field of occupational disease. Collected data, obtained through worker and plant examinations, were to be used in formulating demands for better working conditions from management and government. Members, suspected of having an occupational disease, were to be referred to the Institute by shop stewards and union committeemen. Therapy and legal medicine were, initially, specifically omitted from the program; the latter limitation was, however, obviated by a new industrial disease law. Union physicians helped members to meet the medicolegal talent of the companies but their major interest lay in the concept that union support of an industrial disease law prompted installation of pro-

TECTIVE devices which would reduce industrial disease and injury. Patients requiring treatment were given the names of two physicians from a list supplied by the Wayne County Medical Society.

In 1938, in the midst of a growing program, during which thousands of men were examined and industrial disease and accidents decreased spectacularly, the Institute was discontinued. Unstable financing and lack of intra-union harmony were the causes. Specifically: (1) the financial responsibility for the Institute could not be settled; (2) the Institute had opened just after the union had increased membership from 25,000 to 300,000 and had collected \$327,000 in initiation fees. The layoffs, strikes, and lockouts of 1937 and 1938 decreased collectable union dues despite an increasing membership; (3) the union tended to concentrate available moneys on the Ford organizing drive; (4) the UAW split into UAW-CIO and UAW-AFL factions which resulted in the tying-up, by court order, of all Institute equipment. It took almost two years for the courts to decide which faction had title to the property.

The Second Health Institute of the UAW-CIO—In 1943, in accordance with previous convention resolutions, the UAW-CIO Health Institute was reopened and is now supported by (a) per capita assessments of over 350,000 members, (b) community chest donations, and (c) international subsidies. In its present quarters (the former home of the Edsel Ford family) are offered medical diagnosis by general practitioners and specialists, health education, and personal services. Many interested agencies, such as universities and the Detroit Health Department, are coordinated in the program.

The diagnosticians, using union technical services, such as routine blood and urine examinations, E.K.G., B.M.R., and x-ray are not only able to cut the

expense of diagnosis for a patient but also provide the advantage of earlier diagnosis. Patients are referred elsewhere for treatment; the Wayne County Medical Society assists in this. The most common diagnosis is psychoneurosis; such members are referred to the Personal Service (social case work) division for assistance. Between July, 1946, and June, 1947, only 12.6 per cent of patient visits were related to industrial disease or injury.

The Personal Service Department is occupied with the multiple ramifications of social case work. Vocational rehabilitation, psychiatric referrals, assistance in mental hygiene, coöperation with other referring or assisting agencies are but a few of the major duties of this staff of two trained social workers.

A remarkable health education program provides well attended classes taught by authorities. Health and Safety classes train local leaders to become foci of information for others. They know their machines; such education betters their bargaining position for healthful working conditions. Industrial Psychology is taught to improve intraunion and labor-management relationships. Consumer Health and Physical Education classes ("charm classes") attract female members and wives of male members. A Health and Human Relations course deals with emotional, sociological, and economic problems of women. Swimming and Health Education and Dancing and Health Education designate classes combining athletic activity with health lectures. This department is also responsible for exhibits, press releases, a monthly health pamphlet, mat service, and radio programs.

Member utilization of these services has increased tremendously in the past two years. It is idle to question the apparent values inherent in this public health economic enterprise. Despite obvious limitations (such as the absence

of a treatment program), it today surely justifies its existence. The permanence of the Institute must, however, be considered in the light of UAW-CIO support of a federal health bill, notorious intraunion disputes, and both labor and management threats to employment which inexorably curtail financial support of such ventures. The union has planned a hospital; but strikes cost money, and so do hospitals.

The Union Health Center of the International Ladies' Garment Workers Union—One consequence of a strike in 1910 was the selection of a Joint Board of Sanitary Control to study "sweat shops." The shocking conditions discovered by this group as well as by the U. S. Public Health Service resulted, in 1913, in the establishment of the Union Health Center. It flourished at first but, in the decade following 1922, intraunion disputes (culminating in the defeat of the communists), a catastrophic strike (1926) and the depression, all combined to jeopardize the Center. It was maintained largely because of the self-sacrifice of the idealistic personnel.

Weathering this adversity, the I.L.G. W.U. Health Center has, since the presidency of Dubinsky, grown enormously. A largely female (85 per cent) membership, seasonally employed and less demanding than men regarding wages, is appreciative of a convenient, sympathetic source of competent medical care, most of the cost of which is met by an employer payroll tax. Those few affiliates without prepayment medical services pay but \$1 per service.

This ambulatory clinic offers diagnostic and treatment services suited to the studied specific needs of the membership. In addition, it administers the medical aspects of the various local sickness insurance programs. There were, in 1946, nineteen different sick benefit and eight hospitalization plans; diverse cash benefits for surgery, maternity, convalescence, tuberculosis, and

eyeglasses were offered by a varying number of locals. Active health education, worker rehabilitation, and social work programs are in force. Despite the greatly expanded clinic space and services, there still remains the problem of meeting the ever growing utilization of the membership.

The reasons for this record are apparent. Aside from the advantages to the membership, one must point to the brilliant, often idealistic administration. Pure altruism cannot, however, be an objective criterion in evaluating the permanency of a public health economic enterprise. Moreover, the Dubinsky era of harmony is a personal victory, not reflective of the entire union history; the inevitable termination of his presidency might well be accompanied by familiar destructive discord. The comparatively attenuated basic problem of this union is collective bargaining for better wages, hours, and working conditions; the Center experience may well be used in promoting this function. However, the success of a union enterprise in public health economics can be at the mercy of all the vagaries of labor economics and politics. Social ventures can be a cohesive intraunion force; their stability is weakened in so far as they are a subsidiary, rather than a primary, union function. Finally one must question the stability of an employer payroll tax (gained during a business boom) in an economic depression.

The Dental Clinic of the Chicago Amalgamated Clothing Workers—The then Dean of the Northwestern University Dental School, in an interview in 1928, regarding the newly opened, well equipped and staffed ACW dental clinic, was quoted as follows in a union publication: "The Amalgamated Dental Clinic will serve not only the 25,000 members of the union, it will serve 100,000 because it will take care of the families of these members."

These high hopes failed to materialize.

Examination of overhead (salaries, dental equipment, laundry, magazines) and income (primarily collected from dental fees, sales of tooth paste, toothbrushes and dental floss) reveals that, from inception until mid-1945, the clinic operated under persistent financial deficits. Since competent service at reasonable fees, and not profit, is the primary purpose of the clinic, a strict financial judgment may seem unjust. However, operating losses and gains do provide a concept of the service utilization. By mid-1945 a total of 3,924 patients had been seen, an average of 230 yearly. Less than about 1 per cent of the eligible members and about 0.25 per cent of all eligibles had availed themselves of the service. From October, 1943, to July, 1945 (twenty months of acute dentist shortages), the salaried dentist saw 98 new patients, an average of 4.9 per cent monthly. The employed personnel had dwindled, by mid-1945, to an unassisted dentist; the laboratory was unused.

This public health economic enterprise has failed because (1) the union leadership has not adequately educated the membership regarding the service; (2) the hours and location of the centrally located clinic are inconvenient for the decentralized membership; (3) the fees are not comparably low enough to warrant sacrifice of the individual choice of a dentist; (4) adjustments in dental practice are unavoidably frequent; foci of dissatisfaction in general dental practice are usually lost in a large community; in union practice one patient's dissatisfaction may be spread to an entire local.

Why is the clinic maintained? It is a symbol of intraunion cohesion. In a letter dated July 18, 1945, the manager of the Chicago ACW wrote this writer:

"Our organization is not a business organization, nor is it looking for profit. We have other departments that are not financially sustaining themselves, as our cultural groups,

concerts, and educational work. All these departments are not profitable departments, but are essential . . . we feel that if we can give them the best services for a reasonable cost to whatever members are willing to avail themselves of it, we are protecting and servicing at least that many people with the knowledge that our organizational intentions are to give them more service."

The UAW-CIO and the Blue Cross Plan—The early success of the Michigan Blue Cross Plan is largely due to the UAW-CIO. Although the insurance agreement is between employer and insurance company, union-employer agreements have resulted in the enrollment of over 350,000 members from the Chrysler, General Motors, Packard Motors, Continental Motors, and Briggs companies alone. It is estimated that over 50 per cent of the total Michigan Blue Cross enrollment is comprised of about 225 UAW-CIO groups. The Group Hospitalization Report of February, 1941, by the UAW-CIO Chrysler Committee, in selecting the Blue Cross over the Aetna contract, illustrates the union capacity to override the express recommendation of the employer. The Fruehauf Trailer Company even experienced a strike because of its reluctance to discuss insurance plans with the union.

This vast free advertising agency is recognized by the Blue Cross directors. Five union men, employed by the insurance company, act as trusted advisers for the assured. Their position is analogous to that of union shop committeemen who are paid by industry but work for the union for the common good. The functions of the union member committee of the Blue Cross Plan are: (1) to assist in claim adjustments; (2) to act as an educational buffer between members and insurance company; (3) to present union grievances to the insurance executives; (4) to promote Blue Cross enrollment at local meetings.

These arrangements augment the familiar benefits of the Blue Cross con-

tracts. Of some interest is the disproportionately small union representation on the executive superstructure of the Michigan Blue Cross Plan. Of major importance, however, is the fundamental disagreement in public health economic philosophy between the insurance company and the union; the non-profit insurance company opposes a national health insurance act. These, and similar, employer-insurance company agreements are temporary union expedients. They bridge a gap; at the distant end of that gap is national health insurance.

The Insurance of the Ford Motor Company Employees—The Ford Motor Company was, in 1939, making two payroll deductions; one was for life, sickness and accident (Travelers Insurance Company); the other was for hospital and surgical coverage (Michigan Hospital Service and Michigan Medical Service). An irreconcilable dispute between the then anti-union motor company and the Michigan Medical Service ensued when the latter added a union official to the Board of Directors.

The motor company discontinued the Blue Cross insurance at the end of the contract year and transferred the risk to the Travelers Insurance Company. However, less than a year after the UAW-CIO obtained a closed shop contract they advised the company of their dissatisfaction with the health insurance management. The union was then promptly notified that, as of midnight February 28, 1942, the membership would be without company-sponsored health insurance.

It thus became the urgent business of the UAW-CIO to find comparable insurance for the Ford membership. The John Hancock Mutual Life Insurance Company signed a temporary emergency agreement with the International UAW-CIO assuming the terminating liabilities of the Travelers Insurance Company and obtaining an option on the new master contract effective on

March 28, 1942. This was the first master contract to be signed by a major mutual insurance company and a great union. The Ford Motor Company agreed to continue wage deductions.

The experience of even the first year revealed a low monthly ratio in the sickness and accident portion of the contract. By July 1, 1944, losses were persistent in the accident and sickness part of the contract and the premiums-claims difference in the hospitalization and surgical experience was uncomfortably small.

The factors which developed during the life of the contract (2+ years) that caused the loss ratio were: (1) the female percentage of the insured group increased from 11.8 per cent to 28 per cent. Females are a greater general risk in health insurance; specifically, furlough decisions to raise families resulted in an undue number of obstetrical claims; (2) the average age of the Ford employees increased from 37+ to 51+ years. Younger, healthy members of an insured group are expected to compensate for the greater risk encountered in the older age group. A considerable proportion of the insured group was composed of selective service rejects and medically discharged veterans. The young people were, moreover, transient, leaving the older age group behind to increase the risk; (3) Negro employees of the motor company, considered a poorer risk, increased from 9 per cent to 14.6 per cent; (4) the motor company qualified under the Workmen's Compensation Act as a self-insured risk. Many union leaders blamed the difficulty in differentiation between non-occupational (insurance company) risks and occupational (motor company) risks as a major factor in the poor experience.

The mutual insurance company could not, under Michigan Insurance law, penalize their other assured persons by continuing a yearly losing contract. Some union leaders, pointing to the legal acceptability of the life loss ratio, in-

sisted that a strict reading of the statute directed the insurance company to carry the risk. The insurance company, however, maintained that the policy holder, the International UAW-CIO, was the only legal source of added income. The International refused to bear losses involving less than one-tenth of the total membership. Not only were no dividends to be expected but the union, being tax free, could not write off its contribution as part of overhead cost.

The UAW-CIO enterprise was discontinued at the end of two years and three months, and it was assumed by the Ford Motor Company.

The Panel System of the Transport Workers Union—The Transport Workers Union, on May 15, 1939, organized a panel of general practitioners, one for each of thirty-five districts in Greater New York. Not only were they to meet demands of members for assistance in compensation cases but were also to initiate a needed health program. Three sources of financial support were established: (1) the International contributed 10 per cent of the cost and assisted in an emergency subsidy; (2) the compulsory purchase of \$1 tickets to a semi-annual dance sponsored by Local 100 provided some revenue; this plan was necessary because of the difficulty of assessment without a complicated referendum vote; (3) the Local contributed \$50,000 yearly and shared in an emergency subsidy.

A lay union "medical welfare committee" and a professional "staff advisory committee" governed the program. The professional group recommended appointments and procedures which were decided upon by the lay group. From the 600 applications, the 35 who were selected were paid 12 cents per capita per month to service approximately 1,000 members as follows:

1. An unrestricted number of office calls, during office hours, without charge.

2. An unrestricted number of home visits from 8:00 a.m. to 8:00 p.m. without charge.

3. Assistance in compensation cases; the fee for this was not set by the union.

4. Examination to determine physical fitness for jobs.

5. One yearly physical examination.

6. Referral to any of nine union appointed specialists who were paid a flat fee per case.

7. Superimposed fees could be charged for I.V. therapy (\$1.00); radiant energy treatments (\$.50); diathermy (\$1.00); B.M.R. determination (\$3.00); minor office surgery (\$2.00-\$4.00); complete obstetrical care (\$35.00).

The union, in addition, made arrangements for reduced prices for members with an optical house and drug stores.

Statistics show that the plan was well utilized. The few complaints, originating from the offer of an unrestricted amount of services, were settled by the governing boards. The physicians' paper work was limited and required but a few moments.

The discontinuance of the plan, after but a few years, was caused by two factors: (1) city purchase of the transport system invalidated the closed shop, reduced the membership, collectable dues, and available money for the plan; (2) the war decreased the number of physicians forced to practise idealism as a means of introduction into a community.

In purchasing labor (medical) from those under relative financial duress, the union violated its own philosophy; wage-hour standards proportionate to rendered services were not established. Physicians were obtaining community introductions and prestige by assuming poorly limited duties for about 1,000 members for about \$30 weekly. Little wonder the plan collapsed with the increased price of medical care which occurred with decreased supply and increased demand.

Present systems paying blanket fees per medical service are open to question. It is illogical to charge one fee for a 20 minute simple appendectomy, fol-

lowed by an uneventful convalescence, and the same fee for an 80 minute appendectomy, followed by a complicated convalescence involving considerable risk and labor. Job analysis and job qualification studies should receive as competent analysis in public health economics as they do in industry. It is time to evaluate the limitations of the opinionated meditation of those not adequately trained in either or both public health and/or economics. Public health (or medical) men ignorant of economics and economists ignorant of public health adumbrate the problem. Personnel should be trained to bring these interested individuals to a mutual understanding.

Further major criticisms of this plan are the insecure financial services, inadequate controls over quantities of superimposed fees for services, and absence of union-physician contracts.

The panel system of the International Workers Order has been more stable because this order is not so much bothered by union problems.

The Union Owned Insurance Companies of the Amalgamated Clothing Workers—A. In New York:

Collective bargaining agreements in 1942, 1944, and 1945, between the ACW and three major employer associations established weekly employer payments to three separately administered insurance funds of sums equal to 2 per cent of wages paid to members. Actuaries assist the union fund trustees and the employer advisory committee in determining what coverage to purchase from the created capital stock company, the Amalgamated Life Insurance Company, Inc. The trustees of the first Amalgamated Insurance Fund (1942) created the company with an original capital of \$300,000 (3,000 shares were purchased at \$100 par value) and surplus of \$150,000; both capital and surplus were by June, 1945, increased to \$1,-

000,000. The New York legislature in the 1942-1943 session legalized this novel insurance agreement. The state licensed the company, on September 23, 1943, to sell insurance to over 90,000 ACW members. The Equitable Life Insurance Company assumes the risk of about 13,000 employees in the 18 states, refusing to license this international union insurance company.

The company has proved financially stable and offers limited life, accident and health, hospitalization and maternity coverage.

B. In Chicago:

The Amalgamated Life and Health Insurance Company of Chicago was established April 1, 1940, with enormous reserves built with employee-employer contributions originally collected by the Amalgamated Social Benefits Association for unemployment insurance; unemployment insurance had been obviated by the Social Security Act. The Social Benefits Association purchased 2,000 shares of stock at \$100 par value and paid a premium for the stock providing a \$200,000 capital and a \$100,000 surplus for the insurance company. The company is thus a member-owned legal stock reserve life insurance company. The company charges the Association a definite rate, set by an actuary, for about 12,000 certificates for life, accident and health, and hospitalization. The money paid the company is independent of the amount collected, leaving the association with a surplus to be used for future purchases of extended benefits. The income and reserve of the association have grown tremendously since 1942. Similarly the insurance company surplus has increased yearly because the nonparticipating contract does not pay dividends on the policies. Obviously, the association need not increase its surplus with dividend collections; the dividend amounts remain in the company to increase its surplus and stability.

Both the association and the company are union governed. Experience of the company has been, to date, excellent and reflects intelligent actuarial planning.

Any evaluation of these plans must be dominated by the fact that (1) they have averted catastrophe for thousands of members. Other advantages may be listed: (2) the centrally located systems prevent loss or delay of benefits because of employee transfer from one local or employer to another; (3) profits accruing from good experience and management belong to one group which gains broader coverage at lower cost; the members do not pay for the losses of other groups; (4) ACW members receive more sympathetic consideration of claims; (5) this well managed, solvent company has reserves sufficient to withstand depression periods during which individual voluntary insurance might be cancelled; (6) adjustment policies exclude intermediate parties; (7) this plan demonstrates a high level of employer-employee coöperation; (8) the plan is a force for intraunion solidarity; (9) the operating cost, reduced by central administration, can be paid for by investment interests.

The ACW insurance plans have various shortcomings: (1) they are non-voluntary; (2) their certificates do not cover the family, which is the greatest problem in public health economics; (3) these income-tax-deductible employer contributions were granted during a business boom. A depression might, even-

tually, not only preclude further contributions but, as has happened, the employer might even have to seek loans from the union just to save a business in which to employ members; (4) neither the hospital nor medical professions are represented in the plans; (5) competent labor students hold that the ACW is playing conservatism for revolutionary ends; i.e., the ACW hopes that unionized workers will, in time, own and operate industry; (6) conversely, critics have labelled the plans as employers' paternalism, weakening union bargaining positions for better wages, hours, and working conditions; (7) in the Chicago plan, rapid piece workers pay a higher premium for the same benefits obtained by slower workers who contribute less.

CONCLUSIONS

Organized labor is woven into the very fabric of public health economics. Social ventures are, however, of secondary importance to leaders of organized labor. Their primary purpose is to meet a monopoly of capital with a monopoly of labor, and to use control of labor to gain further advantages in wages, hours, and working conditions. For this reason, despite Herculean and seemingly successful efforts, they can never meet the whole public health economic problem of their members.

They hope that a national health bill will, as in Britain, some day undertake the problem for the American laborer. They will vote for this hope.

International Population and Vital Statistics*

FORREST E. LINDER, PH.D., F.A.P.H.A.

Chief, Population and Vital Statistics Section, Statistical Office of the United Nations, Lake Success, N. Y.

PERHAPS the most outstanding fact about public health and vital statistics is that the interests of the workers in this field are related in a unique manner. Public health work is carried on through a chain of city, county, state, national, and international organizations. At each operational stage there is a need for factual data upon which to base program planning and evaluation. But there is one fact which gives public health statisticians a gratifying sense of community of interest. That is, effective work at any one stage contributes to, and, in turn, is dependent upon the work done at the other stages.

Consider for a moment some of the other statistical fields. Consider statistical work in the fields of agriculture, foreign trade, labor, finance, production, transportation, national income. Is there a single one of these in which the work of an international agency is dependent upon the work of a national agency, which in turn, is dependent upon a state agency, which is also dependent upon city and county work?

In reverse, this chain of dependency means that each unit within a state has an interest in the work of the state, national, and international offices. Each state has a legitimate concern and responsibility in relation to the problems

of national and international collection of data. Each national government has a heavy responsibility to partake in and contribute to those international activities which have the development of world-wide data as their goal.

There is no need to demonstrate here that public health planning should be based on accurate facts, and this is as true for the program planning of international organizations as for others.

The recognition of this need for international population and vital statistics is no new phenomenon. The long and fruitful work of the International Statistical Institute and the League of Nations in this field is proof that, especially in Europe, demographic facts have long been considered essential for international as well as national purposes. In more recent years the needs for demographic data have been strongly expressed among the American nations. The Eighth American Scientific Congress, the XI Pan American Sanitary Conference, the First Pan American Conference on Social Security, and the First Inter-American Demographic Congress are only some of the recent American conferences which adopted resolutions and recommendations calling for improved population and vital statistics.

In view of the ever increasing activities of the national and local governments in statistical work, and the constant efforts of various inter-governmental and professional societies in the

* Presented before the Vital Statistics Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 6, 1947.

field of demographic statistics, it might be well to ask, what new influence or impetus can be added by the United Nations.

To those directly concerned with the compilation or use of vital statistics it is a source of satisfaction that the United Nations took early recognition of the importance of all types of statistics, and particularly of demographic statistics. The Statistical Commission was established with broad terms of reference relating to the collection, improvement, standardization, and dissemination of statistical data in all statistical fields including population and vital statistics. In addition to this, the Economic and Social Council, requiring advice and assistance in matters affecting or affected by population changes, established a Population Commission. This special commission for population is to arrange for studies and advise the council on population changes and policies, interrelationship of economic and social conditions and population trends, migration and other population problems.

Corresponding roughly to the interests of these two commissions there have been established in the United Nations Secretariat two units concerned with population matters. One of these is the Population and Vital Statistics Section of the Statistical Office. This section is concerned primarily with problems of collection, improvement, standardization, and distribution of data. The other unit, the Population Division of the Department of Social Affairs, has full responsibility for the analysis of population data and for its interpretation in economic and social terms.

In addition to these offices in the United Nations, several of the Specialized Agencies have interests in various aspects of population and vital statistics. While all of the Specialized Agencies have interests at least in population totals, the World Health Organization, the International Labour Organization,

and the Food and Agriculture Organization are concerned with more detailed health and demographic statistics.

The World Health Organization is not yet formally related to the United Nations as a Specialized Agency, and its future plans in this field are not yet fully developed. The scope of its present work consists primarily in a continuation of the statistical work of the Epidemiological Intelligence and Public Health Statistics Service of the League of Nations Health Organization, of the Office International d'Hygiène Publique, and of the Epidemiological Information Services of UNRRA.

It is obvious that the statistical needs and interest of WHO will be wide in scope and, in the same fields, closely related to the interests of the United Nations and other agencies. Their interests will certainly include morbidity, mortality, birth statistics, general health statistics, epidemiology, population, and other general statistics on conditions affecting health.

The WHO constitution authorizes establishment of statistical services and requires that "Each member shall provide statistical and epidemiological reports in a manner to be determined by the Health Assembly." The constitution gives the Health Assembly authority to adopt regulations concerning "recommendations with respect to diseases, causes of death, and public health practices."

The current statistical publication program of WHO consists of the *Weekly Epidemiological Record* which is mainly concerned with the incidence of the international quarantinable diseases; the *Monthly Epidemiological and Vital Statistics Report* which deals with all epidemic diseases and also births, deaths, and infant mortality. An *Annual Epidemiological Report* is also in preparation. These reports are continuations of earlier League of Nations series.

In addition to statistical information,

WHO is obviously concerned with many aspects of statistical technique and organization. An international Committee for the Preparation of the Sixth Decennial Revision of International Lists of Diseases and Causes of Death has been appointed and has drafted a tentative classification. The Statistical Office is represented on this committee by an observer and is coöperating with WHO in obtaining technical comments on the draft classification from national statistical offices. Presumably many other technical problems will also be considered by that organization. There is every reason to expect that the Statistical Office and WHO will continue coöperative efforts for the technical improvement of statistics in the fields in which both are interested.

Together, the offices within the United Nations and those of the Specialized Agencies, working in coöperation, form the most extensive international organization ever to be concerned with the problems of population and vital statistics.

The effective utilization of this international machinery as a new path of progress for demographic statistics depends upon a clarification and a sharpening of our concept of the kinds of data that are needed and the kinds of advances that can be made. The first basic task must be to survey every aspect of the field, to determine precisely what data are needed; which of these are available and which lacking, which are satisfactory and which are most deficient in quality, or precision of definition. Such a study would become a reference point from which to measure progress, and would reveal the problems to be attacked.

Without doubt, the first and most basic obligation of the Statistical Office is to assemble a complete file of the most recent and authoritative population figures for every primary political unit in the world. At first glance, the

work of compiling such a file seems a simple task, but in addition to the figures themselves, the sources must be given; it must be indicated whether they are *de jure* or *de facto* figures; the precise area covered must be known; it must be stated if the figures are enumerated or estimated and if certain classes of the population are excluded; the dates of the year to which the figures relate must be known and it must be determined if and in what manner the most recent figure differs from the previous figures.

Even a superficial survey of the needs for population data of the United Nations, the Specialized Agencies and other organizations which turn to the United Nations for data, shows that a file of simple population totals is merely a beginning. In the field of population, more than one international agency has expressed the need for distributions by sex and age, by marital condition, race, nationality, urban-rural and other characteristics. Data on the labor force are needed by sex and age, occupation, industry and class of worker. A surprising number of agencies require detailed statistics on international migration.

In the related field of vital statistics, birth and death data in considerable detail are basic to analysis of trends of population totals and composition. Touching the more social fields of health and welfare there is demand for infant mortality and cause of death figures, and for marriage and divorce statistics. A central file of information of this type would become a cornerstone of all demographic work of the United Nations and Specialized Agencies. The collection and maintenance of an extensive file of such data for all of the areas of the world is an endless task but is one that must be performed successfully if the United Nations is to serve satisfactorily the existing and future needs for international statistics.

But even a complete file would fail in

its function if methods for distributing the material were not concurrently established. The *Monthly Bulletin of Statistics of the United Nations* is one medium by which this material can be distributed. At the present time the *Bulletin* publishes total population trends for 58 countries or areas and current total birth, death, and infant mortality figures for approximately 35 areas. As other reliable and current data become available the demographic presentation in the *Bulletin* will be expanded and improved. It is recognized, however, that some other method for the distribution of current demographic data will have to be devised since up-to-date population figures are required for many more areas than can be shown in the *Bulletin*.

More important as a future medium of distribution for detailed data is the year book of demographic statistics which is now being planned by the United Nations. The preparation of plans for such a year book was requested by the Economic and Social Council at its fourth session on the basis of resolutions of both the Statistical and Population Commissions which recognized the need for extensive demographic data.

The plan for the contents and character of the year book are being made on the assumption that this publication is to be the central international source of demographic data. As such, the year book must serve the purpose of a general source book giving basic data in considerable detail together with accurate and adequate explanatory notes. At the same time, the volume must serve as a reference book containing readily interpretable rates, ratios and comparable data series.

In terms of contents, the year book ultimately will have major sections on population, households and families, labor force, international migration, natality, mortality, morbidity, and mar-

riage and divorce. The statistical data presented in the year book will be supplemented by certain technical information such as subject indexes, bibliography of major sources of national official statistics, technical explanations of methods, and footnotes giving details of areas covered, and other information essential for accurate definition of data given.

The development of the year book to the desired high technical level is a work which will require many years. Moreover, the year book must be developed in close accord with other national and international efforts for the improvement of statistical data. While tied to a certain extent to data which are available at present, the year book should also be a positive force encouraging the adoption of standard definitions, methods, and procedures. The year book tables could be progressively modified in order to indicate international agreements which may be reached on classifications, definitions, and related matters.

A second aspect of the program of the Statistical Office in the demographic field relates to the promotion of standard definitions, classifications, and computation methods. A professional audience will not need to be convinced that the first result of an attempt to compile an extensive file of international data will be the discovery that there is great variation in the type and quality of the data compiled by the separate nations. It remains the constant duty of both national and international statisticians to work for the elimination of these differences and for the persistent improvement of quality. The United Nations can play its part in this task by providing a medium through which the national statisticians can work toward agreement on acceptable and practicable standards and methods.

In the population field we still lack agreement on the meaning of "urban-

rural"; it remains practically impossible to compile internationally comparable population tables by occupation and industry; the classifications of race, nationality and related terms, adapted as they have been to the individualistic needs of each national census, present an unmanageable heterogeneity when viewed internationally.

In the field of birth statistics, the completeness of registration is not always adequately known or measured, and there are major differences between countries in the definitions and practices which distinguish between live and stillbirths. In this field too, greater uniformity in the detail of cross-classification of births by age of mother and birth order would help in an understanding of the true meaning of rapidly changing birth rates.

Mortality statistics represents one of the most highly developed statistical fields, yet here also there are grave deficiencies and problems. In parts of Asia, Africa, and America, particularly, the interpretation of death rates is hazardous because of inadequate levels of registration completeness. The problem of classification of the causes of death in order to obtain international comparability is by no means solved. International effort in this field over more than ninety years has resulted in general agreement on an international classification which is revised decennially to keep pace with medical thinking. But there still is little international uniformity in the theory and practices by which the cause to be tabulated is selected from the intricate syndrome of causes usually present at death and recorded on certificates of death.

Even if the methods of classification were theoretically perfected, the adequate tabulation of causes of death is dependent upon accurate medical certification of these causes, and this in turn is a function of the level of the whole economic and social life of the

country. True, these basic factors affecting medical statistics are not within the competence of a statistical office, but there does remain the problem of determining the significance of these differences as they affect international comparisons of mortality statistics.

The infant mortality rate is one of the statistical indices of wide interest and use. Varying enormously between countries, it is often regarded as one of the most sensitive indexes of social welfare. Yet it is perhaps subject to more important differences in compilation than any other measure. It is affected by under-registration in either the numerator or denominator, and by differences in the definition of a live birth, stillbirth, or infant death. And, for current figures especially, there is no uniform procedure for adjusting the infant mortality rate for rapid changes in the birth rate.

In the development of standards two important points should be emphasized. These problems and needs have long been recognized. National and international agencies have struggled with them for decades. The Statistical Office of the United Nations has no panacea to offer. Only that can be accomplished which arises from the requirements and potentialities of the statistical offices in the individual countries. An international agency can do no more than provide a machine by which these responsible agencies can effectively coöperate. A second point is that many of these problems of compilation and standardization are of particular interest to the Specialized Agencies and to the professional societies. In such cases the international agencies must work in co-operation if effective progress is to be made.

A third phase of the future program of the Statistical Office in demographic statistics is one in which a central international agency can be especially helpful to the national statistical offices. This is in the summarization and ex-

change of information on the organization, programs, and methods of national statistical offices. This function is illustrated by a recent resolution of the Population and Statistical Commissions regarding national censuses. This resolution requested the Secretariat, in effect, to keep informed on the census plans of member nations and provide for an exchange of information on these plans.

It is expected that similar surveys will be made of the sources by which other statistics of the demographic type are collected. Such studies, giving facts about the systems in use, the coverage, methods and definitions, will form a useful base for evaluating the comparability and validity of statistics. Publication of these surveys will give any country access to information on the statistical systems and methods of other countries.

These activities relating to the exchange of information, can potentially develop into one of the most useful functions of the Statistical Office and the other interested international agencies. The fund of information collected

can become a source valuable to any national agency wishing information on new census and registration procedures used in other countries, and can initiate a more direct exchange of scientific information between specialists in all parts of the world. An ultimate development could well be that sufficient staff would be available so that expert advice and assistance could be given to nations wishing specialized information on a great variety of operational or theoretical problems.

These various programs are still in the project and planning stages. A large number of international and regional agencies and offices are concerned with problems of population, public health, and vital statistics. There must be a joint effort so that the work of the various offices blend together and the work of each complements and supports the work of the others. If this can be achieved, the future of international vital statistics is bright, and this in turn will have a strong supporting effect on vital statistics work at the national, state, county, and city stages.

General Atmospheric Pollution

The Air Pollution Control Program in Cleveland *

HERBERT G. DYKTOR, F.A.P.H.A.

Commissioner, Division of Air Pollution Control, City of Cleveland, Ohio

FOR a considerable number of years the City of Cleveland has battled the problem of controlling air pollution. In this respect it was not in any way different from other concentrated industrial areas. As we all know, the industrial cities are still groping for a solution of this problem. The reasons for indifferent results are numerous, in fact, too numerous for discussion at this time. But it seems that the same old control programs continue to be hatched.

It may be of some value to let you know how many programs of this nature are brought about, and I am doing this in order to show the difficulties that attend a technical man when he is involved.

Generally speaking, a city attempts air pollution control when pressure is exerted by the community, vocal through its organizations and newspapers. The claim is made that there is damage to health and property, that the city is dirty and is gradually going to seed. These rumblings and public statements finally reach the ear of the council or board of aldermen who, as a first step, appoint a committee to deal with this question. When this is done, public hearings are held at which every interested party is heard. These public hearings go on for several months, and

when the committee has become thoroughly confused, private deliberations may be held in order to sift out some conclusions and develop a plan of action. Since politics is politics in any land, the technical counsellors are ignored, an ordinance is drafted which throws the whole "book" at the people, and the authority for the enforcement of this ordinance is placed in the department which is most readily at hand at that time. Thereafter, the community stimulus for action abates, the ordinance may be found to be too cumbersome to be enforceable, and peace settles down again on the community.

There are many variations on the above theme, and there are more angles than either the mind or eye can perceive; but, in the main, that is the usual situation. Such confusion of ideas as to how to deal with the problem of air pollution control is evidenced to a significant degree by the results of a survey made by the U. S. Bureau of Mines and published in *Information Circular No. 7090*, October, 1939, according to which the authority for this activity was distributed approximately as follows:

- 24 per cent in Public Works Departments
- 23 per cent in Building Departments
- 20 per cent in Public Safety Departments
- 18 per cent in Health Departments
- 6 per cent in Fire Departments
- 9 per cent in various other departments

We, in the City of Cleveland, were well aware of this state of affairs, and we soon decided that, if we could not

* Presented at a Joint Session of the Industrial Hygiene and Engineering Sections of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 9, 1947.

improve upon it, we at least would be different.

Until this very year, the authority for the control of air pollution in Cleveland was placed in two departments. As a result of this divided authority, officials were uncertain where their zone of activity began or ended; and both industry and residents had to deal with two sets of officials, which state of affairs created quite a little dissatisfaction. Needless to say, results in the way of control were inadequate, and the entire community felt that major changes in administrative organization had to take place in order to remedy this undesirable situation.

As a first step to correct this situation, the mayor appointed a representative civic committee to channel the best thought of the community; and we were consulted in their discussions. Several plans were submitted, but close inspection revealed that they were impractical. Finally, a plan was adopted whereby the three phases of air pollution control, smoke abatement, industrial nuisances, and industrial hygiene, were to be combined into a new independent division. This decision was based upon the reasoning that there are two main sources of air pollution: (a) from industrial processes, and (b) from the combustion of fuel, and that these sources of air pollution could best be controlled by an approach from three avenues:

1. By controlling pollution at its point of origin in the plants through a bureau of industrial hygiene.
2. By controlling excess emission of pollution into the neighborhood through a bureau of industrial nuisances.
3. By controlling smoke from an industrial, residential, or commercial source through a bureau of smoke-abatement.

An ordinance setting up a new Division of Air Pollution Control was introduced in Council last fall. Many public hearings were held at which our line of reasoning was upheld. This new

division was located in the Department of Public Health and Welfare because it was felt that it belonged there as its functions came within the wider concept of health which does not limit itself to the absence of a physical disability but comprises as well a state of mental and social well-being. This ordinance was finally enacted on May 29, 1947.

It may be well at this time to say a few words as to how these three bureaus operate and how they are intended to operate.

In so far as the Bureau of Industrial Hygiene is concerned, there is little that I can say to you since ours does not operate differently from that of any other like official agency. However, we go one step further than most such bureaus as we bear in mind, when making recommendations for environmental improvement in plants, that the discharge of the various contaminants be made in such a manner as to preclude the possibility of creating a nuisance in the neighborhood.

In regard to the Bureau of Industrial Nuisances, this is really the catch basin for all complaints arising from industrial operations; and contrary to the Bureau of Industrial Hygiene which has only to deal with industries, this particular bureau deals both with the public and the industries. Complaints come in to the office, and the complainants are visited in order to investigate the real nature of the complaint. The plant against which the complaint is made is then visited, and the justification for the complaint is assessed. If the complaint is justified, steps are taken to remedy the situation. These steps are not arbitrary as the violating plant is consulted and a mutually satisfactory solution worked out, which sometimes may lead to the recovery of valuable wasted material. Care is also taken by the Bureau of Industrial Nuisances not to make recommendations which will interfere with any previously made by

the Bureau of Industrial Hygiene; therefore, a very close coöperation between these two bureaus is absolutely necessary. Human angles are also projected into this particular activity since it deals with the general public, such as personal feuds, attempts to make capital out of the complaint by way of compensation either direct or indirect through the sale of an adjacent house, or merely a morbid attitude toward life. You will gather from this brief explanation that this Bureau of Industrial Nuisances has a tidy job on its hands.

In regard to the Bureau of Smoke Abatement, its activity is based upon a code which provides certain regulations in regard to the operation of fuel-consuming devices. Although the code has been in existence only a few years, some parts of it are already outdated, and our next concern will be to bring it up to date, and simplify it. This bureau also has close connection with the Bureau of Industrial Nuisances because of the fact that some cases where excessive smoke is produced, arise from both combustion and metallurgical processes, and close coöperation is also necessary in this particular instance.

Now, I must point out that mere passage of this ordinance does not end the story; it is only the beginning. Carrying into effect an ordinance of this type must be predicated on common sense and a realistic attitude, and it is our firm belief that the following considerations are absolutely essential to the success of any air pollution control program.

1. The community must not be misled into believing that elimination of air pollution is attainable—it definitely is not. All that can be done is to reduce its concentration to a tolerable level and to maintain it at that level.

2. There must be no thought of arbitrarily closing down violating plants; on the contrary, their coöperation must be enlisted to

make them good neighbors and preserve good public relations. All industrial centers try to induce the influx of additional plants for the benefit of the community and not to drive them away.

3. There is no magic in air pollution control but only hard work. Therefore, to be successful, the program must be long-range, and any statement to the contrary is fallacious.

4. The program is costly, and unless the city administration is prepared to undertake it on a real long-range basis, the attempt had better not be made at all. Part of the cost may be returned in fees for permits and inspections.

5. The support and coöperation of the entire community, especially the newspapers, must be obtained. This is self-evident as no law can be enforced unless it meets with the approval of the people upon whom it is imposed.

6. The enforcing agency must be staffed with career men sincerely imbued with the necessary civic spirit. A good law can be seriously impaired by poor administration.

7. The personal and material benefits that can be derived from a properly administered air pollution control program based upon common sense and fairness are many.

These are our beliefs in Cleveland. We feel that we have the right groundwork for success. The program has already proved itself because, during the short period that we have been in action, very large sums of money have been expended by industries to control and reduce their contributions to the air pollution of the city. This was done without "cracking" the so-called whip, and was based entirely on free coöperation and good selling of the idea that we all have to be good neighbors.

We know that our division faces a complex problem, involving technical, economic, and human factors. Much will depend upon our research work in developing reasonable standards of general air pollution, our awareness of costs, and our understanding of human psychology; but we are hopeful of eventual success.

General Atmospheric Pollution

Some Work in Pittsburgh Air Pollution Problems *

SUMNER B. ELY

Superintendent, Pittsburgh Bureau of Smoke Prevention, Pittsburgh, Pa.

THE Industrial Hygiene Section has asked me to say something of the work being done in Pittsburgh.

This question will divide itself into two parts, viz: the smoke problem and the dust problem. Of course both are included under General Atmospheric Pollution. The smoke problem, however, is a combustion problem and can be corrected, but the matter of dust and dirt is quite another problem depending on many factors.

Consider the smoke problem first. Pittsburgh has done a great deal toward smoke elimination but unfortunately there is no way of knowing what proportion of smoke is in an atmosphere which also contains fog, dust, haze, and other contaminants. While we can measure the pollution as a whole, we cannot tell the proportion of smoke. We are therefore obliged to rely on general observation. We have cleared some 1,500 smoking stacks in Pittsburgh during the last 4 years and this must have an effect on general conditions. We believe that visibility has improved, fogs are cleaner, etc., but, because of variable weather conditions, a definite quantitative figure is not available.

Now, coming to the dust and dirt problems—as I said, its solution depends on many factors. The weather is probably the most important factor.

Let me illustrate: Some six or eight years ago Pittsburgh undertook a very elaborate dust fall collection. We had 100 receptacles on roofs scattered throughout the city and for some two years the contents were collected from these cans every month. The insolubles were analyzed for volatile matter, fixed carbon, and ash. The ash was further analyzed for iron and silica. The solubles were analyzed for sulfur.

In addition to the dust collecting cans we had an Owens Automatic air filter, an Owens jet dust counter, and an impinger dust counter. We have a very large and impressive volume of data. In all this mass of data, unfortunately, weather conditions were not recorded. Where we have been able to trace back through U. S. Weather Bureau and other records, we find that a relation seems to exist between the amount of dust fall and weather conditions, especially that of temperature inversion.

I assume everyone here understands the term "inversion" but perhaps I should briefly explain it. When the earth is warmer than the air, there is a natural rise of the whole atmosphere, warm air being lighter than cold air, which carries the pollution up with it, and we have a bright clear day. But, when inversion takes place: i.e., when the earth is colder than the atmosphere, it cannot rise and forms what is called a meteorological lid, which holds the pollution down.

* Presented at a Joint Session of the Industrial Hygiene and Engineering Sections of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 9, 1947.

Our records indicate that with all industries down (Sundays, holidays, etc.), if a heavy lid existed, we would get a large dust deposit all over the city, but where there was no lid, yet with all the mills running full and throwing out a great deal of pollution, we found a small deposit. In other words, what the cans were really measuring was a weather condition.

We have run a short test indicating this condition. During February, 1946, there was a general strike and the mills of the district were completely shut down for a short period.

We had on the roof of the City-County Building what might be called "an electric air pollution recorder," an instrument designed at Mellon Institute for Industrial Research. A very few were built and we were fortunate enough to obtain one. The instrument contains a paper tape about $\frac{1}{2}$ " wide which is drawn over a magnet. About $1\frac{1}{2}$ " above the tape, directly over the magnet, is an electrode of high voltage. Atmospheric air is drawn in through a tube surrounding the electrode and, coming down against the paper, deposits any dust on it. The paper moves over the magnet very slowly—1" per hour, so that 24" of paper show the dust deposited for each hour for a day and a night. The shade on the paper indicates the amount of dust in the atmosphere.

We ran this instrument continuously during the steel strike with the mills shut down and again after the strike was over and the mills operating. We have mills all around us at varying distances. The nearest are some $1\frac{1}{2}$ miles east and others to the west about the same distance. When the mills started after the strike, it took them some two weeks before they were running at full capacity again.

Therefore, we have record tape showing three conditions, mills entirely closed down, mills running at about 60 per cent capacity, and mills running full. We cut the continuous paper tape into 24 hour lengths to show each day above the other.

In order to compare results, we chose an arbitrary scale of shades. We assumed that the darkest shade carried 4 dust units and then graded the shades down to white with zero units. We could only measure the shades by estimating them by eye.

The results of this estimate show the average dust per hour to be as follows: Mills off show 1.77 units of dust per hour; mills 60 per cent on, 1.61 units of dust per hour; mills full, 1.68 units of dust per hour. These figures mean that the three pictures show practically the same amount of dust deposited in each case. In other words, so far as general atmospheric dust conditions at our building were concerned, it did not make any difference whether the mills were running or not.

Furthermore it is very noticeable from the pictures that dust is deposited in mornings and nights, while in the middle of the day the tape is comparatively white. That is: inversion was taking place nights and mornings, but when the sun came out in the middle of the day and warmed up the earth, the lid tended to disappear and the tape record to show white.

This is really what should be expected since the tests are reflecting weather conditions. There were no storms, violent winds, or other extraordinary disturbances during the period of the tests. One thing the test does distinctly show is that the measurement of dust conditions does not reflect combustion conditions.

General Atmospheric Pollution

Los Angeles "Smog" *

CHARLES L. SENN

*Engineer-Director, Bureau of Sanitation, City Health Department,
Los Angeles, Calif.*

ON winter mornings when most air pollution control officials are especially busy controlling smoke, soot, and fly ash from overloaded heating plants, Los Angeles residents can usually see distant snow-capped "Old Baldy" mountain with sparkling clarity. On the other hand, air pollution conditions on many summer and fall mornings have caused "smog" stories to become favorites of Hollywood radio comedians. The need for cleaning the air has become a major public issue. Office and industrial workers frequently find a disappointing contrast between high, clear and sunny mornings in residential areas and the hazy, irritating, burned-petroleum-scented blanket accumulated in the business and industrial section of the Los Angeles River basin.

Although this peculiar condition had existed for a number of years and was reported by the press in 1940, it did not become acute until July, 1943, when the haze and irritants were noticeable between 8:00 a.m. and 12:00 noon on several days. On July 26 they became so acute that most people in the affected area were using handkerchiefs to wipe tears from red, smarting eyes. Every telephone in the Health Department was busy answering complainants. On that morning smoke from a heavy freight train produced a black cloud that hung

near the ground, was several hundred feet wide, and extended for several miles. Smoke from chimneys spread out and formed a black cloud that extended for more than a mile from their source. According to the weather bureau the wind velocity was less than 2 miles per hour. A further examination of the records of the weather bureau, for days when air contaminant accumulations were heavy, failed to show any direct correlation between smog accumulations and humidity or recorded wind directions.

We assigned sanitarians to strategic vantage points while others drove across and observed the affected metropolitan area. These observations and information received from complainants showed that the hazy accumulation seemed to descend on the entire area, approximately 10 miles in diameter, within a period of not more than 15 minutes. On each of the mornings the air was perfectly clear until about 8 o'clock and was hazy by 8:15. On one morning, from the City Hall tower, we could clearly see the mountains 20 or more miles away but could barely see cars on the street below. We looked down on a level lake of dark grey haze.

Meteorologists pointed out that the upper surface of this haze was actually the base of a marked "temperature inversion." On clear, calm nights the ground heat is lost by radiation and cold air drains from surrounding mountains to the river basin. Direct and reflected rays of the morning sun warm

* Presented at a Joint Session of the Industrial Hygiene and Engineering Sections of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 9, 1947.

the upper air causing the temperature at an elevation of 1,000 feet to be as much as 30° warmer than near the ground. This temperature inversion acted almost the same as a roof over the city, preventing contaminants from escaping to the upper air. This condition, coupled with the very low horizontal air movement and lack of turbulence, caused all contaminants to be accumulated in the vicinity where generated.

With conditions so unfavorable to the dispersion of smoke we believe our control measures must eliminate even those sources of air pollution not significant in most communities. We have no coal-burning furnaces or boilers, and nuisance conditions occur only on warm days when heating plants are not operated. During such periods many industrial boilers are operated on gas available at "off peak demand" rates.

We made a number of airplane and blimp observation trips over the entire metropolitan area. Certain specific sources of visible smoke and contaminants were readily apparent. These included refineries located near the ocean shore approximately 20 miles from the affected metropolitan area. Smelters, chemical plants, packing plants, and oil-burning boilers in a large industrial area located east of and within 2 miles of the metropolitan area were heavy contributors to the visible smoke. Oil-burning steam railroad engines, particularly switch engines, caused a huge amount of dense, black smoke. The burning of combustible refuse of all kinds in backyard incinerators, at commercial and industrial establishments and at public dumps was producing heavy accumulations of grey and black smoke. Major highways and traffic arteries, particularly those heavily traveled by smoking Diesel trucks, produced long bands of smoky haze accumulations.

Control of visible smoke was our first goal. Simultaneously we began studies to determine the chemical na-

ture and sources of the irritants. At the request of the Health Officer, Mayor Fletcher Bowron made personal appeals for assistance to the U.S. Public Health Service and other federal agencies. He tried to encourage a local university to undertake a combination meteorological and chemical study, and the Los Angeles County Board of Supervisors agreed to pay the entire cost of the investigations and research. None of these agencies agreed to undertake the project.

Both the city and county health departments established Bureaus of Air Pollution Control and these worked together in developing identical ordinances and uniform programs. The Board of Supervisors agreed to provide free control services to the 40 or more incorporated cities in the county but few accepted the offer. Unless an incorporated community adopted the regulations, neither Los Angeles City nor the county had any legal right to effect control in that area.

Even with large, uncontrolled industrial communities continuing their discharge of air pollutants, a marked improvement has been accomplished. Joint City-County Smoke Abatement Hearing Boards, working with railroad officials and representatives of the Brotherhoods, have nearly eliminated railroad smoke. This is being accomplished by hearing cases presented by railroad smoke specialists of the departments, after which the railroad officials find and eliminate the cause. When it was decided it was impossible to eliminate smoke from steam switch engines, the railroads substituted Diesel power.

Truck owners and the drivers' union are represented on the Diesel (truck) Smoke Control Hearing Board. The city Diesel truck specialist has encouraged installation of a number of dynamometers for adjusting fuel injectors for maximum efficiency and smokeless operation under various load conditions. H. E. Kunkel, the Air Pollution

Control Director, conducts regular classes in smoke observation for city traffic officers. These officers cite violators to the Hearing Board. Mechanical adjustments of the offending engine, or improved operation by the drivers, have almost eliminated the former common clouds of black truck smoke. Articles and pictures by our Diesel specialist have appeared in the truck drivers' and owners' magazine. A major oil company has made an excellent colored moving picture on smokeless operation of Diesel trucks.

Industry has been exceedingly cooperative. The Chamber of Commerce has for several years held bi-weekly meetings of its Committee on Air Purification. Technical consultants from the petroleum industry have been most helpful in correcting smoke from oil burning boilers. Refineries have spent hundreds of thousands of dollars in abatement equipment. Lumber, paint and varnish manufacturers, smelters and other industries are doing extensive research. While a number of court cases were necessary, most accomplishments have been on a cooperative basis.

Funds have been made available for construction of a number of public incinerators. Plans are being formulated for public collection of combustible refuse to eliminate the several hundred thousand smoke-producing back-yard incinerators.

Preliminary information indicates that a major reduction in visible smoke has already been accomplished. During the year 1943, electrostatic precipitator samples gathered on days when irritants were particularly noticeable showed a concentration of particulate matter ranging from 15 to 42 mg. per 10 cu. m. During the year 1947 similar samples showed a maximum concentration of 7 mg. per 10 cu. m., or a reduction of from 100 to 600 per cent. Visual observations also indicate a remarkable reduction in the amount of man-made haze,

although much remains to be accomplished in this regard.

Naturally one of our first objectives was to locate and identify the eye-irritating chemicals. Industrial type hygiene sampling investigations made by the city and county failed to reveal any one common lachrymator in quantities sufficient to be considered responsible for the eye irritation. The County Health Department also arranged for analyses of mass spectograph samples collected in various ways including freezing with liquid nitrogen, but so far no conclusive results can be reported. The two chemicals present in the air in significant amounts are sulfur dioxide and aldehydes. Both serve as rather accurate indices of the eye irritant condition since whenever eye irritation is noted the concentration of these chemicals is high. Sulfur dioxide, however, has never been found in amounts greater than 0.6 p.p.m. This is several hundred per cent lower than is regularly found in certain eastern and midwestern coal burning communities where eye irritation is not a problem. The maximum aldehyde concentration was also 0.6 p.p.m., an amount insufficient to account for the irritation.

There is some indication that exhaust from internal combustion engines is a major contributor. Tests made in an improperly ventilated tunnel during heavy traffic indicate heavy concentrations of aldehydes and marked eye irritation at times when the outside air is clear. Tests of car, truck, and bus exhausts show that the discharge of aldehydes is high when the engine is decelerating. The general odor present during days of eye irritation is similar to the discharge from automotive buses and the irritating effects of both are similar. Because of this it is difficult to predict with any assurance that the control of industrial and railroad smoke will eliminate the eye irritation. Further studies need to be made on the effect of automotive ex-

haust and possibly some control measures will be necessary.

The county arranged for certain limited studies by two local universities. Results of the chemical and physiological studies have not been officially announced, but they are not conclusive. Meteorological studies substantiate our earlier observations on the effects of weather conditions on air pollution.

Recently we made the first of a series of airplane observation flights which we hope will shed further light on the major sources of visible haze. This is a volunteer project of the National Guard Air Unit, which is justified because reduced visibility, caused by man-made haze, is a definite flight hazard.

Under stimulation and public support developed by an active program of the *Los Angeles Times*, the last session of the California Legislature adopted a law permitting formation of County Air Pollution Control Districts with authority for enforcing regulations in all sections of a county. There is now being formed a Los Angeles County Air Pollution Control District. Unfortunately, because the former County Health Officer was anxious to be relieved of the responsibility for air pollution control, the new law provides that the districts shall be separate from the Health Department. While the City of Los Angeles is a part of this smoke district, the Mayor and Council have appropriated funds for continuing the city's Bureau of Air Pollution Control within the Health Department. We have felt that air pollution control is definitely a part of our sanitation program; that we cannot properly refer complaints about odors, smoke, and other nuisances to another agency; that our district sanitarians can take care of many of the

minor complaints about air pollution, referring to the specialist only those more involved problems that require technical guidance. We shall look to the County Bureau for the major research and will cooperate with them in that as well as in the entire enforcement program.

SUMMARY

Los Angeles experiences, on certain summer and fall mornings, heavy accumulations of types of air contaminants causing serious smarting of the eyes. This accumulation is due to a low and marked temperature inversion accompanied by extremely light winds or total absence of horizontal air movement. The actual sources of the irritants have not been discovered, but a program has been inaugurated for eliminating all sources of visible air pollution. Due to the large number of complex chemicals that could be produced by incomplete combustion of petroleum products we have not been able to identify the irritant. There is some possibility that the chemicals in the air are different from those leaving the sources. The effect of hydrolysis, oxidation, catalytic action of sunlight, and other factors must be considered. To isolate and identify the chemical is a complex problem. Meteorological investigations and regular airplane observations will be continued in the hope of gaining more definite knowledge of the location of the major pollutant sources.

Our experience indicates that health department, engineering, and industrial hygiene bureaus, working together, form a logical team for air pollution control; and that air pollution control should be accepted as a health department responsibility.

General Atmospheric Pollution

New York City's Atmospheric Pollution Control Problems *

ARTHUR C. STERN

*Chief, Engineering Unit, Division of Industrial Hygiene and Safety Standards,
New York State Department of Labor, New York, N. Y.*

THE day-to-day activities of the New York State Labor Department in securing the installation of dust control devices on industrial plant discharges to the atmosphere and in preventing the installation of gaseous discharges from those plants which might prove nuisances to neighboring premises, has been the only form of air pollution control carried on as the continuous full-time activity of a public agency in New York City during the ten years from the completion of the City Health Department's Air Pollution Survey in 1937 to the rebirth of activity by that department during the past year. During this time a number of requests from New York City authorities for action in the case of individual plant complaints and problems have been received and acted upon. However, the only official contact with large-scale air pollution control in the city occurred in 1943 when, at the request of the City Health Department, a special study was made of means for decreasing the rate of soot fall in the Williamsburg area of Brooklyn.

In general, however, the State Labor Department has no jurisdiction in the field of General Atmospheric Pollution and has rendered assistance to municipalities only upon request from the municipality and only on a consulting

basis. It was on this basis that the department aided the City of Niagara Falls in the writing of its recently adopted air pollution charter amendment, ordinance, rules and regulations; aided the City of Buffalo in a problem involving dust dissemination from a cement plant; and is currently aiding the Township of North Castle in the solution of its smoke and cinder problem. Because these matters are beyond the jurisdiction of the Labor Department, it must be fully understood that the opinions expressed in this paper are solely the author's and not necessarily those of the department.

New York does not have a bad reputation as a smoky, smoggy, or foggy city. It is traditionally a hard coal rather than a soft coal city, and its air pollution problem is not dominated by any single industry or group of industries making abnormally large contributions to the dust or smoke load of the city's air. If there is any outstanding single group of offenders it is the public utility steampower plants, both privately and publicly owned. The one thing above all others that the city has to fear is a sudden forced change-over from hard to soft coal which would throw potentially smoky fuel into the several hundred thousand furnaces designed for, and now burning, hard coal. A severe fuel oil famine might have the same effect, since large segments of former hard coal burning load has been converted to the use of fuel oil.

The emission of atmospheric pollu-

* Presented at a Joint Session of the Industrial Hygiene and Engineering Sections of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 9, 1947.

tion has been regulated since 1903 by two sections of the New York City *Sanitary Code*. These provisions stipulate that

1. No person shall allow smoke, cinders, dust, gas, steam, or offensive odor to escape or be discharged from any building to the detriment or annoyance of any person not therein engaged.

2. The emission of dense smoke is specifically prohibited without requiring proof of detriment or annoyance, and all persons participating in permitting or causing that emission as owners, tenants, managers, engineers, firemen, etc., are severally liable therefor.

3. All buildings, locomotives, and vessels are subject to the above prohibitions.

In 1937 New York City adopted a new *Building Code*, applicable to all structures built after that date, which includes the following provisions:

1. A requirement that plans and specifications for fuel burning equipment installations must be filed with and approved by the Commissioner of Housing and Buildings prior to installation.

2. A stipulation that the New York City Board of Standards and Appeals shall promulgate rules for the design and installation of fuel burning equipment and that installation shall comply with these rules.

3. A statement that fuel burning equipment shall be so designed that "under normal conditions of operation they will not discharge smoke, soot, cinders, or fly ash or other residue in such quantities as to cause annoyance to the public or injury to business or property."

4. A limitation of emission to 400 grains per 1,000 cu. ft. of combustion gases in the case of solid fuels and a prohibition of visible discharge of soot or smoke in the case of liquid fuel; cinder or fly ash catchers are otherwise to be required.

5. Instructions as to the conduct of the test for maximum cinder or fly ash emission.

In order to activate this program, these five provisions require the Board of Standards and Appeals to promulgate rules; and the Department of Housing and Buildings to examine fuel burning equipment plans from an air pollution control viewpoint, and to test com-

pleted installations from this same viewpoint. None of these things has been done in the ten years since the adoption of the *Building Code*, with the result that these *Building Code* provisions still remain merely statements of intent on paper. Only those *Building Code* rules on heating appliances, combustion, and chimneys which relate to the structural safety of buildings and fire prevention therein are at present enforced, there being no apparent attempt to enforce those parts of the rules relating to the emission of smoke, cinders, and fly ash.

In contrast to this, there has been a continuous record of enforcement of *Sanitary Code* provisions regulating atmospheric pollution. Over the years this enforcement has alternated between periods of time when all rank-and-file sanitary inspectors enforced these regulations along with their multitudinous other inspectional duties and periods of time when certain inspectors were designated as smoke inspectors or members of a smoke squad and thereby relieved of all duties other than enforcement of atmospheric pollution regulations and the conduct of educational work along these lines. During the ten years from 1936 to 1946, the rank-and-file inspectional approach was employed. For a large part of this time very little, if any, enforcement beyond that resulting from specific citizens' complaints was attempted. However, during the past year a modified form of the smoke squad approach has been once again adopted by the special assignment of a group of sanitary inspectors to form a smoke squad.

At present the smoke squad consists of 11 inspectors and one supervising inspector attached to the Bureau of Sanitary Engineering and responsible to the director of that bureau, a sanitary engineer. This group functions in so far as possible in a staff capacity presently working on 6 problem area demonstration projects and two special projects,

and on educational and training activities. Routine complaints are presently being funnelled by the squad to the 50 to 60 regular sanitary inspectional field men in each borough through one man in each borough specially designated and trained for this purpose by the squad. However, it is anticipated that eventually all inspectors will receive this special training. The Health Department has estimated that the Smoke Unit is responsible for causing the initiation of over \$2,000,000 worth of plant modernization and improvement during the past year; and \$3,500,000 worth in the year to come.

It should be noted that the air pollution control activity outlined above is being accomplished by the assignment of inspectors who previously had general sanitary inspectional duties and not by the appointment of new inspectors. Since air pollution inspectional activity had previously been a very minor part of the sanitary inspector's job, the diversion of 10 per cent of the staff to full-time work in this field and the increase in the percentage of time spent on this work by the rest of the field staff cannot but result in a decrease of time available for their other important inspectional activities. In 1928 the Health Commissioner's Air Pollution Control Committee advised that a staff of 88 inspectors plus an administrative staff of 16 would be necessary to carry on a full-scale air pollution control program in New York City. In 1933 a very competent administrator of the air pollution control program of a mid-western city estimated New York City's need as 62 inspectors plus an administrative staff of 20. Granting that these estimates are as much as 100 per cent too high, they nevertheless indicate the need for an air pollution control staff comparable in size to the present sanitary inspectional staff or conversely the use of 100 per cent of the time of the present staff to accomplish the kind of

air pollution control job envisioned by the Commissioner's advisory committee in 1928. The latter being obviously impossible, the former indicates the need for a vastly enlarged staff, if this work is to be brought to a successful conclusion.

At such time as the Board of Standards and Appeals prepares rules for the design and installation of fuel burning equipment, the Department of Housing and Building will also need additional personnel to do the job. Neither this additional staff nor the additional staff which the Health Department would require can come into being without a fight for the necessary appropriations. The best strategy in the fight to obtain these appropriations would therefore seem to be, first to eliminate duplication of personnel and appropriations by combining the Health Department and Housing and Building Department units into one unified group. It is fundamentally unsound to have one city department responsible for approving and testing new construction and another one responsible for it thereafter. Approval and testing of new constructions is an engineering job; smoke inspection is not. In a unified set-up, engineering guidance to the entire program is available at no extra cost; whereas in a non-unified set-up full-time engineering guidance of the inspectional program either has to be obtained at extra cost or dispensed with entirely. A unified air pollution control unit of the type needed could function equally well in the Health Department, the Housing and Building Department, or under a commission, commissioner or board independent of both departments.

Early this year the Health Commissioner appointed 12 committees to advise him on air pollution control matters. They are respectively Committees on Public Coöperation, Harbor Craft, Railroads, Public Utilities, Automotive Transportation, Laws and Legislation,

Fuel Oils, Solid Fuels, Real Estate and Industry, Public Health Aspects, Plant Operation, and City Departments. A Subcommittee on Civic Group Coöperation was formed from the Committee on Public Coöperation. The Committees on Plant Operation, Fuel Oils, and Solid Fuels have combined efforts to become a Technical Advisory Committee on Fuels and Plant Operation. The department states that all but two of these groups have been active, three of them having already submitted written reports to the Commissioner. The Committee on Civic Group Coöperation has prepared a two page pamphlet for distribution to civic groups eliciting their coöperation, and is planning a pamphlet on combustion in the near future. Active participation in the city's smoke control program by the Committee on Railroads has already begun, with the roads themselves disciplining firemen for violation of the smoke ordinance due to non-coöperation or carelessness.

In conclusion, it should be noted that the city's program has the active support of powerful elements of the press

but that the public as a whole is apathetic to the problem. A citizens' committee has been formed, the author being one of the organizers, to attempt to break down some of this apathy and to support the official program of the city. A firm foundation of factual data upon which to base a control program is available to the city in the *Report of the Air Pollution Survey* which gathered data from 1935 through 1937. Most of these data have been published,¹ but the unpublished portions as well are available to the city authorities to guide them in planning their efforts. In 1943, soot fall studies of limited scope were reinaugurated by the Health Department, and have been continued to date. However, considerably more current data on the level of pollution in the city's air should be continuously made available to support a control program of the magnitude that the world's largest city deserves.

REFERENCE

1. Heating, Piping and Air Conditioning. A.S.H.V.E. Journal Section, July, Aug., Sept., and Oct.-Nov., 1945. Reprinted as *Air Pollution in New York City* by New York City Department of Health.

Medical Attendance During Terminal Illness*

MARTA FRAENKEL, M.D., F.A.P.H.A.

*Research Associate, Department of Preventive Medicine and Community Health,
Long Island College of Medicine, Brooklyn, N. Y.†*

HOW adequate is the amount of medical care which people living in various parts of the country receive? The collection of reliable information on this score has been attempted in various ways. At least on one occasion, the data from death certificates were used for this purpose: in his testimony in the Hearings on the Economic Security Act in 1935, Dr. F. J. Underwood, Health Officer of Mississippi, quoted figures of the number of persons who, according to the information on death certificates, died "without any medical care whatsoever."

The study, which is briefly summarized in this paper, was made in the Division of Health and Disability Studies of the Bureau of Research and Statistics, Social Security Administration. Data on death certificates were analyzed for information on medical attendance during terminal illness. These data indicate possible answers to such questions as: What proportion of deaths occur without any medical attendance or with what appears to be inadequate medical attendance during terminal illness? What proportion of such deaths occur at home and what proportion in hospitals? How do these proportions

vary among states? What proportion of home deaths occurs in communities of different size and how does the medical attendance of home deaths vary with different size communities? What are the age and race characteristics of persons who die unattended at home?

DESCRIPTION OF THE SAMPLE

This paper presents some of the results of an analysis of a sample of death certificate transcripts. A total of 18,484 certificates from seven states, for the year 1941—the latest year in which substantially pre-war conditions prevailed—constituted the sample. The seven states were chosen, subjectively not mathematically, to represent different geographic areas of the country and other socio-economic factors believed to be important in evaluating medical attendance during terminal illness. The seven states of the sample were: Arkansas, Colorado, Indiana, Missouri, New Jersey, North Dakota, and Virginia. The deaths which occurred in these states constituted 13.8 per cent of all deaths in the United States in 1941.

From the total number of death certificates for these seven states, the National Office of Vital Statistics—at that time, the Division of Vital Statistics of the Bureau of the Census—selected the state samples. The total of 18,484 death certificates in the sample constituted nearly 10 per cent of all the deaths occurring in the seven

* Presented before the Vital Statistics Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 6, 1947.

† Summary of a study conducted by the author while a member of the staff of the Division of Health and Disability Studies, Bureau of Research and Statistics, Social Security Administration, Washington, D. C.

states. The samples for the individual states, however, varied from slightly less than 5 per cent for New Jersey to slightly more than 20 per cent for Colorado.

For the purpose of this study, deaths due to accidents and violence—rubrics 163 through 198 of the *International List of Causes of Death*—were excluded if death occurred within 24 hours of the accident, since in many instances medical attendance would have been impossible. There were 1,201 such deaths. Eighteen other certificates had to be excluded because the data on medical certification were not complete.

For that part of the study relating to place of death, an additional 607 certificates were excluded because the deaths occurred in places other than home or hospital. For the more detailed analysis of home deaths, deaths of infants who died within the first 8 days of life were also excluded.

DEFINITIONS ADOPTED FOR THIS STUDY

Medical attendance during terminal illness was classified into four categories depending on the entries in the "medical certification" section of the death certificates—items 20 through 23 of the standard certificate.* The four categories of medical attendance used in this study are:

1. Without *any* attendance—if the deceased was not attended by a physician during terminal illness and if no physician was present at time of death. If death occurred in a hospital, it occurred before medical attendance could be given.

2. Without *recent* attendance—if the certifying physician attended deceased in the past but had not seen him alive on the day of death or on the preceding day.

3. Pre-death attendance only—if the cer-

tifying physician attended the deceased only on the day of death or on the preceding day.

4. Routine attendance—if the certifying physician attended the deceased on the day of death (or the preceding day) and for at least 2 days before death.

LIMITATIONS OF THE DATA

This classification does not have uniform meaning for deaths of different types; for instance, if death occurs suddenly and unexpectedly, as in many cases of cerebral hemorrhage and coronary thrombosis, no protracted medical attendance during terminal illness can be expected. Unfortunately, in many instances the causes of death as recorded on the death certificates do not indicate clearly whether or not death did occur suddenly; vague diagnostic terms (frequent among them "cardiac failure") and lack of information on duration of the condition recorded as the cause of death often dim the picture, especially when the death occurred without any attendance or with pre-death attendance only. This is an important limitation of the study.

Another limitation is that the death certificate shows only the attendance of the particular physician who signed the certificate. The figures presented here are, therefore, subject to a limitation arising from lack of information for patients who changed their physician during their terminal illnesses or who, shortly before death, transferred from home to hospital or from hospital to home.

TYPE OF ATTENDANCE

For this part of the analysis, the effective sample consisted of 16,658 death certificates. Table 1 shows, for each state, the percentage distribution of these deaths by type of attendance and the average, weighted by the total number of deaths occurring in each state, reduced for "immediate external" deaths and deaths in miscellaneous places by the same proportion as were

* These are the items which give date and time of death; the dates from and to which the certifying physician attended the deceased; the date on which the certifying physician last saw the deceased alive; the causes of death; additional information on deaths from external causes; and whether or not the person certifying to the death was a physician.

TABLE 1

*Analysis of 16,658 Death Certificates from Seven Selected States, 1941¹**Percentage Distribution of Deaths by Type of Medical Attendance*

Type of Medical Attendance ²	Arkansas	Colorado	Indiana	Missouri	New Jersey	North Dakota	Virginia	Weighted Average
All types	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Without any attendance	19.2	9.2	7.8	8.7	6.5	7.8	12.1	9.5
Hospital	1.2	0.8	0.7	2.4 ⁴	"	0.4	0.7	1.0
Home	18.0	8.4	7.1	6.3	6.5	7.4	11.4	8.5
Without recent attendance	14.1	8.0	11.0	14.3	3.6	9.4	13.8	10.6
Pre-death attendance only	14.9	15.6	13.0	11.9	12.1	18.8	17.3	13.7
Hospital	2.9	7.5	5.0	3.9	8.6 ⁵	8.8	5.4	5.7
Home	12.0	8.1	8.0	8.0	3.5	10.0	11.9	8.0
Routine attendance	51.8	67.2	68.2	65.1	77.8	64.0	56.8	66.2
Hospital	18.5	40.2	25.3	32.2	41.7	37.6	23.1	30.9
Home	33.3	27.0	42.9	32.9	36.1	26.4	33.7	35.3

¹ Represents approximately 10 per cent of deaths occurring in the selected states in 1941; excludes immediate deaths due to external causes and deaths in miscellaneous places (other than home and hospital).

² Definitions of "types of attendance":

"Without any attendance": deceased was not attended by a physician during terminal illness and no physician was present at time of death. If in a hospital, death occurred before medical attendance could be given.

"Without recent attendance": certifying physician had attended deceased in the past but had not seen him alive on the day of death or on the preceding day.

"Pre-death attendance only": certifying physician attended deceased only on the day of death or on the preceding day.

"Routine attendance": certifying physician attended deceased on day of death (or preceding day) and for at least 2 days before death.

³ Weighted by the total number of deaths occurring in each state reduced, for "immediate external" deaths and deaths in "miscellaneous places," by the same proportion as in the sample for each state.

⁴ Includes all hospital deaths certified by coroners.

⁵ Since all deaths in hospitals and institutions occurring within 24 hours after admission have to be certified by a medical examiner, a distinction between hospital deaths "with pre-death attendance only" and "without any attendance" is not possible.

the deaths in the sample for each state.

For the seven states, slightly less than 10 per cent were reported as without any attendance, slightly over 10 per cent as without recent attendance, nearly 14 per cent as with pre-death attendance only, and approximately 66 per cent as with routine attendance. As may be seen from Table 1, there is considerable variation among the states. For instance, for deaths without any attendance, the per cent varied from 6.5 in New Jersey to 19.2 in Arkansas. Deaths without recent attendance varied from 3.6 to 14.1 per cent, with New Jersey again the low state and Arkansas the high. Missouri showed the lowest proportion of deaths with pre-death attendance only, and North Dakota had the highest proportion.

States, such as New Jersey, which

showed a low proportion of deaths with limited amount of medical attendance (the first three categories) obviously would show a comparatively high proportion of deaths with routine attendance.

HOSPITAL AND HOME DEATHS

For the seven states, approximately 38 per cent of the deaths occurred in hospitals and 62 per cent at home. The proportion of hospital deaths varied

	Hospital	Home
Arkansas	22.6	77.4
Colorado	48.5	51.5
Indiana	31.0	69.0
Missouri	38.5	61.5
New Jersey	50.3	49.7
North Dakota	46.8	53.2
Virginia	29.2	70.8
Average	37.6	62.4

from less than 23 per cent in Arkansas to more than 50 per cent in New

TABLE 2

Hospital and Home Deaths by Age, Each of Seven Selected States, 1941

	Age in Years					
	<i>Under 15</i>	<i>15-44</i>	<i>45-64</i>	<i>65-74</i>	<i>75-84</i>	<i>85 and over</i>
Arkansas	100.0	100.0	100.0	100.0	100.0	100.0
Hospital	22.6	34.4	24.7	19.0	13.6	15.7
Home	77.4	65.6	75.3	81.0	86.4	84.3
Colorado	100.0	100.0	100.0	100.0	100.0	100.0
Hospital	50.7	75.6	56.9	45.0	35.3	27.6
Home	49.3	24.4	43.1	55.0	64.7	72.4
Indiana	100.0	100.0	100.0	100.0	100.0	100.0
Hospital	58.3	54.0	38.0	24.5	16.8	9.0
Home	41.7	46.0	62.0	75.5	83.2	91.0
Missouri	100.0	100.0	100.0	100.0	100.0	100.0
Hospital	50.2	64.5	47.2	37.9	21.5	13.8
Home	49.8	35.5	52.8	62.1	78.5	86.2
New Jersey	100.0	100.0	100.0	100.0	100.0	100.0
Hospital	85.6	75.9	53.6	40.4	33.5	27.7
Home	14.4	24.1	46.4	59.6	66.5	72.3
North Dakota	100.0	100.0	100.0	100.0	100.0	100.0
Hospital	57.3	76.0	57.4	41.3	30.0	21.1
Home	42.7	24.0	42.6	58.7	70.0	78.9
Virginia	100.0	100.0	100.0	100.0	100.0	100.0
Hospital	31.6	51.7	30.2	25.9	13.2	11.3
Home	68.4	48.3	69.8	74.1	86.8	88.7

Jersey. To some extent, these figures probably reflect the extent of hospital facilities available in the states.* For the seven states, 31 per cent of the deaths had routine attendance in hospitals. The three states of Arkansas, Indiana, and Virginia had less than this average, while New Jersey had 42 per cent of the deaths in this category.

As would be expected, very few of the hospital deaths were classified as without any attendance, although an average of 1 per cent of the deaths were emergency cases that died before any medical attendance could be provided.

The unattended home deaths constituted 8.5 per cent of the total deaths for the seven states. Missouri had 6.3 and Arkansas 18.0 per cent in this group.

The proportion of hospital and home deaths by age varied considerably among the seven states. In Arkansas

and Virginia, for example, there was a higher proportion of home deaths in each age group. In Colorado, New Jersey, and North Dakota there was a higher proportion of hospital deaths in the three age groups under age 65. In Indiana and Missouri there was a higher proportion of hospital deaths under age 45 and a higher proportion of home deaths for the age groups over age 45. (See Table 2.)

HOME DEATHS

The home deaths which, as shown in Table 1, constituted 62 per cent of all deaths in the sample, were analyzed in more detail in this study, since this is the group for which less information is available from other sources. For this part of the analysis, deaths of infants of less than 8 days of age were excluded. There was a total of 10,305 home deaths (out of 16,521) certificates used as the basis of the following analysis.

ATTENDANCE OF HOME DEATHS

Averages for the seven states,

* In 1941, the average number of beds in general and special hospitals exclusive of federal hospitals, per 1,000 population, was 1.6 for Arkansas, 3.8 for New Jersey, and 3.3 for the entire United States.

weighted by the number of deaths in each state, showed that 14 per cent of the home deaths were without any attendance during terminal illness, 18 per cent were without recent attendance, 12 per cent had pre-death attendance only, the remaining 56 per cent were classified as having routine attendance.

HOME DEATHS BY TYPE OF ATTENDANCE IN DIFFERENT SIZE COMMUNITIES

The average per cent of home deaths in each of the four attendance categories showed varied relationships to the size of the community in which the deaths occurred. (See Table 3.)

The individual states show some marked variations from these overall averages, but space does not permit the discussion of these different patterns.

UNATTENDED HOME DEATHS BY AGE AND RACE

In this sample of 16,521 death certificates, there were 1,537 deaths which occurred at home without any medical attendance. The age-at-death distribution of these unattended home deaths compared with that for the 16,521 deaths indicates that in the unattended home deaths there was a somewhat larger proportion of deaths under age 65 years. (See Table 4.)

TABLE 3

Home Deaths by Type of Attendance and by Population Size of Community

	Population Size				
	100,000 or More	25,000-100,000	10,000-25,000	2,500-10,000	Rural Areas
Without any attendance	15.6	13.6	11.3	12.5	13.3
Without recent attendance	11.3	12.8	14.9	16.7	21.9
Pre-death attendance only	9.3	10.5	10.9	13.2	12.5
Routine attendance	63.8	63.1	62.9	57.6	52.3

TABLE 4

Unattended Home Deaths by Age

	Number of Deaths	All Ages	Under 15	15-44	45-64	65-74	75-84	85 and over
Sample	16,521	100.0	8.6	12.4	27.9	23.1	20.5	7.5
Unattended home deaths	1,537	100.0	12.1	11.7	32.3	21.0	15.7	7.2

Although routine attendance did not vary widely among places of different size, there seemed to be an increasing proportion of deaths with this type of attendance as the size of place increases. Deaths without any attendance, however, constituted a slightly larger proportion of the home deaths in large cities than they did in rural areas. In the two smaller size city groups, the proportion is slightly smaller than in rural areas. Deaths without recent attendance vary inversely with size of place, being least in the largest size community and greatest in the rural areas.

Table 5 shows the percentage of all deaths in the sample that occurred at home without any attendance in each age group for each of the seven states. This table does not show any marked age specificity although there is some slight indication that these unattended home deaths were proportionately more frequent among middle-aged persons. In states where the unattended home deaths were comparatively frequent (Arkansas and Virginia), there were peaks at both ends of the age range, although the peak for ages under 15 in Arkansas appeared to be due to the distribution of the Negro deaths.

TABLE 5

Unattended Home Deaths per 100 Deaths in Each Age Group, Each of the Seven Selected States (Distribution by Race for Three of the Selected States)

State	Unattended Home Deaths per 100 Deaths	Unattended Home Deaths per 100 Deaths in Specified Age Group					
		Under 15	15-44	45-64	65-74	75-84	85 and over
Arkansas	17.6	19.7	14.7	18.6	17.0	16.7	22.8
White persons	15.5	13.9	15.4	17.2	13.5	16.1	19.1
Negroes	22.1	31.4	14.0	21.3	28.1	20.0	34.3
Colorado	8.4	14.6	3.6	9.8	9.2	6.1	7.9
Indiana	7.1	4.8	11.0	9.5	6.9	4.6	3.7
Missouri	6.2	5.3	6.9	7.8	6.0	5.0	5.1
White persons	5.8	4.5	6.0	7.2	5.7	5.0	5.4
Negroes	9.4	10.0	9.9	11.3	9.6	3.6	...
New Jersey	6.0	5.1	5.5	7.5	5.3	5.6	4.3
North Dakota	7.6	7.2	7.7	8.3	7.1	6.3	10.3
Virginia	10.7	18.0	6.8	11.4	7.8	9.0	15.6
White persons	9.5	16.6	4.6	11.2	7.0	7.9	12.3
Negroes	13.2	20.2	9.9	11.7	10.1	13.8	28.6

CANCER DEATHS

No mention has been made up to this point, of the cause of death information on the death certificates studied. Of the few special, although limited analyses, the data on cancer deaths may be summarized as follows:

Analysis of the 1,953 deaths ascribed to cancer (Table 6) showed that 38 per cent occurred in hospitals and 62 per cent at home. For many cancer patients, care at home may, during the terminal phase of their disease, be as adequate as in a hospital. Slightly more than half of the persons dying at

ages under 45 died in hospitals. In each of the older age groups a higher proportion died at home than in hospitals.

For 79 per cent of the cancer deaths, the type of medical attendance was classified as routine. (Table 1 showed 66 per cent in this category for the sample as a whole.) The proportion with no attendance or with pre-death attendance only was slightly less than 7 per cent. Of the cancer deaths which occurred at home, 8 per cent had either no attendance or had pre-death attendance only, and 23 per cent were without recent attendance.

TABLE 6

Cancer Deaths by Place of Death and by Age of Deceased

	No.	All Ages	Under 45	45-64	65-74	75-84	85 and over
7 states	1,953	100.0	100.0	100.0	100.0	100.0	100.0
Hospital	745	38.1	51.1	43.8	34.9	25.0	22.4
Home and other	1,208	61.9	48.9	56.2	65.1	75.0	77.6

TABLE 7

Cancer Deaths by Place of Death and by Type of Attendance

	All Types of Attendance	Without Any Attendance	Without Recent Attendance	Pre-Death Attendance Only	Routine Attendance
7 states	100.0	2.5	14.3	4.4	78.8
Hospital	100.0	1.2	....	3.8	95.0
Home and other	100.0	3.2	23.2	4.8	68.8

Theoretical Considerations Concerning Caries Control*

L. S. FOSDICK, PH.D.

Professor of Chemistry, Northwestern University Dental School, Chicago, Ill.

AT present there seems to be considerable confusion in the dental profession regarding the best methods for caries control. Some groups advocate control of dental caries through adequate diets,¹ but many groups living on inadequate or semi-starvation diets are relatively caries-free.²⁻⁵ Some groups feel that the best method of caries control is to eliminate carbohydrates from the diet,⁶ and some success has been obtained through this method, although there are large groups of people who consume large quantities of carbohydrates and are relatively caries-free. Other individuals feel that the application of various drugs, such as the fluorides, urea, zephrene and certain enzyme inhibitors may be the most effective means of controlling dental caries,⁸⁻¹¹ but there is still considerable skepticism concerning these methods.

It would be folly to assume that the many controlled experiments concerning the above methods of treatment were in error or that the startling exceptions to the results of any procedure were false. There must be some rational explanation for the conflicting results and opinions that are so prevalent today. At the present state of our knowledge concerning the chemistry of the teeth and saliva, and the mechanism of the formation of carious lesions, it should be possible to explain most of

the discrepancies and to predict the effectiveness of any control method when applied intelligently to any individual.

In 1937¹² it was shown that one fundamental difference between the salivas of caries-immune and caries-susceptible individuals was the rate at which acid would form from carbohydrates in the saliva mixtures. The saliva from susceptible individuals was found to degrade glucose to acid quite rapidly, while the saliva from immune individuals did not cause this fermentation to proceed very fast. About this same time it was suggested,¹³ and subsequently demonstrated,¹⁴ that the mechanism of acid formation in the mouth was identical or very similar to the normal anaerobic conversion of glycogen to lactic acid. This phenomenon occurs during the normal carbohydrate metabolism in muscle tissue and by practically all aciduric microorganisms.¹⁵⁻¹⁸ It would seem that this conversion is a universal metabolic process. The series of reactions has been intensely explored by numerous investigators, and it has been found that all reactions that take place during the process are enzymic in nature,¹⁹ and under optimum conditions each reaction is extremely rapid. (This series of reactions was formerly identified as the explosive conversion of glycogen to lactic acid.)

There is no reason to expect that under the conditions that exist in the mouth the reactions would be slow. However, it was not until Stephan²⁰ actually measured the rate of acid formation

* Presented before the Dental Health Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 7, 1947.

in susceptible areas of the mouth that the significance of these reactions became clear. It was found that if the saliva was excluded from a susceptible area of the mouth,²¹ the acidity of that area would increase from around pH 6.0 to a pH of around 4 in as short a time as from 3 to 5 minutes, and that under normal conditions this phenomenon would frequently happen in areas in which saliva was not excluded. It was found that the average maximum acidity in the protected areas of the mouth would be reached at about 18 minutes after the applications of sugar, and that the acid potential would be sufficiently great to decalcify enamel²² for periods as long as from 30 to 90 minutes after the application of the sugar.

With the above information it was obvious that the carious process is not a long, continual, gradual, decalcification, but rather a series of intensive decalcifications. Every time a fermentable carbohydrate is ingested there is a very short but intensive attack of dental caries. Thus, if one eats sugar three times a day there would be three attacks, and if one eats sugar six times a day, there would be six individual attacks, providing, of course, that the oral environment was such that the acid would not be neutralized.

There have been many investigations of the composition and amounts of saliva produced, and from these data it is obvious that saliva is of variable composition and amounts.^{23, 24} However, in all cases saliva is a rather highly buffered medium, which becomes more alkaline upon stimulation. The very act of mastication of practically anything will normally cause an influx and a more copious supply of saliva and a more efficient buffering system. From these data it is clear that although acids are rapidly formed in some mouths the natural mechanism of controlling this acidity is the saliva. Practically all salivas will neutralize large quantities

of acids, but some salivas will neutralize more than others.

In view of the above it would seem that in the susceptible areas of the mouth there is a competition between the rate of acid formation and the rate of neutralization, and from an intensive investigation of these two variables²⁵ one should be able to explain the causes of caries and make an accurate prognosis.

If the acid is not neutralized, it will become neutralized by attacking the teeth to form calcium lactate. There are numerous variables which determine whether or not the acids which are formed in the protected spaces will be neutralized, such as the amount of saliva, the quality of the saliva, and the mechanical or anatomical features which are present in the mouth. If the teeth are so arranged in the mouth that there are inaccessible spaces, the saliva, no matter how copious, cannot penetrate these areas, and hence affords no protection against decalcification. Furthermore, the so-called bacteria plaque forms a very excellent mechanical barrier that will not readily be penetrated by the neutralizing influences of the saliva. For this reason, whether or not the acids that are formed are neutralized depends not only upon the quality of saliva, which in turn is controlled by diet, but also upon the many variables which may occur from mouth to mouth.

Most of the conflicting opinions concerning the various prevalent theories of the cause and control of dental caries can be satisfied by the following summary.

Dental caries is caused by an intermittent acid decalcification of the teeth. All of the acid is derived from carbohydrate that is left in the mouth after it is ingested and is not in any way related to that portion that is swallowed. In most cases the carbohydrate must be a fermentable one such as glucose or sucrose, but in those cases when there

is a high ptyalin activity acids may also be derived from starches. Whether or not the acids are harmful depends on whether or not they are neutralized before decalcification of the teeth occurs. This in turn depends upon the rate of acid formation and the rate of neutralization. The rate of acid formation depends upon the substrate and enzyme system. The rate of neutralization depends upon a multitude of variables such as amount of saliva, quality of saliva, and accessibility of the acid to the saliva. Some of the variables, such as the quality of the saliva, depend upon the diet and nutrition and can be controlled. But others such as amount of saliva may depend upon the state of the sympathetic nervous system, while others, such as the form, occlusion, and shape of the teeth depend to a large extent on heredity. Still others such as the bacterial plaque and certain protein constituents of the saliva are still very incompletely understood and the controlling factors in these cases are not known.

On the basis of the above, an adequate alkaline ash diet should decrease caries activity in many cases, due to a better quality of saliva. A starvation sugar-free diet should reduce caries because of the absence of a substrate and no protective action afforded by a well balanced diet is needed.

Some individuals naturally can tolerate large quantities of sugar, either because little of it is retained in the mouth or because the neutralizing system is sufficiently efficient, but on the whole a restriction of sugar should decrease the substrate. The use of enzyme inhibitors should reduce acid formation even in the presence of sugars and hence should produce effective control.

In view of this situation, it is obvious that in order to control dental caries, one must either inhibit the formation of acids or must make it possible for the saliva to neutralize them before dam-

age can result. The best method of approach will depend on the situation which presents in each individual mouth. Excessive acidity may be the result of excessive ingestions of carbohydrates or excessive retention of the carbohydrates that are ingested.

Very few individuals will restrict the carbohydrate intake to an extremely low level, and even then in some cases it is questionable whether positive results can be obtained. It may be that the major portion of ingested carbohydrates will lodge in the inaccessible areas of the mouth and be as harmful as large quantities of ingested carbohydrates in the self-cleansing mouth. This situation can be met by the application of enzyme inhibitors, but even here there is some question of maintaining a concentration of enzyme inhibitors in these areas during the time that acids are formed. At present the only enzyme inhibitor that is retained for appreciable periods of time is the fluoride ion, and this action is not purely inhibition but also a change in enamel solubility. All of the other enzyme inhibitors, of which there are several dozen, must be applied during the ingestion of the food or immediately thereafter. This presents a problem which is difficult to overcome, as very few individuals will take the time to introduce the enzyme inhibitor into the mouth.

A well balanced alkaline ash diet will provide more alkaline saliva, but if the occlusion of the teeth is unfavorable, and if the occurrences of pits and fissures are too numerous so that the saliva does not reach these areas, then the more alkaline saliva will be useless. This explains why some individuals respond to this treatment while others do not. Under these conditions it is practically impossible to control caries at present by any practical means with the possible exception of the topical application of the fluoride ion.

When one reviews the whole situation

it seems that at present no method of caries control is adequate for a large number of our population, not because it is impossible to find means of control, but because of the lack of coöperation of the individual. The methods of control which may succeed are so cumbersome that the individual would rather have rampant caries.

The application of fluoride to drinking water was one major step for the control of caries, because under these conditions the individual is applying an enzyme inhibitor constantly and with no additional effort on his part, but the fluoride ion is not an ideal enzyme inhibitor. It is too toxic to apply in sufficient concentrations to stop all acid formation, and all we can expect from it is simply a slight inhibition. It is quite possible, however, that a 10 per cent inhibition of acid formation will prevent 60 to 90 per cent of the caries, as it is only necessary to slow down the process of acid formation to the extent that the normal neutralizing influences in the mouth can cope with the situation.

A more ideal method would be to find an enzyme inhibitor that is not particularly toxic when ingested, or one that is destroyed by the G.I. tract. Under these conditions there would be no danger of inhibiting carbohydrate metabolism in muscle tissue, and sufficient quantities of the enzyme inhibitor could be utilized actually to stop acid formation. Furthermore, in so far as fermentable carbohydrates are the major substrates which can be utilized by the oral bacterial flora for acid production, some innocuous enzyme inhibitor could be placed in all fermentable sugars during the process of their manufacture. If some such substance could be found, then it would be possible to approach the problem from the purely public health standpoint. We should incorporate the enzyme inhibitor into the offending substrate and hence inhibit the major cause of dental caries. This

would be far superior to the fluoride ion because it would be approaching the problem at its source, and as everyone consumes fermentable carbohydrates, it would require no effort on the part of the individual and would protect those areas which do not use communal waters and under the present conditions cannot secure protection through fluorinated waters.

REFERENCES

1. Boyd, J. D. The Role of Diet in the Control of Dental Caries. *J. Am. Dent. A.*, 27:750, 1940.
2. Schour, I., and Massler, M. Dental Caries Experience in Postwar Italy. *J. Am. Dent. A.*, 35:1, 1947.
3. Day, C. D. M. Nutritional Deficiencies and Dental Caries in Northern India. *Brit. Dent. J.*, 76: 115, 1944.
4. *Ibid.*, 76:143, 1944.
5. Friel, S. The Effect of War Diet on the Teeth and Jaws of the Children of Vienna, Austria. *Internat. J. Orthodontia, Oral Surg. & Radiography*, 8:539, 1922.
6. Jay, P. The Role of Sugar in the Etiology of Dental Caries. *J. Am. Dent. A.*, 27:393, 1940.
7. Mann, A. W., Dreizen, Samuel, Spies, T. D., and Hunt, P. M. A Comparison of Dental Caries Activity in Malnourished and Wellnourished Patients. *J. Am. Dent. A.*, 34:244, 1947.
8. Bibby, B. G. The Use of Fluorine in the Prevention of Dental Caries. *J. Am. Dent. A.*, 31:317, 1944.
9. Knutson, J. W., and Armstrong, W. D. The Effect of Topically Applied Sodium Fluoride on Dental Caries Experience. *Pub. Health Rep.*, 58:1701, 1943.
10. Stephan, R. M., and Miller, B. F. Effectiveness of Urea and Synthetic Detergents in Reducing Activity of Human Dental Caries. *Proc. Soc. Exper. Biol. & Med.*, 55:101, 1944.
11. Burrill, D. V., Calandra, J. C., Tilden, E. B., and Fosdick, L. S. The Effect of 2-methyl-1,4-naphthoquinone on the Incidence of Dental Caries. *J. Dent. Research*, 24:273, 1945.
12. Fosdick, L. S., Hansen, H. L., and Eppler, C. Enamel Decalcification by Mouth Organisms and Dental Caries—A Suggested Test for Caries Activity. *J. Am. Dent. A.*, 24:1275, 1937.
13. Fosdick, L. S., and Hansen, H. L. Theoretical Considerations of Carbohydrate Degradation in Relation to Dental Caries. *J. Am. Dent. A.*, 23:401, 1936.
14. Fosdick, L. S. Carbohydrate Degradation by Mouth Organisms, I. *J. Am. Dent. A.*, 36:415, 1939.
15. Wood, H. G., Stone, R. W., and Werkman, C. H. Intermediate Metabolism of the Propionic Acid Bacteria. *Biochem. J.*, 31:349, 1937.
16. Fosdick, L. S., and Wessinger, G. D. Carbohydrate Degradation by Mouth Organisms, II, Yeast. *J. Am. Dent. A.*, 27:203, 1940.
17. Fosdick, L. S., and Stark, A. C. Carbohydrate Degradation by Mouth Organisms, III, *L. acidophilus*. *J. Am. Dent. A.*, 28:234, 1941.
18. Fosdick, L. S., and Rapp, G. W. The Degradation of Glucose by *Staphylococcus albus*. *Arch. Biochem.*, 1:379, 1943.
19. Barron, E. S. G. Mechanisms of Carbohydrate Metabolism. An Essay on Comparative Biochemistry. *Advances in Enzymology*, 3:149, 1943.
20. Stephan, R. M. Changes in Hydrogen Ion

Concentration on Tooth Surfaces and in Carious Lesions. *J. Am. Dent. A.*, 27:718, 1940.

21. Fosdick, L. S., Campaigne, E., and Fancher, O. E. Rate of Acid Formation in Carious Areas. *Illinois Dent. J.*, 10:85, 1941.

22. Fosdick, L. S., and Starke, A. C. Solubility of Tooth Enamel at Various pH Levels. *J. Dent. Research*, 18:417, 1939.

23. Berks, H., Wainwright, W. W., and Young,

D. H. Does Salivary Calcium and Phosphorus Composition Differ Significantly in Caries Free and Caries Active Individuals. *J. Dent. Research*, 20:171, 1941.

24. Trimble, H. C., Elberton, J. W., and Rasch, P. K. Rate of Secretion of Saliva and Incidence of Dental Caries. *J. Dent. Research*, 17:299, 1938.

25. Fosdick, L. S. A Correlation of Some Facts Concerning the Etiology and Control of Dental Caries. *J. Canad. Dent. A.*, 9:359, 1943.

United States in World Health Organization

On June 14 the United States became the 42nd nation and the last of the Big Five to join the World Health Organization. On that day President Truman signed and deposited with UN Headquarters a joint Congressional resolution providing for United States membership. The Senate approved membership a year ago but House approval was bottled up in the Rules Committee until public pressure forced it out recently. France had deposited her ratification just previous to the United States action.

The House Bill, which approved United States membership in WHO, stipulates an annual limitation of U. S. contribution to WHO expenses of \$1,920,000, about 40 per cent of the agency's budget. It also provides that the U. S. representative on the Execu-

tive Board shall be appointed by the President with the approval of the Senate, and that such representative must be a physician or surgeon with at least three years' practice.

Completion of membership steps came just in time for the United States to have full fledged representation at the organization's first World Health Assembly which opened in Geneva on June 24. The representatives appointed by the Secretary of State are Thomas Par- ran, M.D., recently retired as Surgeon General of the U. S. Public Health Service; Martha M. Eliot, M.D., President of the American Public Health Association, and Associate Chief of the U. S. Children's Bureau; and James R. Miller, M.D., Trustee of the American Medical Association.

Health Department Experience for School Health Coördinators in Washington

MARJORIE EASTABROOKS, M.S.P.H., F.A.P.H.A., AND
HOWARD LUNDY, DR.P.H., F.A.P.H.A.

*Supervisor of Health and Physical Education, State Office of Public Instruction;
and Head, Health Education Section, Washington State Department
of Health, Seattle, Wash.*

The School Health Coördinator

The chief functions of the school health coördinator are to develop and coördinate the entire school health program and to relate it to that of the community. Experience has also shown this individual to be an excellent resource person for busy teachers and an equally valuable ally of the school administrator in relieving him of many of the details connected with the development of the school health program.

The majority of coördinators in Washington are health and physical education majors, and the time allocated for coördination varies from one period a day to a full-time position. In most cases these individuals have had no additional training for the work except attendance at several workshops and short courses.

Specific duties of the coördinator include the following:

1. Presenting to the administrator for his consideration any measures which may be needed to bring the school health program up to currently accepted standards of adequacy and quality.

2. Representing the school administrator at health committee meetings in the school and at community health meetings such as community health councils.

3. Helping to secure an integrated and func-

tional program of health teaching suited to the needs of all children.

4. Working with committees and with individual teachers on revisions of the health curriculum.

5. Securing background materials in health for use by teachers and students.

6. Securing audio-visual aids on health topics and assisting in their use.

7. Assisting in arranging for student field trips on health and for student participation in community health projects.

8. Securing speakers and community resource experts in the health field for all teachers.

9. Assisting in the conducting of workshops in health education.

The number of school health coördinators is steadily increasing in Washington. Where interested and qualified coördinators are employed, advancement of the school health program has been so marked that the State Office of Public Instruction has designated health coördination as one of the special service units for which extra reimbursement is available from the state.

Planning the Experience

The Joint Committee on the School Health Program, composed of representatives from the State Office of Public Instruction and the State Department

of Health, meets periodically to discuss and suggest policies and procedures which might be of assistance in developing local programs. One of its projects has been the formation of a plan whereby six selected school health coördinators received actual work experience in their local health departments during the summer of 1947.

The project was financed by the State Health Department through the use of maternal and child health funds from the Children's Bureau. Each coördinator received \$50 per week or \$300 for the six weeks of the experiment.

In each of the participating health departments, a supervisor was appointed who was responsible for planning the schedule, for introducing the coördinator to the staff, and for facilitating the project in general. This supervisor was either a public health nurse or a public health educator. The Joint Committee felt that this close supervision was essential if the plan were to succeed. Supervision from the state level was the responsibility of the authors.

Selection of coördinators

An announcement of this opportunity for coördinators was sent by the State Superintendent of Public Instruction to school administrators in the state, so that all interested coördinators could ask for consideration. At the same time local health departments were consulted by the State Department of Health as to their willingness and ability to coöperate in the project.

Applications were received from 31 coördinators, with varied backgrounds of experience and training. In selecting the six coördinators for the project, an effort was made to secure variety in the factors mentioned, and consideration was given to the likelihood of real development in their school health programs. School systems represented by the six ranged from a rural consolidated district to that of a large metropolitan

city. With one exception each coördinator was placed in the health department in his own locality.

The General Plan

As soon as the coördinators and the participating health departments had been selected, mimeographed outlines were distributed to both groups describing the nature of the experience desired, suggesting a general schedule which might provide such experience, and calling a meeting of all coördinators and supervisors in the office of the State Health Department.

This conference preceding the actual work experience secured a common understanding and established a feeling of unity on the part of all participants. It also facilitated the arrangement of slight deviations from the general plan which are always found necessary in individual cases.

Each coördinator spent a total of four weeks in the local health department and two weeks attending the intensive short course in health education given at the University of Washington by Dr. Dorothy B. Nyswander. In most cases, the schedule called for two weeks in the health unit, two weeks at the university and then a final two weeks back in the health unit.

A brief report of the experience was required from each coördinator and supervisor. These reports aided greatly in the evaluation of the project. In addition, one or more supervisory visits by the authors also assisted in the evaluation process.

Types of Experience

The following are examples of the types of experience obtained by coördinators through this project:

I. Conferences

A. In the health department

1. Individual, such as with nurses, sanitarians, and the health officer
2. Group, such as with the nursing

ference at a number of schools not participating in the project.

C. Values to the health departments

1. Since the coördinator presented the teacher's point of view, the entire health department staff gained a deeper appreciation of the school's problems and attitudes. Reasons for the success or failure of specific procedures were often brought out and a more democratic approach will undoubtedly result in the future.
2. The initiative for health projects will now come from within the school in many cases, instead of the health department attempting to superimpose them upon the schools.
3. The health department now has a person in the schools who understands the resources, problems, and attitudes of the health unit.
4. The project proved sound from a public relations standpoint since an influential member of the community has become a firm supporter through obtaining a close acquaintance with the personnel, program, and needs of the unit.
5. In several areas the coördinators are planning "orientation visits" to the schools for some of the staff of the health unit. The project will thus enlarge to a two-way affair.

Reactions of Participants

All six coördinators, all six supervisors, and the two authors are unanimous in recommending the project be continued and expanded next summer. The following are sample comments taken from the reports of the participants:

Coördinators

"I know that I have never spent a comparable time in an educational venture which I felt netted me so much."

"The practical, informal, individual type of learning experiences produced unusually satisfying results."

"I read more material during this six weeks than I ever did on a course in my life."

"Time will tell, but I am confident that results will prove that it was the most valu-

able thing we have done to accomplish a coördinated community health program with the school."

"I know it will be a great asset to me in the health instruction program."

Supervisors

"As a result of this six weeks' experience, I am an enthusiastic advocate of training more health coördinators. We would like to see a health coördinator in every school in County."

"I believe that if there could be more of such projects, the gap between the health department and the school would be greatly decreased."

"We would like to recommend that the State Department of Health and State Office of Public Instruction continue this program on a larger scale."

CONCLUSIONS

1. The school health coördinator is a key figure in developing an adequate school-community health program.

2. It is well worth the staff time consumed to bring the coördinator into the health department during the summer months in order to gain first hand knowledge of the personnel and services of the unit, and to plan jointly for the school health program.

3. Close supervision from the local level is essential to the success of the project and state supervision is desirable. The "suggested guide" prepared on the state level is a valuable aid in organizing the experience.

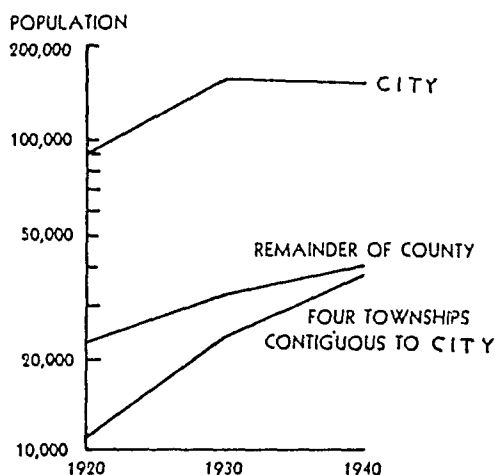
4. The project has proved so valuable and was received with such enthusiasm on the local level that it is planned to continue and expand it next summer. It is hoped that more health departments will participate and that two coördinators instead of one will visit each health department.

5. Since joint planning for a specific school health program was one of the most valuable features of the project, it is recommended that the coördinator work only in the health unit which serves his school.

6. The intensive short course in health education given at the University of Washington added greatly to the value of the project.

7. The possibility of granting academic credit instead of financial remuneration for such experience should be explored.

FIGURE 1⁸—Relative Population Trends of Fringe Area Around City Compared to Rest of County, 1920–1940.



sions, and other land uses—chosen for their relation to problems of environmental health. The population of the suburban area thus defined was approximately 21,000, with a density of 1,300 per sq. mi.

The community's environmental health status may be divided into three major categories: physical facilities, services, and administration.

PHYSICAL FACILITIES

Water Supply—

a. The city-owned water supply conforms to State Health Department quality standards but is inadequate in quantity to satisfy the current demand. The department of public works, responsible for the water supply, is considering development of a new source, which may entail an expenditure of some 18 million dollars. Numerous private supplies are in use, partly because city water summer temperatures reach 76°F. Increasing industrial demands rather than population growth are responsible for the shortage. A city policy of long standing opposes any plan to serve contiguous unincorporated areas, and the expansion plans now under consideration contemplate no change in this pol-

icy, although water mains are adequate, in most cases, to supply the populous areas adjoining the city. Anticipation of future demands is limited to growth within the corporate city limits.

b. Uncontrolled speculative development during previous boom periods accounts for the anomaly of thousands of vacant subdivided lots served by water mains (sufficient to accommodate housing for the entire county 1940 population in single family dwellings), while approximately 5,000 city residents occupy homes located in unserved areas. The city has been unnecessarily burdened with the cost of unused extensions, and the widely scattered houses that have been constructed in remote developments impose a disproportionate maintenance and operating cost on the water department.

c. Collaboration between the city health and water departments has been ineffective, despite excellent professional relationships. The health department is rarely consulted in matters of main extensions, improvements, installation of cross-connections, and similar problems. No sampling is conducted by the health department.

d. Almost one-half the population of the suburban area included in this study is included in two water districts. The economic difficulties that so frequently harass such projects, serving small residential developments, are evident in these cases. Inadequate financing forestalls the construction of lines to serve some 25 per cent of the population included in the corporate districts. Moreover, while water rates are comparable to city rates, the district supply is untreated well water with a hardness of 170 p.p.m., as compared to 85 p.p.m. for the softened city supply. The districts levy an additional tax for hydrant rental. When it is considered that city water revenue sustains the cost of operation of the sewage treatment plant, it is obvious that there is a marked dis-

programs designed to improve plumbing and sewerage facilities.

b. The principal watercourse in the community provides insufficient dilution to assimilate the sewage load satisfactorily. Treatment plant effluent, with 85 per cent of B. O. D. removed, occasionally equals twice the stream flow. Untreated industrial wastes are estimated to equal the plant effluent volume. Tributary drainage courses contribute an unknown quantity of wastes from private septic tanks and cesspools. The feasibility of small community treatment plants to serve outlying developments is severely handicapped by the lack of dilution available.

c. As in the case of water supply, city policy prevents the use of city sewers by non-residents. Within the city, sewers have been extended to subdivisions containing many thousands of vacant lots and a few scattered houses.

d. There are no public sanitary sewers in the metropolitan area outside the city. Effluent from individual treatment installations pollutes open drains and ditches, which course the city from all sides. The resulting nuisance conditions are serious blighting influences, in addition to the hazard created by gross pollution of a surface reservoir which serves as an emergency water supply. Efforts to solve this problem have lacked concerted support and have been fruitless.

e. City and county health departments exercise rigid control over the construction of new septic tanks by a combination of licensing, permits, and inspection. Effective as this measure has proved, it falls far short of achieving the needed solution.

Housing—

a. Based on the combined indices of overcrowding, need of major repairs, and lack of private bath, public health problems existed in 15 of 41 census tracts, when overall city averages were

taken as standards.¹ Of these 15 problem tracts, 8 are along the city limits and consist of sparsely developed subdivisions. All of the 7 remaining problem tracts include or adjoin industrial areas (see Figure 2). There were only three tracts fulfilling the combined conditions of more-than-average new construction, less-than-average density, and fringe location, which did not show definite excesses over averages in the three indices of housing problems.

b. A partial explanation for the choice of suburban homesites by the majority of new home owners during recent years may be found in the picture of outlying residential areas within the city, possessing many natural attractions, but permitted to become prematurely blighted. The progress of blight, and its associated substandard health conditions, has been accelerated by at least 20 years in the newer residential sections, as compared with tracts containing older structures, if census data on housing conditions can be taken as a crude measure of blight.

c. Contributing to the impairment of the otherwise desirable marginal locations were two particular circumstances associated with periods of critical deficiency of the housing supply: first, the policy which permits subdivision development without requiring the installation of public water and sewers, illustrated by the fact that the principal sectors lacking water and sewer lines are in six of the fringe census tracts with above average incidence of substandard conditions; and second, a relaxation of building code requirements to permit substandard construction, until in 1938 over one-seventh of all dwelling units were of the so-called garage type, located on the rear of the lots in anticipation of constructing a conventional type home at some future date.

d. Speculative overdevelopment has not been limited to the city proper, as

Many of the existing ills of this metropolitan community previously recounted can be ascribed to the rapid growth and accompanying decentralization that transpired prior to the establishment of the planning and zoning commissions. At the time this study was made (1946-1947), the city did not have a master plan, the zoning plan and regulations were obsolete, and subdivision regulations enacted in 1944 failed to provide for health department approval of plans. A recent instance illustrates the need for coordination of interests in the drafting and administration of such controls. A subdivision of 100 homes was well under construction, having been approved by the Planning Commission (without consultation with the health department), on the basis of individual or community private wells as the source of water supply and individual septic tanks for sewage disposal. Fortunately, an existing ordinance requiring health department permits for the construction of such facilities brought the developer to the health department, where he was informed that shallow wells could not be depended upon for safe water, and septic tanks could not function satisfactorily at the location in question. The builder was forced to arrange financing to provide city water and sanitary sewers, necessitating a sewage lift station, through no fault of his own. It is entirely possible that earlier knowledge of this exigency, to which he should have been entitled, might have prompted the choice of a site better located and already served by utilities, rather than the isolated, inconvenient location approved by the Planning Commission.

The construction of 322 septic tanks in the city during the preceding 5 years, while thousands of lots improved with public sewers remain vacant, attests again to the environmental health implications of planning and related services.

b. The townships encircling the city were without any planning, zoning, or subdivision controls. State enabling legislation authorizing local adoption of such programs had been enacted in 1943, and civic groups have been debating the possibility of local application. These townships have been experiencing the mistakes resulting from rapid unplanned growth that have afflicted the city in former years. Trailer camps, industries, and undesirable commercial establishments may be noted adjacent to otherwise desirable residential sections in the fringe area. This situation handicaps the efforts of the health department to obtain the badly needed environmental improvements, for it contributes to the despoiling of neighborhoods as permanent homesites, resulting in occupancy by a mobile population lacking in civic consciousness.

c. Housing, building, and plumbing codes are vital services in urban areas, of recognized import in the maintenance of a healthful community environment.² Communities which permit the construction of substandard dwellings, lacking essential sanitary provisions, are burdening the health department with a difficult and often hopeless task, for in congested areas these conditions become problems affecting the entire neighborhood, demanding corrective measures.

The high proportion of garage-type houses, basement houses, shacks, converted house trailers and similar dwellings, both within and outside the city in this metropolitan community testify to the failure of governmental services that might have precluded or modified this problem.

ADMINISTRATIVE PROBLEMS

a. Separate city and county health departments serving one metropolitan community always produce jurisdictional difficulties, but when large numbers of the populace of the central city

spill over or migrate to the suburbs the administrative difficulties of both are substantially augmented. In this instance further complications existed because of the numerous independent units of government in the county, and in addition, several environmental health activities were the legal responsibility of various state agencies.

The environmental health sections of both health departments were directed by competent, well trained sanitarians, who have developed superior programs in some fields and have endeavored to coordinate policies and programs. But the lack of qualified public health engineering personnel on the staffs was manifest by the impotence of the approach to some of the major problems of engineering character, such as sanitary utilities and subdivision controls.

b. There was no regional or county planning authority or other agency to coordinate attempts to solve environmental problems affecting both the city and county. The city housing, planning, and zoning programs had not progressed to the stage of positive, overall action necessary to correct past ills and prevent future mistakes. Much of the enforcement activity was limited to complaint investigation. The townships adjoining the city had just begun to consider the need for planning, subdivision controls, building codes, and related services.

c. The pronounced lack of coordination of the many programs and policies bearing upon the community's environmental health status is an administrative obstacle common to the larger cities. Communities suffering with a decided decentralization movement face the added task of harmonizing the efforts of various governmental units outside the central city. Such was the situation in the metropolitan community subjected to this study. The city had made little progress in the integration of policies and activities relating

to common problems, and was greatly handicapped with respect to suburban areas by the almost total lack of comparable services maintained in the county.

Neither the official city planner nor the city health department has been consulted in regard to the extensive improvement program contemplated for the water supply. Sewerage problems similarly were resolved by the public works department, with little participation by the health department except where lateral extensions were sought by the health department to correct insanitary conditions. Review of subdivision plans for water supply and sewerage was the exclusive responsibility of the public works agency. Garbage collection and disposal was another function of the public works department, conducted without the counsel of other units. Contrasting with such marked independence of action and policy, the building, plumbing, zoning, and housing inspection services performed by the department of public works demonstrated the possibility of coordinating programs of mutual concern to several official agencies. The widespread conditions of impending blight in this comparatively young metropolitan community require aggressive measures, with the collaboration of all agencies that can contribute to the rehabilitation of such conditions.

d. The city planning, zoning, and housing commissions, responsible for the administration of programs demanding the utmost degree of collaboration and integration with all units of government, were found to be functioning in an almost sequestered fashion. This practice was particularly noticeable with respect to health department relations. The planning commission membership did include the public works director, but provided for no functional committees with representative members from the numerous agencies concerned with the diverse facets of planning.

Consideration of environmental health cannot logically ignore the many health problems associated with blight, poor housing, overcrowding, atmospheric pollution, and similar conditions which planning and zoning purport to control and improve. Numerous studies have shown how blighted and slum areas become an economic liability, producing reductions in tax revenue and requiring increased municipal services, including public health.³ It is difficult to reconcile these known facts with the reported limited interest in the initiation of vigorous preventive and corrective measures to combat the decentralization movement. The tendency for specialization in governmental administration has frequently been overemphasized, and the ensuing confusion or misunderstanding is responsible for charges of inefficiency, extravagance, partiality, and prejudice.

An outstanding but not unusual illustration of the environmental health implications of zoning has been mentioned previously. The seven census tracts adjoining or including industrial establishments had a higher incidence of environmental health deficiencies than the city average, whereas other tracts similar in such characteristics as density and average age of structures had a lower-than-average incidence of such defects. This picture, demonstrating the influence of proximity to commercial and industrial zones, shows the need for re-zoning that would afford reciprocal protection to both industrial and residential interests.

The obvious need for expanded water and sewer systems in this community raises the zoning question when the design stage is reached. Adequate zoning will prove valuable in defining the anticipated maximum demand for specific areas.

Building, subdivision, and housing controls might be designated as prophylactic measures, subordinate to and integrated with planning and zoning. It has been aptly stated⁴ that, "No sub-

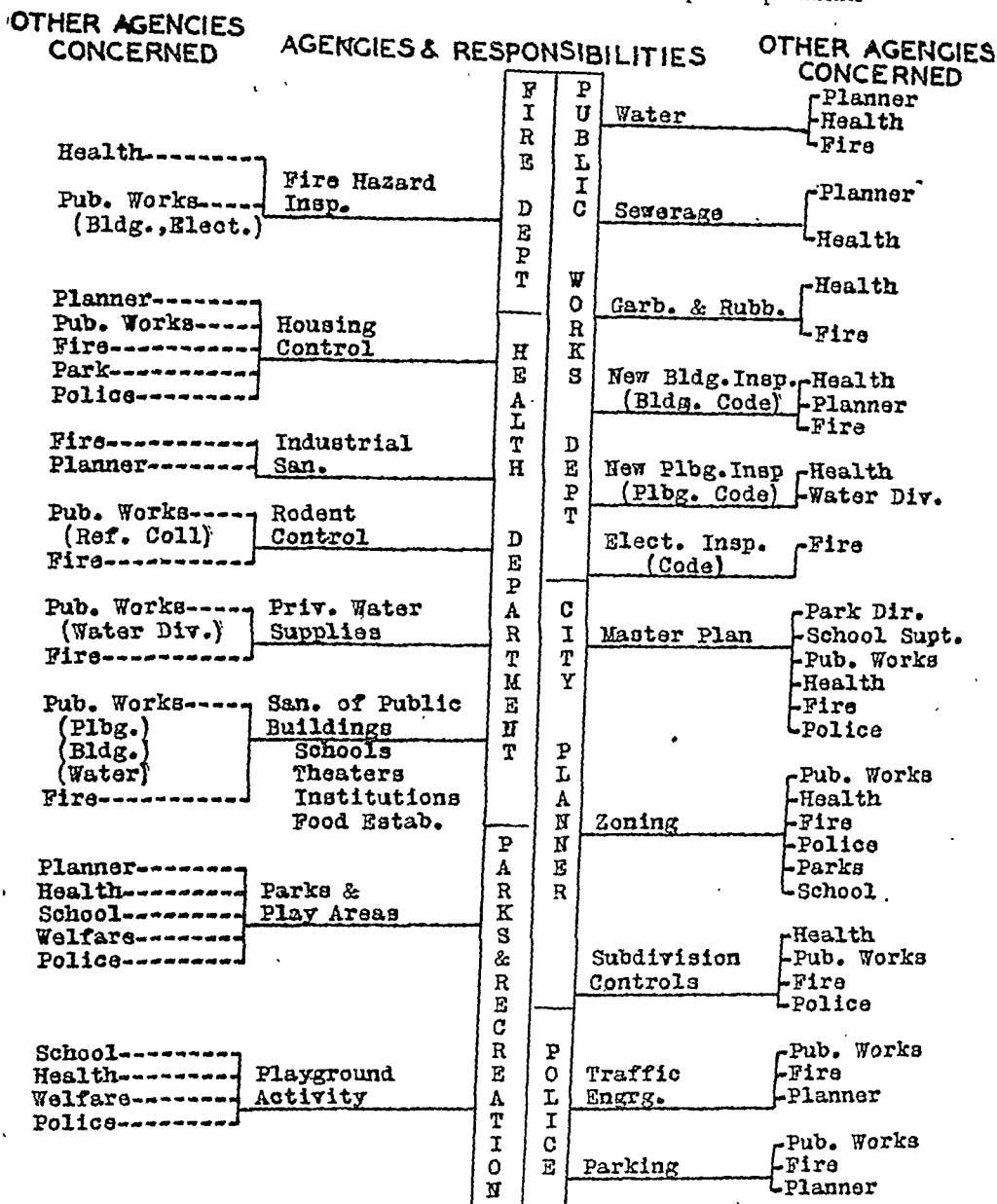
division can be sound, economically, unless it has all the improvements necessary to make home building a desirable investment. . . . Too often the innocent purchaser of a home finds himself faced with unforeseen heavy assessments for sewers and paving, which he is not financially prepared to meet. Furthermore, the cost of improvements in a neighborhood that is already built up will inevitably be higher than if the improvements had been provided at the outset." The critical substandard housing conditions in this community previously cited, lack of flush toilets, bath, running water, etc., constitute problems whose correction is a health department responsibility; but such conditions could have been *prevented* by good building, subdivision, and housing controls based on due consideration of environmental health.

The unincorporated fringe area, with its urban density of population, but without any pretense to urban facilities and controls, has already developed environmental conditions much worse than those in the city, with the health department efforts largely limited to the hopeless task of attempting to enforce general nuisance regulations designed for rural conditions.

CONCLUSIONS AND RECOMMENDATIONS

a. The conception of a metropolitan community as a single community, irrespective of political subdivisions, is essential to view its environmental health problems with an overall perspective. The health department as a service agency, typifies the possibilities of such treatment. As in this case, where separate departments serve the central city and its environs, it often has been extremely difficult to coordinate effectively even such well established and highly developed programs as milk and food sanitation. It is very doubtful that the much broader planning program, necessarily including

FIGURE 3—Interrelated Interests of Some Municipal Departments



many agencies within its scope, could be adequately developed in its environmental health phases when separate health jurisdictions are involved, and no metropolitan planning group exists.

An A.P.H.A. review of the public health program in this city and county in 1940 included a recommendation that the two health departments be combined. The solution of the environ-

mental health problems discussed in this report could be expedited in no small measure by such a step.

The employment of competent public health engineering personnel in responsible capacity should make possible increased emphasis on those environmental health problems of primarily engineering character.

b. Recognition of the hypothesis that

when extensive substandard environmental health conditions prevail in any section of a metropolitan community, they constitute a potential hazard to the entire community, will explain the necessity for coördinated planning and combined effort by the various agencies of all political subdivisions within the area.

The authors have attempted to show how pronounced decentralization trends within a typical metropolitan community have magnified the environmental health problems; how such problems relate to the responsibilities and activities of many governmental agencies; and the need for emphasis and initiative by the health department if other agencies are to give due consideration to the environmental health aspects of their programs. Observations reported here supply evidence of the importance of *preventive* measures in dealing with those causes of outward migration that involve environmental health conditions.

Figure 3 depicts the interrelated and overlapping interests of several municipal departments and suggests the possibility of an official committee as a means of effecting joint policies, eliminating duplication, and providing improved services. The expansion of such a committee to include comparable representation from the suburban areas would assure a broader perspective of mutual problems.

c. The similarity of environmental problems confronting the city and the populous suburban community presents an opportunity for health department participation in their solution, that could go far toward averting a repetition of past mistakes and omissions largely responsible for the present pernicious effects of the decentralization trend. Among such problems are the following:

1. The need for an additional source of water supply to serve the city, and for the extension of the water distribution system to serve adjoining areas.

2. The necessary expansion of the city sewage treatment plant, and the lack of sanitary sewers in the unincorporated fringe. Elimination of pollution of city streams.

3. Control of water supply cross-connections and abandoned wells.

4. The lack of any master plan in the community. Every effort should be made to approach this task as a metropolitan area problem. Public administration groups urge the use of a health committee in development of the master plan necessary for a wholesome environment.⁵ Specific public health interests in planning should include land uses, population density, types and location of industry, housing, water supply, sewerage, recreational facilities, zoning, subdivision control, community services, etc.

5. The need for re-zoning in the city and the lack of any zoning in the adjoining townships. The advantages of metropolitan zoning committees whose membership would include health authorities has been emphasized by Young.⁶ The health department can assist in the preparation of zoning plans and regulations, and, furthermore, can reinforce their application by review of applications for industrial and commercial establishments, investigation of appeal cases, and similar measures.

6. The city's subdivision regulations should be revised, and comparable regulations are needed in the adjacent townships. The need for adequate building, zoning, and subdivision regulations has been stressed by the private home building interests within the community.⁷ The health department is concerned not only with water supply and sewerage for new subdivisions, but to a large extent with surface drainage, grossly polluted open watercourses, atmospheric pollution, mosquito breeding places, rodent infestation, and other possible blighting influences.

7. The city-building and plumbing codes need revision, and similar controls are sorely needed for the suburban area. Enabling legislation is provided, and uniform codes are advocated by state authorities.

8. The need for a comprehensive housing program is urgent, for the entire metropolitan community. The diverse phases of the housing problem have contributed materially to the urban development outside corporate city boundaries. A thorough study of housing conditions could be valuable in the planning of the needed program. It is claimed that for the most part the residential communities in the unincorporated areas are a tax liability to the county, penalizing the farm population and precluding the provision of essential facilities and services.⁸

REFERENCES

1. Bureau of the Census, U. S. Department of Commerce. *Sixteenth Decennial Census, Population and Housing Series*. Washington, D. C., 1942.
2. Committee on the Hygiene of Housing, A.P.H.A. The Improvement of Local Housing Regulation Under the Law. *A.J.P.H.*, 32:816-821 (Aug.), 1942.
3. United Auto Workers, CIO. *Memorandum on Post-War Urban Housing*, 1944.
4. American Society of Civil Engineers. Land Subdivision—*Manual of Engineering Practice*, No. 16, Jan. 17, 1939.
5. Public Administration Service. *Action for Cities*. Chicago, Ill., 1944.
6. Young, Hugh E. Practical Methods of Re-Zoning Urban Areas. *Proc. Am. Soc. Civil Engineers*, 458-508, Mar., 1938.
7. Urban Land Institute. *Opinion Survey on Urban Development and Re-Development*. Washington, D. C., Aug. 31, 1945.
8. Firey, Walter. Social Aspects to Land-Use Planning in the County-City Fringe. *Mich. State Coll. Spec. Bull. No. 339*, June 2, 1946.

Best Sellers in the Book Service for June

Alcohol, Science and Society. Haggard, 1948.....	\$5.00
An Appraisal Method for Measuring the Quality of Housing:	
Part I. Nature and Uses of the Methods, 1945.....	1.00
Part II. Appraisal of Dwelling Conditions. 3 vols., 1947.....	5.00
An Introduction to Public Health. Mustard, 2nd ed., 1944.....	3.50
Communicable Disease Control. Anderson, 2nd ed., 1948.....	5.00
The Control of Communicable Diseases, 6th ed., 1945.....	.35
Diagnostic Procedures and Reagents, 2nd ed., 1945.....	4.00
Diagnostic Procedures in Virus and Rickettsial Diseases. Francis, 1948.....	4.00
Milk and Food Sanitation Practice. Adams, 1947.....	3.25
Standard Methods for the Examination of Water and Sewage, 9th ed., 1946.....	4.00
35 Year Index of American Journal of Public Health, 1911-1945, 1948.....	7.00

Order from the Book Service
AMERICAN PUBLIC HEALTH ASSOCIATION

1790 Broadway

New York 19, N. Y.

Increasing the Scope of School Sanitation Service in Local Department of Health Programs

S. D. STURKIE, M.D., M.P.H.

Director of Public Welfare and City Health Officer, Lynchburg, Va.

A TYPICAL program of school sanitation, such as is being carried out by the average county or city health department is markedly limited in scope when one considers the broad possibilities in that field of public health endeavor.

There have been two, and usually only two, components of the typical rural program in particular, namely, protection of school water supplies and installation of safe facilities for the disposal of excreta. With the inauguration of hot lunch programs, supervision of school cafeterias was added to the health department's program of school sanitation. In some rural localities, attention also has been given by health departments to handwashing and drinking facilities in schools. Lack of funds for the provision of an adequate number of approved facilities by school authorities has limited the health departments which have taken an interest in these facilities, to the development of improvised substitutes and recommendations for the best possible technique of handwashing in the absence of approved equipment.

The customary procedure in the typical program consists, initially, of an annual survey of the schools made by the county sanitation officer. In the survey an inspection is made of all school toilets. Determination is usually made of the adequacy of the number of toilet

seats based on a recommended standard. The state of repair of all pit privies and their compliance with state standards with regard to construction are usually noted. If there is a water carriage system of excreta disposal, an investigation is made of the disposal system. The school water supply and its source are carefully studied, including both sanitary inspection of the source and bacteriological examination of the water. A comprehensive report covering the entire system of schools is usually prepared and recommendations are listed for necessary improvements. The health officer submits a report of the survey to the school board which may or may not approve use of school funds by the superintendent to effect improvements.

As these basic requirements for the prevention of the spread of enteric diseases are met, an alert and efficient health officer will then focus his attention on other needs in the area of school sanitation. It is necessary for the health officer to have a concept of health which does not limit the meaning of that word to a state of being free from communicable disease. The adequacy of lighting, for example, in the classrooms, the corridors, the cloak rooms, and the toilets, is known to influence both physiologically and psychologically the individual school child. Proper lighting is necessary not only to

promote efficiency, but to prevent eye strain and impairment of vision.

It was the writer's experience four years ago to leave the field of county health work to become a city health officer. The southeastern city which was his new post had a population of 44,541, of which 34,305 are white and 10,236 are Negro. The official health agency of the community is the Bureau of Health of the Department of Public Welfare. The official title of the health officer is "Director of Public Welfare" since he is the head of the Department of Public Welfare. In practice, however, his chief duties are those of the health officer. In this city there are 20 schools, 14 white and 6 Negro. There is a school population of 7,299 and a total of 242 classrooms.

There had been no program of school sanitation in this community. The first step undertaken by the writer was to have a sanitary survey of the school cafeterias conducted. A report of the findings, with recommendations for improvements, was submitted to the superintendent and the school board with most gratifying results. Following the survey, routine periodic inspection of school cafeterias by a sanitarian of the Bureau of Health, was inaugurated.

With the objective of making a more substantial contribution to school sanitation in his city, the writer then conceived a plan to evaluate the entire school system, utilizing standards obtainable from a variety of sources. One of the best sources proved to be the well known public health textbook *Municipal and Rural Sanitation* by Ehlers and Steel. Other valuable sources were *The Minimum Requirements of the Virginia School Law* and the textbook *School Health Problems* by Chenoweth and Selkirk.

In the setting up of standards for use as a yardstick, it was decided that the policy would be to employ the highest standards obtainable, regardless of

source. What emerged finally, was a body of standards slightly higher on the whole, and to a degree, more complete than the minimum requirements of the Virginia School Law.

To arrive at a result that would have meaning and the fullest possible impact on community consciousness, it was decided that a rating was necessary. It occurred to the writer that the system of rating of dairies and milk plants used by the U. S. Public Health Service could serve as a useful instrument in this respect.

In attempting to apply this method of rating to a school system, however, he found himself in a quandary as to whether a different weight according to its sanitary and public health significance, or an equal weight should be assigned to each item of sanitation. Realizing that the former method was perhaps the more scientific, but suspecting that there might be a challenge either from the public or school authorities on the relative values of certain items, he elected to give all items an equal value.

There was also the question of whether to employ the practice adhered to in the U. S. Public Health Service rating system of giving credit for only items for which all requirements were met, or to give credit for each sub-item complied with. Here, again, it was decided that the policy which would evoke the least possible criticism of the survey should apply, and for that reason the decision was to give credit for compliance with sub-items. Two exceptions were made to this. In the case of "approved drinking fountain" and "system of ventilation" it was felt that all requirements should be met to justify credit for the item.

A rating was computed for each school and for the system as a whole. First, a weight was assigned to each sub-item equal to the average daily attendance.

A credit was given to each sub-item equal to the actual number of children served by equipment meeting the standard. The rating for each item was then computed by totaling the credits of the sub-items. The rating for the school was computed by dividing the sum of

the weights into the sum of the credits and multiplying the quotient by 100. A rating for the school system, as a whole, was computed in a like manner.

The items and sub-items used in the survey were as shown in the following chart.

SANITARY SURVEY OF SCHOOLS

Location of Building

1. Location, size of ground.
 - a. Streets paved
 - b. Isolation from factories
 - c. Isolation from railroads
 - d. 272 sq. ft. of play surface per child
 - e. Grounds used for community recreation

Building

1. Arrangement for optimum use of daylight
 - a. Corridors, stairway on one side; classrooms on the other
 - b. Windows face generally east or west
2. Design of Classrooms
 - a. Ratio of length to width between 0.6 and 0.7
 - b. Maximum length not more than 32 ft.
 - c. 15 sq. ft. of floor area per pupil
 - d. 200 cu. ft. of room volume per pupil
 - e. Maximum number of pupils per room not over 30

Toilet Equipment and Wash Bowls

1. Type of equipment
 - a. Individual seats
 - b. Individual urinals
 - c. U-shaped seats open in front
 - d. Non-absorbent seat material
 - e. Back siphonage proof
 - (1) Tank
 - (2) Bowl
2. Adequacy of equipment
 - a. 1 toilet seat for every 15 girls
 - b. 1 toilet seat for every 25 boys
 - c. 1 urinal for every 15 boys
 - d. Number of wash bowls equal to number of classrooms
 - e. 1 wash bowl near each toilet
 - f. Provision of toilet paper
 - g. Provision of towels
 - h. Provision of soap
 - i. Provision of receptacle
3. Maintenance of equipment
 - a. Urinals

- b. Toilet bowls
- c. Wash bowls

Toilet Rooms

1. General physical features
 - a. Floor of non-absorbent material
 - b. Adequate ventilation
 - c. Ratio of window to floor area of 1 to 12
2. Maintenance
 - a. Floors
 - b. Walls
 - c. Windows
3. Cleanliness
 - a. Floors
 - b. Walls
 - c. Windows

Drinking Facilities

1. Type of fountain
 - a. Diagonal jet
 - b. Guard
 - c. Orifice above rim of bowl
2. Number of fountains
 - a. 1 for each 50 children
 - b. 1 antifreeze fountain on playground

Seating

1. Type
 - a. Adjustable
 - b. Backs curved
2. Spacing
 - a. 30 in. distances between rows
 - b. 30 ft. maximum distance of any one seat from blackboard

Lighting of Classrooms

1. Natural Lighting
 - a. Ratio of window area to floor area of 1 to 5
 - b. Light source from the left
 - c. Windows not facing pupils
 - d. Windows not lower than 3½ ft. from floor and within 6 in. of ceiling
 - e. 2 shades per window

- f. Classroom walls of light color
- 2. Artificial lighting
 - a. Direct lighting enclosed or located at height of 20 ft.
 - b. Semi-indirect or indirect light with highly reflecting ceilings

Ventilation

- 1. Natural (approved for small schools only)
 - a. Windows open top and bottom
 - b. Bottom only and transom
- 2. Window ventilation and gravity exhaust
 - a. Radiators under windows
 - b. Window deflectors
 - c. Windows open at bottom
 - d. Exhaust duct
- 3. Artificial ventilation (Plenum System)
 - a. Each room governed by separate damper
 - b. Each room with small branch duct
 - c. Grills to lower velocity of entering air

Heating

- 1. Stove (approved for schools with less than 6 classrooms)
 - a. Jacketed stove
 - b. Fresh air duct
 - c. Exhaust duct
- 2. Central heating (required for schools with more than 6 classrooms)
 - a. Metal radiator shields
 - b. Radiators project not more than 15 in.
- 3. Temperature
 - a. Thermometer
 - b. Thermometer marked at 68°
 - c. Thermometer at desk level

- d. Temp. between 65 and 68° at desk level or otherwise 70°

Cleaning and Maintenance

- 1. Methods
 - a. Daily policing of building by principal
 - b. Systematic instruction of janitors
 - c. Wet sweeping of floor
 - d. Daily sweeping of floor
 - e. Wiping of furniture with oiled cloth
 - f. Daily wiping of furniture
 - g. Windows washed twice a school year
 - h. Light bulbs cleaned twice a school year
- 2. Maintenance of Classrooms
 - a. Floors
 - b. Blackboards
 - c. Desks
 - d. Windows
 - e. Lights
- 3. Cleanliness of Classrooms
 - a. Floors
 - b. Blackboards
 - c. Desks
 - d. Windows
 - e. Lights

Other Miscellaneous Items

- 1. Equipment
 - Ringworm Control *
 - a. Foot baths
 - b. Location at entrance to shower
- 2. Methods
 - a. Compulsory for all pupils

* Not included in computation of rating

When the *modus operandi* of the survey had been developed and the various record forms designed, the next step was to sell the project to the superintendent of schools and his assistant, the supervisor of school buildings. Their wholehearted cooperation was procured without difficulty.

The "leg" work of the survey was done by two general sanitarians, and a total of 275 man hours of working time were expended. The actual performance of the job by the sanitarians required a multiplicity of activities as shown in the following list which is not complete:

- 1. Measurements of the dimensions of each classroom and the window area in each classroom.
- 2. A general inspection of the premises of each school, including all corridors, classrooms, and toilets, noting the general cleanliness, the state of maintenance, and the cleanliness of the floors, the blackboards, the walls, and the windows; the type of design of the toilet seats, the urinals, the drinking fountains, and the pupils' seats.
- 3. A study of the facilities for ventilating and artificial lighting in each classroom.
- 4. Observation of the radiators and the temperature in each classroom.
- 5. Study of the general surroundings and the grounds to determine the area of the school grounds, the adequacy of drainage, the presence of paved streets.

6. Determination of the direction faced by classroom windows by the taking of compass readings.

7. A study of the methods of cleaning and maintenance with special reference to dust control and ringworm control.

The findings of the survey show that in a fairly typical southeastern city there is a prevalence of sanitary defects in the schools sufficient to justify efforts to promote their correction by the local department of health.

There is no reason, however, to suppose that this constitutes an amazing revelation to a majority of health officers.

The overall rating of 73.8 per cent of the Lynchburg school system, with ratings for individual schools ranging from 61.5 to 85 per cent, does at least give expression quantitatively to a fact which many health officers have only been aware of qualitatively with respect to their school systems.

Furthermore, as far as health officers in the southern states are concerned, it can be pointed out that these findings apply to a city located in a state in which the per pupil expenditure in the year 1942 exceeded those for seven other southeastern states. The inference from this is, of course, that if there are defects to the degree shown in the survey present in this situation, it is possible they exist to an equal degree, or even on a larger scale, in other cities, especially in the South.

In addition to pointing up the prevalence of sanitary defects in schools, the results of this survey have thrown some light on the practicableness of existing recommended standards for school sanitation.

The reader may draw his own conclusions with reference to this and other questions from the following summary of the important findings of the survey:

Location of Building—

1. Only 10 per cent of the school population attend schools with grounds providing

play surface in the amount of 272 sq. ft. per child. Since it is obviously difficult for city schools to comply with this standard, perhaps 100 sq. ft. per child would be a more practical standard.

2. Only 54 per cent of all school children attend schools with grounds used for community recreation.

Building—

1. No schools are arranged with corridors or stairway on one side and classrooms on the other. One wonders if this could be achieved without sacrificing space to a degree that would be prohibitive.

Toilet Equipment and Wash Bowls—

1. Only 25 per cent of the boy population is served with individual urinals. A majority of the schools still have trough urinals.

2. Twenty-two per cent of the school population is served with toilet seats that are not U-shaped and open in front.

3. Only 26 per cent of the total school population is served by equipment meeting the standard of one toilet seat for every 15 girls. Only 6 per cent have one wash bowl for every classroom; it is estimated that 100 wash bowls are needed in the entire system.

4. Thirty-five per cent of the school population is served by urinals and 37 per cent by toilet bowls that are not clean or in a satisfactory condition.

Drinking Facilities—

1. Only 53 per cent of the school population is served by approved drinking fountains; 41 per cent of all fountains are not of an approved type.

2. Forty per cent of the school population is served by an inadequate number of fountains; 58 per cent of the population has no outside fountain.

Seating—

1. Only 4 per cent of the school population has the recommended adjustable type of seating. None of the schools have the recommended 30 inch distance between rows of seats.

Lighting of Classrooms—

1. The requirements for both natural and artificial lighting are generally being met.

Ventilation—

1. Only 19 per cent of the school population is being served by approved ventilation facilities. The greatest lack is that of window deflectors as part of a window-gravity exhaust system. Deflectors are needed in 15 schools and exhaust ducts in 7 schools. A majority of

the schools now have only natural ventilation which is approved only for small schools. Nine schools have artificial systems which have been abandoned.

Central Heating—

1. Eighty-six per cent of the school population representing 18 schools do not have metal radiator shields to protect children who are seated close to radiators from overheating.

Temperature—

1. No schools have thermometers marked at 68° F., and only 2 per cent of the population have thermometers that are properly located at desk level.

Cleaning and Maintenance—

1. Wet sweeping of classroom floors is being practised in schools serving only 9 per cent of the school population. Janitors complain that the use of moistened sawdust or paper scraps is difficult in classrooms because of the tendency of particles of sawdust or paper to cling to the legs of seats.

Miscellaneous Items—

1. Only 7 per cent of the school population attend schools in which soap was found at the school on the day the survey was made.

2. Of the four schools with gymnasias, only one has showers. In this school, while an effort is being made at ringworm control, improper location of the footbaths and lack of supervising personnel makes the system only partly effective.

The report of the survey was received appreciatively by the superintendent of schools and the membership of the school board. The supervisor of buildings has been authorized to proceed with the necessary improvements as rap-

idly and completely as availability of funds and materials will permit. Immediate attention is to be given to the most glaring deficiencies such as provision of fountains for two Negro schools where the number of children per fountain was 104 and 148 respectively.

It is to be conceded that the final proof of the efficacy of this broadening of the school sanitation program depends upon effective action by the school authorities in the correction or elimination of the unsatisfactory conditions which were found. It remains, therefore, for the future to demonstrate the success or the futility of the action that has been taken.

Action, however, in this field, as far as this one local health agency is concerned, has only begun. A continuing program of inspection and promotion is planned for the future, and at the end of a five year period it is contemplated that the survey will be repeated to determine, if possible, the measure of the success or failure of the program.

In this paper, an attempt has been made to call the attention of local health authorities to the existence of areas in school sanitation which are perhaps being neglected on a wide scale, and to exhibit an approach to the broadening of the school sanitation program which, imperfect as it no doubt is, at least points up the many latent possibilities which prevail in improving the environment of the school child.

Proposed Report on the Educational Qualifications of Sanitarians^{*†}

I. GENERAL SCOPE OF THE FIELD

A. Sanitarians constitute the second largest group engaged in public health activities in official health departments. They are employed by state, county, and city health departments to carry out inspectional and educational duties, and to enforce laws in the field of environmental sanitation. Their work, more than that of any other group except public health nurses, brings them in close daily contact with the general public and consequently has great influence on the public's judgment of the entire department. The complexity of functions touches all phases of community life, draws upon knowledge of the physical, engineering, biological, and social sciences, and is interwoven in nearly all other activities of a complete public health service.

B. Future Outlook

The proposed expansion of public health departments throughout the country will increase the demands for personnel in environmental sanitation. This expansion applies to existing departments as well as to new units which

will be organized to give the nation complete coverage of local public health service.

Increased appreciation of sanitary conditions is apparent; not only are existing health departments receiving increased local and state budgets for this function, but industry and food handling establishments in particular are employing sanitarians.

The employment of qualified sanitation personnel at higher salaries by business concerns places increasing pressure on governmental agencies to meet this competition for personnel.

Among the many phases of the expanding program, attention is directed to the increase in jurisdiction over sanitary phases of housing in urban and non-urban areas. The expansion of the real estate sub-divisions in proximity to metropolitan areas will continue for many years with attendant sanitation problems to be dealt with by local health department employees.

Recent studies indicate that the present practice in the better local health units is to employ one sanitation worker to 16,000 population. This would indicate a need of 10,000 for the entire country.

The availability of qualified personnel is being increased by the veterans' educational program and the use of federal funds for the training of sanitation personnel. The development of higher standards of education for sanitarians is noticeable in announcements from public employment agencies. As standards are raised those sanitarians who have college

* The Committee on Professional Education of the American Public Health Association publishes this report before transmittal to the Governing Council in order to permit the members and Fellows of the Association to review it and to offer criticisms and suggestions in the further consideration of the report.

This report, like all other statements of the committee on professional and technical qualifications in public health, is subject to periodic revision in order that it may be kept abreast of the best thought.

† This proposed report is a revision of the Report on the Educational Qualifications of Sanitarians approved by the Governing Council on October 5, 1937, and is intended to supersede the earlier report.

degrees in the biological sciences and public health will have greater opportunity for advancement.

C. Lines of Promotional Progress

The lines of promotion vary in individual communities and states according to the administrative organization.

Ordinarily in a local health department the person without previous experience starts at the lowest grade unless qualified in special fields such as entomology or dairy industry.

He then advances by examination or merit to higher positions in the general or specialized fields. Promotions to supervisory positions are achieved only after years of experience and proven administrative ability. Some sanitarians may decide upon additional academic training so as to qualify as public health engineers, medical health officers, bacteriologists, or health educators.

For those working in state departments of public health advancement proceeds from the status of sanitarian in a district to the position of state-wide advisory sanitarian.

The following list indicates the lines of promotional progress:

1. Local

Assistant sanitarian

Sanitarian (Includes sanitarians specializing in food, industrial, housing, plant, and other phases of sanitation)

Supervising sanitarian

2. State

Sanitarians (District)

Advisory sanitarian

D. According to statistics published in *Local Health Units for the Nation* the number of sanitarians employed by local official agencies in the United States in 1942 was 4,927. However, there has been an increase in employment since the time these data were gathered. In one state the increase was approximately 25 per cent up to July, 1947.

E. The sanitarians mentioned in "D" are employed by state, county, and municipal health departments. However, increasing numbers are being employed by other official agencies and private industry. Sanitarians are employed as such in the U. S. Public Health Service and other governmental agencies; for example, food and drug divisions, dairy divisions of agricultural departments, housing divisions, rodent control divisions, mosquito abatement districts, prison boards, and institutions. Private industry is making use of sanitarians in a rapidly expanding field in food processing plants.

II. STATEMENT OF FUNCTIONS

A. Inclusive List of Duties Which May Be Performed by Sanitarians

1. Under the supervision of the health officer or public health engineer or other person designated by the health officer, the public health sanitarian carries out inspectional, educational, and investigational duties, and assists in the enforcement of the law in the field of environmental sanitation. His activities include assistance in the control of domestic water supply and sewage disposal; wastes disposal; swimming pools and recreational areas; dairies and milk handling plants; manufacturing, processing, storage, handling and distribution of foods; housing; industrial sanitation; school sanitation; rodents and insects and nuisances. He also participates in the inspection of institutions and assists in the control and epidemiological investigations of communicable diseases.
2. As a member of the team composed of the health officer, public health engineer, and other members of the health department staff, his responsibilities relating to the list of duties above include the conducting of surveys and the analysis of information obtained thereby; the determination of sanitation problems, education of the public in regard to them, and development of programs for solving them; the evaluation of laws and regulations and the formulation of recommendations for necessary changes and additions; assistance with the organization of community groups interested in sanitation programs, and the pro-

motion of sanitary practices through use of the various publicity media; study and research in the sciences and technics of public health for the increase of knowledge and a better understanding; and the administration of field and office work.

B. Classification of Grades *

To obtain a more accurate concept of the position of Sanitarian a general classification is necessary. Three grades of attainment are recognized: The highest or Supervisory Grade in which the individual is responsible to the health officer or the director of the environmental sanitation division for directing and administering a section of the environmental hygiene program; the Intermediate Grade, a position under the director of a division with responsibility for supervision of other sanitation personnel; and the Lowest Grade which requires no supervisory duties. These three grades correspond to the titles of Supervising Sanitarian, Sanitarian, and Assistant Sanitarian.

Table 1 shows classification sug-

III. BROAD EDUCATIONAL BACKGROUND (UNDERGRADUATE)

A. Institutions Offering Four Year Courses for Sanitarians

With the advent of Social Security funds for training of public health personnel, many applicants with bachelor's degrees were selected to attend courses for sanitarians. These men had majored in bacteriology, entomology, agriculture, and the biological sciences. Due to the impetus given to the training of sanitarians, several universities considered the advisability of organizing curricula majoring in sanitation, public health, bacteriology and public health, etc. At the present time at least six universities (University of California, University of Indiana, University of Massachusetts, University of Oklahoma, Rutgers University, University of Washington) have adopted such a curriculum for fulfilling the needs in this field. A recent survey indicates that many state public health officials are interested in this type of an educational program.

The uniform curriculum, which em-

TABLE 1

Title	Univ. Educ.	P. H. Exp.	P. H. Courses
Assistant Sanitarian	2 yrs.		
Sanitarian	2 yrs.	1 yr.	Spec. Curriculum 1 semes.
Supervising Sanitarian	4 yrs.	3 yrs.	1 yr. grad. study in sanitary science and public health

gested together with the required amounts of education in the basic sciences and of public health experience.

phasizes the physical, engineering, biological, and social sciences, leads to a B.S. degree for sanitarians.

* A questionnaire was sent to the responsible civil service or merit system agency in every state. The agencies were selected from a list prepared by the Council of State Governments. Forty-one states replied. The merit system listed several positions at the county and local level as well as civil service positions for the state. There is a wide variety of titles (48) as exemplified in the following table:

State Advisory Sanitarian
Chief of Division of Sanitary Inspection
Supervising Sanitarian
Senior Sanitarian
Sanitarian
Assistant Sanitarian

Supervisor of Inspectors
Senior Sanitary Inspector
Sanitary Inspector

Some sanitarians also have been graded as administrative assistants to the health officer and as deputy health officers.

B. Proposed Educational Requirements *

On the basis of the existing requirements it would seem logical to recommend the following educational requirements for Assistant Sanitarian and Sanitarian:

The minimum qualification should be two years of college work with emphasis on biological and social sciences.

The desirable qualification should be a basic educational preparation including the physical, engineering, biological, and social sciences leading to a bachelor's degree from an acceptable institution.

The program of instruction for a bachelor's degree should be formed as follows:

The first two years—cultural courses such as English, mathematics, economics, geography, anthropology, social institutions, etc., and sciences such as mathematics, elementary bacteriology, chemistry, physics, psychology, zoölogy or physiology or general biology.

The second two years—advanced general bacteriology, medical entomology, and/or parasitology, and public health courses to include elementary public health, communicable disease control, administration, health

education, principles of environmental sanitation, epidemiology, biometry, principles and practices of water supply and sewage disposal, control of production and distribution of food and milk, and laboratory procedures used in the maintenance of a sanitary environment.

C. Personal Qualities

1. Initiative
2. Tact
3. Good judgment
4. Pleasing appearance
5. Good health and good habits of personal hygiene
6. Enthusiasm for the work
7. Ability to deal with people
8. Industrious habits of working
9. Integrity

IV. GRADUATE EDUCATION

A. A small but increasing number of sanitarians with a bachelor's degree find such satisfaction in public health that they seek further academic training at the graduate level. A few accredited schools of public health will admit sanitarians with a bachelor's degree for work toward a master's degree providing they are well grounded in the basic sciences and have had suitable experience of at least three years. Some sanitarians go on to graduate degrees in bacteriology, health education, medicine, veterinary medicine, and engineering.

B. It is recommended that sanitarians wishing to devote their careers to supervisory positions in this field seek one year of graduate work in public health to supplement their undergraduate training and their work experience. Courses should be selected in conference with the faculty of the school, placing major emphasis on public health administration, epidemiology, public health statistics, or on engineering, according to the individual's needs. Obviously, such advice and courses are best obtained in accredited schools of public health. Such schools now are:

1. University of California School of Public Health

* Analysis of Present Educational Requirements

An analysis of 138 positions listed by the merit system shows an average education requirement of 2.9, or, approximately 3 years of college, plus 2.35, or approximately 2½ years' experience. Approximately 33 per cent of the total required public health training courses at a college level. Experience has been substituted for college education to a limited extent in many of the requirements, probably in order to satisfy current employment needs.

Analyzing the 138 positions mentioned above, ten may be classified as Highest Grade, 36 as Intermediate Grade, and 92 as Lowest Grade.

For the Highest Grade an average of 4 years of college and 5½ years of experience are required. Six of the ten positions demand special public health training courses.

For the Intermediate Grade, 3.8 years of college are required with 3.4 years of experience. Fifteen of the 36 positions must have public health training courses.

For the Lowest Grade, 1.9, or approximately 2 years of college are required with 1.6 years of experience. Twenty-four of the 92 are asked to have special training courses. It is interesting that this group contains 29 positions requiring college graduation against 27 requiring high school diplomas only.

Three states (California, New Jersey, New York) have legal requirements which specify educational and experience standards for the employment of sanitarians by local health units.

- | | |
|---|--|
| 2. Columbia University School of Public Health | 7. University of North Carolina School of Public Health |
| 3. Harvard University School of Public Health | 8. University of Toronto School of Hygiene |
| 4. The Johns Hopkins University School of Hygiene and Public Health | 9. Tulane University School of Medicine, Department of Public Health |
| 5. University of Michigan School of Public Health | 10. Yale University School of Medicine, Department of Public Health |
| 6. University of Minnesota School of Public Health | |

COMMITTEE ON PROFESSIONAL EDUCATION

W. P. SHEPARD, M.D., *Chairman*
 REGINALD M. ATWATER, M.D., *Secretary*
 GAYLORD W. ANDERSON, M.D.
 W. W. BAUER, M.D.
 ROBERT D. DEFRIES, M.D.
 ELLA E. MCNEIL, R.N.
 ROY J. MORTON, M.S. (Eng.)
 HUGO MUENCH, M.D.
 WILSON G. SMILLIE, M.D.

ERNEST L. STEBBINS, M.D.
 CLAIR E. TURNER, Dr.P.H.
 V. A. VAN VOLKENBUGH, M.D.
 HUNTINGTON WILLIAMS, M.D.

Consultants

EDWARD S. GODFREY, JR., M.D.
 GEORGE H. RAMSEY, M.D.
 LOWELL J. REED, Ph.D.
 C.-E. A. WINSLOW, Dr.P.H.

The Subcommittee assisting with the preparation of this Report, to whom the Committee on Professional Education expresses grateful appreciation, consisted of:

WALTER S. MANGOLD, *Chairman*
 WILLIAM P. SHEPARD, M.D., *Referee*
 D. M. BISSELL, M.D.

THOMAS M. McMORROW
 E. A. REINKE, B.S. (Eng.)

American Journal of Public Health

and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

July, 1948

Number 7

Editorial Board

REGINALD M. ATWATER, M.D.
Chairman, and Managing Editor

LEONARD GREENBURG, M.D.
PROFESSOR JOHN M. HENDERSON
RALPH S. MUCKENFUSS, M.D.

STUART MUDD, M.D.
RAYMOND S. PATTERSON, PH.D.
GEORGE ROSEN, M.D.

C.-E. A. WINSLOW, DR.P.H., Editor

AUGUSTA JAY, Editorial Associate

THE SCIENCE AND ART OF HEALTH ADMINISTRATION

THE health officer must know something about bacteriology and epidemiology and sanitation and statistics and personal hygiene; about tuberculosis and venereal disease and child health; about public health nursing and health education. On technical points, however, he can turn to expert advisers—his division chiefs in a large department or the corresponding officers of the state health department in a small one. There are two functions, however, which must always be his primary responsibility—the planning and direction of the work of his department and its interpretation to, and integration with, the other agencies and the community as a whole. After all, public health administration is *administration*.

This is why we asked a group of outstanding health officers to contribute to a symposium in this issue of the *Journal* brief statements of specific administrative problems which they have faced during the past year. The result is a highly significant cross-section of the actual tasks of the health officer. The contributions to this symposium range from broad program planning on a state-wide basis, through the machinery of amalgamating a city and a county health department, to the challenging task of obtaining funds and the effective allocation of state and federal aid to local units, the housing of the city health department, the development of broad personnel policies, and the in-service training of new employees, and, finally, to the establishment of sound and fruitful relationships with the voluntary health agencies of a county area.

These are the sort of problems presented to every health officer; and upon their solution depends the ultimate success of his work. The American Public Health Association has sought—so far, without success—to obtain funds for a comprehensive time-study of a series of representative health departments to obtain a clear picture of the functional activities of the health officer's day. A competent observer should spend a week in each department, at the administrator's elbow, recording the number of minutes spent in dealing with technical problems of various sorts, with details of routine administration, with public relations, with internal departmental diplomacy, with inter-departmental correlations. We strongly suspect that such a study would demonstrate that executive

planning and diplomacy are of far greater quantitative importance than decisions with regard to technical problems of public health science. If this should prove to be the case, the findings might suggest radical changes of emphasis in many of our schools of public health.

THE UNITED STATES PUBLIC HEALTH SERVICE

THE United States Public Health Service celebrates this month its 150th Anniversary. To join in that celebration, we must exercise a certain freedom of historical imagination; for there was—in name—no “United States Public Health Service” a century-and-a-half ago, or even half-a-century ago. A hundred years ago, the organization in question did not exercise any of the characteristic functions of a national health department. Yet we may properly honor a living and growing organ of our federal government, even if its name and its activities have altered with the passing years.

The work of the “Marine Hospital Service” began in 1798 as a function of the U. S. Treasury Department. It was initiated for the single purpose of providing care for those sailors of the Merchant Marine who were taken sick on shipboard and had to be provided with medical care in seaports where they had no legal residence. This service was paid for (in part) by deductions from the wages of the sailors; so that the United States was a pioneer in the field of national compulsory health insurance—a field which is still a fairly live subject of political discussion in 1948. As early as 1800, the first Marine Hospital was established to provide such care; but the service was only formally “organized” in 1870 under a medical director with the munificent salary of \$2,000, plus travel expenses.

Not till 1878 was the service made responsible for seaport quarantine, thus becoming in actual fact a “public health service”—a logical step, in view of the fact that it had, by this time, marine hospitals at the principal ports; and functions of interstate quarantine were assumed only in 1893. The law of 1878 embodied another most important new departure, since it gave authority for investigating the origin and causes of epidemic diseases, especially yellow fever and cholera, and the best methods of preventing their introduction and spread. The first bacteriological laboratory was established at New York in 1887, and moved to Washington in 1891. This was the basis of the Hygienic Laboratory.

After more than a hundred years of gestation, the gradual development of functional activities led in 1902 to a change in name from the “Marine Hospital Service” to the “Public Health and Marine Hospital Service” which in 1912 became simply the “U. S. Public Health Service.”

The old functions of operating marine hospitals, of enforcing maritime and interstate quarantine, of controlling the health supervision of immigrants have, of course, been continued. In the present century, however, they have been overshadowed by two activities of far greater significance—the prosecution of fundamental research and the promotion and stimulation of state and local health services.

As early as 1908 the Hygienic Laboratory published a classic report on milk supply and the public health. In 1901, and again in 1912, its research activities were broadened and deepened. Twenty-five years ago the writer of this editorial was a member of a small group, under the chairmanship of Dr. W. H. Welch, to study the research work of the Service. We spent several days in hearing

reports of studies ranging from immediate epidemiological problems to the chemistry of the rare sugars; and at the close of our conferences, Dr. Welch said to Secretary Mellon that there was no research institute in the world which was making such distinguished contributions to basic research in public health. That preëminence has been maintained in the study of tularemia, of murine typhus, of Rocky Mountain spotted fever, of pellagra, and scores of other vital areas of investigation. The conversion of the Hygienic Laboratory into the National Institute of Health in 1937 recognized notable successes in the past and paved the way for even greater progress in the future.

The development of a federal policy of grants-in-aid for stimulating state and local health services initiated another far-reaching field of influence for the U. S. Public Health Service—a field which has proved most fruitful during the last quarter century. The Service has been most fortunate in its inspired leadership during this period. Hugh S. Cumming, Surgeon General from 1920 to 1936, laid the foundation for a new spirit in the organization by bringing to the top a group of outstanding young men who have since been in the forefront of advance. Thomas Parran, Surgeon General from 1936 to 1948 made an extraordinary record. The initiation of a comprehensive research project on the control of cancer (1937), of nation-wide programs of venereal disease control (1938), of tuberculosis control (1944), of mental hygiene (1946), and the development of a program for hospitals and health centers throughout the nation (1947) have revolutionized public health work in every state and local area in this nation. In 1900 the budget of the Marine Hospital Service was \$1,371,000; in 1947–1948, that of the U. S. Public Health Service (including grants-in-aid) was \$117,848,000. The Service today has some 16,000 employees. Its future progress is assured by the appointment as our new Surgeon General of Leonard A. Scheele, whom Dr. Parran has described as “one of the outstanding figures in public health in the United States, possessing both the professional and personal qualifications to be a great Surgeon General.”

We still sometimes hear slighting remarks about “state medicine.” Well, the history of the U. S. Public Health Service is a chapter in the story of State Medicine; for State Medicine is health care provided by physicians and other health workers employed by the state. The tale is an inspiring one.

It shows, on the one hand, that our country has recognized that the protection of public health is a vital and essential responsibility of government—that, as Jefferson said, and Lincoln quoted with approval—“the legitimate object of government is to do for a community of people whatever they need to have done but cannot do at all, or cannot do so well, for themselves in their separate and individual capacities.”

A second moral of the tale is that physicians and other public health personnel do not lose their free initiative or their sense of responsibility because they are on a salary and not paid for each individual service rendered. These are not men and women who work primarily for financial reward but for the joy of service. Their record of achievement fully disproves the assumption that medical care under health department auspices tends to suffer deterioration in the quality of the service rendered.

The physicians, the dentists, the nurses, the engineers, the laboratory experts, the statisticians, the health educators, who wear the insignia of the United States Public Health Service have, for a century-and-a-half held high the standard of Aesculapius. They have brought honor to the Service whose uniform they wear;

and to the various professional groups which are united under the banner of Public Health in a common service to mankind.

A TALE OF TWO TERRITORIES

WHEN we think of the United States, we often forget that the Stars and Stripes flies north of latitude 70° and west of longitude 168° ; south of latitude 20° and east of longitude 66° . Our two extreme territorial areas, Alaska and Puerto Rico, have recently been in the limelight from a public health standpoint in a way which reminds us vividly of our responsibilities for these distant areas.

A year ago, the Secretary of the Interior asked the American Medical Association to organize medical missions to visit these two regions with regard to "what measures might be taken to improve the medical care of the indigent." The reports of both these missions have now been published. They have not limited themselves to the "medical care of the indigent." The distinguished clinicians concerned have been largely preoccupied—and quite rightly—with the urgent need for basic public health work and with the fundamental economic problems of these areas, so that their observations are of great interest to the members of the American Public Health Association.

The Alaska report¹ points out that this Territory includes an area of 568,000 square miles (twice the size of Texas and one-fifth of the area of the United States proper), with a population of about 100,000 persons. Approximately one-third of these are natives (Eskimo and Indian). The Alcan Highway and the Army and Navy personnel assigned to this highly strategic area have brought in a high proportion of temporary residents who do not pay taxes in the Territory and greatly complicate its problems. The northwestern parts of the area are in the region of permanent frost which makes the tasks of sanitation difficult; and even in the southeast, sanitary conditions are very poor. Most of the food required by the population must be imported.

The most serious health problem of the territory is tuberculosis. The death rate from this disease is 359 per 100,000, nine times the rate for the United States. Even among the non-native group it is double our rate (of about 40); and among the native group, fourteen times that figure. Tuberculosis accounts for one-fifth of all deaths; and 60 per cent of the fatal cases are reported only on the death certificate. There was no sanatorium in the territory prior to 1945. There are now only 250 beds, half of which were not in operation last year as a result of failure of Congressional appropriations. The Medical Mission estimates that at least 1,000 beds are needed.

Corneal opacities (of unknown etiology) are very common among the Eskimos but there is no resident ophthalmologist in the area. Venereal disease is extensive, fostered by the large floating male population and an open prostitution district in Fairbanks; and necessary drugs for treatment are lacking. Communicable diseases are prevalent, with no adequate isolation facilities. Hospitals are inadequate in number of beds, of dangerous non-fire-proof construction, and ill-equipped. There is no mental hospital in the territory; patients are sent to an institution in the State of Oregon, under a peculiarly vicious commitment law. Housing in the territory is even worse than with us in the United States (which is saying something). For this reason, and on account of high cost of living

pal hospitals (except the one at San Juan considered as "excellent") are on the whole very poor. The Mission suggests that they might with advantage be transferred to the Insular Government.

There are only about 800 physicians in Puerto Rico, less than a third of the number necessary for service by our continental standards. To meet the needs of the rural areas, the Insular Department of Health has established 65 district health units providing both medical care and public health services, and 21 additional units for preventive services only. Each of the major units is in charge of a (supposedly) full-time medical health officer; but it is believed that many of these officers actually engage in private practice. The Mission was not favorably impressed with the quality of service rendered. From the standpoint of the health administrator it might be preferable to have a considerably smaller number of independent jurisdictions under health officers so recompensed as to secure real full-time leadership. The Mission pays a deserved tribute to the School of Tropical Medicine at the University of Puerto Rico in San Juan which is operated with the coöperation of the School of Public Health of Columbia University. Dr. E. E. Irons, Chairman of the Mission, says "The School of Tropical Medicine has been, in my opinion, the greatest single factor in improving educational standards in medicine in Puerto Rico."

The results of the general public health program carried out in Puerto Rico during the past decade have been notable. In 1937 the general death rate was 20 per 1,000; in 1947, 13 per 1,000. In the year 1945, the specific death rate from typhoid fever had been reduced to 3 per 100,000; that from diphtheria to the same figure; that from dysentery to 6 per 100,000. These rates represent notable achievements. The three major challenges, not yet met, are diarrhea and enteritis (290 per 100,000), tuberculosis (202 per 100,000), and malaria (43 per 100,000). The Insular Department of Health is well organized, with Bureaus of Vital Statistics, Epidemiology, Sanitation, Tuberculosis, Malaria Control, Venereal Diseases, Maternal and Child Health, Crippled Children, Laboratories, Public Health Nursing, and Social Services. Notable progress has been made in Health Education and the island has 31 trained experts in this field, a larger number than could be found serving a similar population in most states of the Union. The Puerto Rico Public Health Association with 400 members, is one of the most active of the Affiliated Societies of the American Public Health Association; and those of us who had the privilege of attending its meetings last spring were deeply impressed with the eager and progressive spirit of the health workers of the island.

The fundamental health problem of Puerto Rico is an economic one, related to over-population. The average family income of the island is deplorably low and the cost of living somewhat above that of the Continental United States, since all food (but sugar) and most of the other necessities of life must be imported. Malnutrition is widespread and serious. It is encouraging to note that birth control has been legalized by the Supreme Court of the island and that 27 birth control clinics are in operation; but their total effect has done no more than check further pyramiding of population increase. Some emigration is taking place to the United States; but not enough to help materially. The most promising factor in the situation is an encouraging spirit of constructive planning, for the development of local industry (such as glass bottle and paper carton and cement plants now in operation); the increase of the fishery business, which has real possibilities; the furtherance of home industries (for which the

Puerto Ricans have special aptitudes); and the development of tourist trade.

The people and the Government of Puerto Rico are meeting the challenge of their unbalanced economy with courage and vision. For the present, they need, and deserve, far more substantial aid from the federal government than they have yet received. The Territory of Alaska and the Island of Puerto Rico are handicapped—in quite different ways—by conditions beyond their control. They lack the direct and effective share in their own government, on a natural level, which statehood would involve. They are, in a sense, wards of our Government; and that Government has failed to meet adequately its responsibility for their welfare.

REFERENCES

1. *J.A.M.A.*, 135:500 (Oct. 25), 1947.
2. *J.A.M.A.*, 136:979 (Apr. 10), 1948.

Credit Lines

PITTSBURGH'S MAYOR DECLARES HIMSELF

At an address on May 5 before the Nurses' Alumnae Association of Presbyterian Hospital, Pittsburgh, Mayor David L. Lawrence devoted his attention to public health in Pittsburgh. Mayor Lawrence expressed appreciation to the U. S. Public Health Service which is completing a survey of public health in Pittsburgh under the direction of Dr. E. R. Coffey, Medical Director of District No. 1, New York. The Mayor said that the city would not be abashed if some phases of the report were critical, for that is what was wanted—a fair appraisal of the virtues and failings, an analysis of successes and shortcomings.

"To our community program we will add a determination that here in Pittsburgh we will have a public health program which will equal the nation's best—which will make this city as preëminent in the health work that is done here as it is now preëminent in the economic life of the nation. I have been vastly heartened by the citizens' interest that is stirring in this field of public health. A democratic government can go ahead only as fast and as far as the people direct it to go.

"The City Council has authorized the employment of a public health engineer to direct the city's inspectional health services and a public health nursing bureau chief to develop and expand the nursing phase of the department's work. We are scouring the country now for the best people for these jobs. . . . In my fixed belief, key public health positions are not patronage of any kind, political, medical, or anything else—and never should be. The test must be qualifications. The field of public health is a specialized area, increasingly so. It requires special training, as other medical and nursing specialties require training. We are seeking people with that special interest and special ability in public health work."

DR. TURNER SUMMARIZES FOR PTA

The Health Conference of the National Congress of Parents and Teachers was held on February 17 and 18 (see

April *Journal*, p. 602). The Conference summarizer was Clair E. Turner, Dr. P.H. longtime health educator and currently assistant to the President, National Foundation for Infantile Paralysis.

A mimeographed abridged version of his summary has been received. It is worth reading for a number of reasons, not the least of which is its informal, chatty style such as the professional expert achieves too infrequently.

It is further notable for its recognition of the fact "that a good general health program lies at the basis of any special health activity."

In brief form, Dr. Turner picked up the threads of discussion so that his summary is itself a handbook of suggested aids, "most progress is probably going to be made through state and local health councils" to which he adds that the National Health Council can aid in organizing such councils.

In "extending knowledge of what constitutes a good local health program," he suggests the *Evaluation Schedules* for Use in the Study and Appraisal of Community Health Programs by the A.P.H.A., and the *Appraisal Form* for Evaluating School Health Services by the American School Health Association and the Michigan School Health Association.

If you can get this document from the National Congress of Parents and Teachers (600 S. Michigan Boulevard, Chicago 5), it will give you much factual information as well as serve as a model in case you find yourself with the job of summarizing a conference.

HEALTH IN BROOKLINE TOWN

The town of Brookline, Mass. (really a city of 50,000), calls its spring quarterly *Health Bulletin*, "Health in Our

Town" which is the annual report of its health department, Alfred L. Frechette, M.D., Commissioner. It has attractive photography and unique charts picturing some of the town's vital statistics. Even its organization chart is pictographed.

HEALTH ON THE RADIO IN OKLAHOMA

The Oklahoma State Health Department has prepared a radio series "Spotlight on Health" intended for grades 5-8. The series is a weekly program over the University of Oklahoma Radio Station. The pamphlet *Spotlight on Radio* includes a teachers' manual which gives many more suggestions for health teaching than can be done in a 15 minute radio period.

Among the special features of this manual are that it was written largely by rural school teachers, and that school children helped to select titles.

NURSING IN PICTURES

The Department of Hospitals of the City of New York has made its own contribution to the recruitment of nurses program in an attractive booklet entitled "Nursing—A Growing Profession." Detailed photographs of all phases of the nurse's training illustrate the pamphlet which includes also the details of courses, equipment, and costs in each of six nursing schools in municipal hospitals. There is a section, with pictures, on opportunities for the graduates, among which is an "excellent background for marriage and family life."

The photography and printing are excellent. Published by the Department of Hospitals, 125 Worth St., New York 13, N. Y.

ABOUT FEDERAL RESEARCH GRANTS

For the benefit of deans of medical schools, recipients of research grants from the U. S. Public Health Service, and others, the Division of Research Grants and Fellowships of the Service

has abstracted the laws, rules and regulations relating to the operation of the research grant program. A 12 page mimeographed document is available from the National Institute of Health, Washington 14, (Bethesda Station) D. C.

At the same time the Division of Public Health Methods in *Supplement No. 205* to the *Public Health Reports*, January, 1948, has listed all research grants made between January 1, 1946, and August 31, 1947. In that period grants of more than 10 million dollars have been made to 629 scientists for 699 projects in 193 institutions.

AS SIMPLE AS $2 + 2 = 4$

Using this simple arithmetic as a symbol, the Indiana Health Advisory Council (1098 W. Michigan St., Indianapolis 7) has recently issued an attractive booklet whose message is "The Law + Community Action = A Healthy Community." Using the question and answer method and illustrated with marginal drawings, it tells what a county health department is and how to get one, also a city-county or multiple county department. The names of the Indiana Health Advisory Council from O. O. Alexander, M.D., of the State Medical Association to A. P. Zetterberg of Rotary International, and 43 in between representing the professions, business, labor, the church, universities, and all the forces directly or indirectly interested in public health in the state are the clue to the present state-wide interest in getting more adequate health services in Indiana.

A BIRD'S-EYE VIEW

Health for a Million is a folder prepared by the Cleveland Division of Health for general public distribution. In bird's-eye paragraphs, each illustrated with a suitable drawing, it tells how the division operates and what it is doing to protect and improve the health

of Clevelanders, now numbering nearly a million. A brief history of the department is included, a look into its future problems, and the addresses of the 7 health centers and 5 branch child welfare stations. Altogether an attractive, useful aid in keeping in touch with your public.

FINDING CANCER IN THE BACK COUNTRY

Cancer detection clinics are scarce in the rural and mountain areas of Kentucky. But the Junior League of Kentucky has found what the *Junior League Magazine* (May, 1948) calls "the first unit of its kind in the world" to take the place of such clinics.

It has presented the Kentucky Chapter of the American Cancer Society with a Cancermobile armed with complete x-ray equipment, examining room, laboratory table for examining biopsy specimens as well as fluorescent lighting, electric heater, etc.

The Cancermobile visits counties on invitation of the County Medical Society and accepts patients only on referral from private physicians. But the visit is preceded with advance radio and press publicity and with visits of the Cancer Society's field director who speaks on cancer control in schools, churches, men's and women's groups, etc. The aim is not only to publicize the coming Cancermobile but to get cancer education to the community.

The Cancermobile is staffed with a physician, secretary, registered nurse, driver of the unit who also develops x-ray pictures, the Cancer Society's field director, and one or two members of the Louisville Junior League as volunteer general helpers.

CANCER STUDY CONTEST IN HIGH SCHOOLS

The New York City Cancer Committee this year has sponsored the sixth annual High School Cancer Study Contest open to students in public, private, and

parochial schools. These contests are arranged to encourage students, and through them their families, to acquire up-to-date knowledge on cancer and related diseases. Prizes are given to the schools for group exhibits as well as posters prepared by groups or individuals.

More than 400 posters and a good number of exhibits and models prepared for this contest were shown at the Museum of Natural History in April and May. Many of the exhibits involved a considerable amount of study, teamwork, imagination, and technical ability. Artistic talent was ably expressed in many excellent posters, making it difficult for the judges to make their decisions. The scientific exhibits included such material as cancerous animals and plants, tools for cancer therapy, methods for cancer research, and material aimed at cancer education.

Credit is due the New York City Cancer Committee for realizing that accurate knowledge is best acquired by active participation in group projects during the formative years; to the science and art teachers whose splendid guidance is evident throughout the exhibit; and to the students who were able to direct scientific information into creative channels.

ECPD—A CHALLENGE

The above is the title of a booklet prepared by the Engineers' Council for Professional Development which is described as, "An Audit of Accomplishments 1932-1947 and a Rededication of Plans for Future Action." The brief account, giving the history of ECPD, quotes from the 1932 Charter in describing the purpose of the organization as "a conference body organized to enhance the professional status of the engineer through the coöperative support of those national organizations directly representing the professional, technical, educational, and legislative phases of an engineer's life."

Listed among the accomplishments of the first 15 years of activity is the inspection and evaluation of 678 engineering curricula of which 580 were accredited. Two other noteworthy accomplishments described are the preparation, after extensive trial, of entrance examinations "Pre-Engineering Inventory" and a second series of examinations entitled, "Engineering Achievement Tests."

(Editor's note—Abel Wolman, Dr. Eng., representing both organizations, is chairman of an APHA-ECPD committee currently exploring the field of graduate work for engineers entering or returning to public health.)

A SURVEY OF MEN NURSES

It is understandable that the New York State Nurses Association should be the first to conduct a survey of men nurses (*Men Nurses, Education and Employment*, New York State, April, 1948), for 22 of the 43 schools of nursing in the United States which admit men are within the state. Over 600 men have graduated from the New York schools in the past ten years.

Areas of service include boys' schools, blood banks, health departments, and the Department of Correction, in addition to more familiar activities such as employment in industry, mental hospitals, general hospitals, and private duty nursing. The survey points out that the greatest drawback to basic education of men nurses is the problem of housing: the greatest drawback to general employment of graduates is due to the need in many agencies to make their employment selective.

The survey concludes that more male nurses are needed and that there are strong arguments for recruiting men into the nursing profession.

A "Highbrow" Magazine Discovers
Public Health
The *New Republic* recently began a

series of special reports on "1948: The Issues." The first in this series in the May 3 number, was a health "package" including an editorial and two articles on "The State of the Nation's Health" and "Playing Politics with the Health Issue" by Carl Malmberg, M.D., and Helen Fuller, respectively. The articles are interestingly illustrated with pictorial charts in color.

WORTH ACQUIRING

Some Special Problems of Children, Aged 2 to 5 Years, is the general title of a series of pamphlets, the first eight of which are now available. Planned and written by Nina Ridenour in collaboration with Isabel Johnson, they have been published and are being distributed by the New York Committee on Mental Hygiene of the State Charities Aid Association (105 East 22nd St., New York 10).

Their purpose is described "to bring to parents and teachers a point of view which will make their relations with children smoother and more constructive and will give children greater opportunities for happiness." The eight titles are: *When a Child Hurts Other Children*, *When a Child Is Destructive*, *When a Child Uses Bad Language*, *When a Child Won't Share*, *When a Child Still Sucks His Thumb*, *When a Child Still Wets*, *When a Child Masturbates*, *When a Child Has Fears*. Single copies 10 cents, packet of 8, 75 cents.

Money Saving Main Dishes has 150 tested recipes especially prepared by the Bureau of Human Nutrition and Home Economics of the U. S. Department of Agriculture. The recipes are planned to use cheaper forms of protein and yet feed the family adequately. Free by addressing Food Conservation, Washington 25, D. C.

Industrial Health: A Guide for Medical and Nursing Personnel is published

by the Industrial Health Committee of the Wisconsin State Medical Society in coöperation with the Industrial Hygiene Unit of the State Board of Health. This brings up-to-date a pamphlet first published by the Wisconsin Society in 1932, which "has done much to improve the quality of services in Wisconsin industries." Presumably available from Wisconsin State Medical Society, Madison, Wis.

How to Build a Safer Home has been prepared by the *Good Housekeeping* Building Forum with the purpose of

pointing out how to guard against the danger spots in the home. It is illustrated liberally with drawings, often showing both the right and the wrong way of doing things. Available from *Good Housekeeping* Bulletin Service, 57th St. & 8th Ave., New York, 35¢.

Butch Learned the Hard Way, with suitably amusing drawings, has all the basic rules of shop safety in compact form and colloquial language. Prepared by and available from the Bureau of Labor Standards, U. S. Department of Labor, Washington 25, D. C.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unpublished reviews cannot be accepted. All books reviewed in these columns may be purchased through the Book Service.

Physical Fitness Appraisal and Guidance—By Thomas Kirk Cureton, Jr., and Frederick W. Kasch, assisted by John Brown and W. G. Moss. St. Louis: Mosby, 1947. 566 pp. Illus. Price, \$6.00.

The purpose of this reference as stated in the preface is to provide an "interpretative book on physical fitness" for physicians and nurses as well as physical educators. Many of the data presented are based on a project designed to promote physical education for first year students in the Colleges of Medicine, Dentistry, and Pharmacy at the University of Illinois.

Appraisal of physical fitness is approached from the point of view of determining physique, organic efficiency, and motor fitness. This is the same emphasis described in a previous publication by Cureton.* Mention is made of health examination tests and other approaches to fitness but the emphasis on the three approaches selected is justified on the basis of practicality and previous research in these areas.

Considerable attention is given to a review of the literature dealing with methods of appraising body types, weight, cardiovascular and respiratory fitness, strength and motor performance. In fact the strength of the book lies in the extensive bibliography it presents, since many basic studies are cited.

The project conducted with 110 first year medical students to stimulate their interest in physical education and increase their understanding of physical

fitness constitutes the "original" material for this book. Tests used with this group included anthropometrical measurements, somatotype ratings, the Schneider and other tests of cardiovascular efficiency, vital capacity and other means of respiratory fitness, and a battery of motor performance tests including the one mile run. The discussion of these tests is distributed throughout the reference, making it difficult to discover the total results and conclusions of this study.

Suggestions for the health and fitness guidance of the individual based on the results of these various tests also appear in a number of chapters. For the most part these suggestions stress the importance of exercise, especially "endurance exercises." Generalizations, based presumably on the data presented, to support this recurring suggestion may be questioned in a number of instances; for example, mental hygiene guidance for body types (p. 129), dieting (p. 155); exercise to improve cardiovascular condition (p. 189), and a low basal metabolism (p. 304).

From the quality of the writing one gains the impression that the literature cited and the data presented have not always been interpreted too objectively and that the authors' apparent conviction of the importance of endurance exercise as a means of attaining optimal physical fitness has influenced particularly the suggestions given on guidance. Such expression will lend strength to the criticisms, certain to be made, that the book presents a biased viewpoint and overlooks or passes lightly over interpretations that do not support the

* Cureton, Thomas Kirk. *Physical Fitness Workbook*. (2nd ed.) St. Louis: Mosby, 1947. Reviewed in *A.J.P.H.*, 37:1193 (Sept.), 1947.

thesis that endurance exercise is the most important factor in physical fitness. Physiologists, physicians, public health workers, as well as educators and others who read this book should do so critically to gain the greatest value.

MABEL E. RUGEN

A Textbook of Bacteriology—By *R.W. Fairbrother, M.D., D.Sc., F.R.C.P.* (6th ed.). New York: Grune & Stratton, 1948. 480 pp. Price, \$6.00.

The volume under review is a 1948 United States published reprint of the fifth edition of Dr. Fairbrother's concept of the medical aspects of bacteriology. This English author restricts his attention to "bacteria as agents of disease in man, and the application of bacteriological methods in the prevention, diagnosis, and treatment of disease," incorporating newer bacteriological knowledge into a well organized and logical presentation for the medical student.

The first section concisely covers the essentials of general bacteriology in progressive steps from the initial historical survey through the elementary background of morphology, biology, growth and destruction of bacteria; types of infection and immunity; significance of antigens, antibodies and their reactions; a chapter on chemotherapy even recognizing its limitations. Throughout the textbook the nomenclature is British for, although reference is made to the 1920 classification of the American Society of Bacteriologists, the 1947 contribution of the International Society for Microbiology has necessarily not been incorporated. The chapter on bacteriology and medicine might well be considered an excellent fundamental basis for thoughtful and careful coöperation between physician and laboratory with the ultimate objective of successful bacteriological or serological diagnoses.

The second section devoted to sys-

tematic bacteriology, comprehensively treats each pathogenic microorganism, its essential characteristics plus its medical aspects, laboratory diagnosis and types of therapy. Tables of reactions are graphic. Characteristic named phenomena of diagnostic significance and specialized tests are appropriately included, and desirable epidemiology is stressed. Human virus diseases are well classified and discussed, emphasizing the success of complement-fixation studies and neutralization tests.

The brief third section on general technique is recognized universal practice, with a rarely noted deviation from United States standard methods.

Since information in this textbook is authenticated, the material comprehensive, and the presentation interesting, it may be recommended as a constructive study of principles and development of medical bacteriology.

CATHARINE ATWOOD

Public Health—A Career with a Future—*American Public Health Association.* (rev. ed.). New York: American Public Health Association, 1948. 19 pp. Price, \$15.

Public health needs more trained workers. How do you recruit for this field? How do you capture the interest of the professional graduate, the college freshman, or even the junior in high school? One approach is obviously through the pamphlet which describes the field and the opportunities in a straightforward, accurate, and yet alluring manner.

The above named pamphlet was prepared by the A.P.H.A. some two years ago. The revised form now issued is 10 pages shorter. It tells the story with vocational and public service appeal. The different types of positions in public health are listed, but the more detailed descriptions of the nature of the work in special fields, the educational qualifications, and the salary

series of investigations designed to test the "effect of added thiamin in the average diet on learning, the ability to memorize, on forgetting, on certain sensory and motor activities, on health, and on the growth of mind and body in normal children."

The subjects were 120 children, living in an orphanage. Sixty of the children served as experimental subjects and 60 as control subjects. The children in the experimental group were given daily a 2 milligram tablet of thiamin, while those in the control group were given daily an indistinguishable placebo. The study began in the spring of 1941 and terminated in the early fall of 1944. During the last year of the study, one-half of the groups were reversed, thus excluding the possibility that the children originally chosen for the thiamin supplementation were accidentally somewhat superior genetically or otherwise.

The tests given were those that measured gains in the performance of mental tasks.

The institutional diet was of necessity a low cost one. It was high in cereals and low in meat, but the liberal use of milk, butter, and cheese provided meals that were adequate in all respects except thiamin, the average intake of which was estimated to be 1.0 milligram per person per day. Had the cereals been of the enriched type even this low cost high cereal diet would have been adequate in all respects. This is the type of investigation which can illustrate the value of cereal and flour enrichment.

During the first 6 weeks of experimentation the thiamin-fed group made superior gains in all 18 test tasks. In the ensuing period of 1 year the thiamin-fed group again surpassed the control. In the final year, the reversal period, the group receiving thiamin for the entire period continued to demonstrate superior gains. The reversed pairs demonstrated reversals of superior gain

in one-half of the activities, but failed to show adverse effects of thiamin withdrawal.

The author conservatively concludes that: "It is clear from the studies herein reported that the results of thiamin supplementation are not sufficiently great to be observable over short periods of time in all measures of performance. The cumulative effects of a superior dietary throughout life may, nevertheless, spell the difference between alert, successful living and a marginal effectiveness."

ALICE H. SMITH

How Life Is Handed On—By Cyril Bibby. New York: Emerson Books, 1947. 159 pp. Price, \$2.00.

Although "telling about the birds and bees" has become a stock ingredient of much hammy humor by radio comedians, plant and animal reproduction continues a good basis for sex education. Bibby uses it advantageously in this new volume. In addition to being a sound scientist he is a good story teller—one who knows how to make life and growth not merely tolerable but interesting.

His practical application of science is intended for children and younger adolescents. Hence his appeal often is directed to their self interests through which broader, more altruistic connotations readily can be implied. Here is an example. After asking his youthful reader what would happen if living things did not hand life on from generation to generation, he answers by telling them, "Hens would not have chicks, so there would be no eggs for your breakfast. Cows would not have calves, so there would be no milk for your mid-morning drink. Sheep would not have lambs, so there would be no roast lamb for your dinner. But that would not worry you, for if humans did not have babies there would be no *you* to worry!"

In his dealing with human reproduc-

live processes, the author presents major factors without going into boresome obstetrical minutiae. His illustrations and glossary add value, and the large type makes for easy reading. Adding to its usefulness as a medium for sex education, Bibby weaves tradition, social standards, and personal character guidance nicely into the textual pattern. Conscientious parents and educators will find in this book another valuable base for building essential knowledge and philosophy into young lives.

RAY H. EVERETT

Advances in Military Medicine. Vols. I and II—*Edited by E. C. Andrus, D. W. Bronk, G. A. Carden, Jr., M. C. Winternitz, J. S. Lockwood, J. T. Wearn, and C. S. Keefer.* Boston: Little, Brown, 1948. 990 pp. Price, \$12.50.

These volumes constitute the official record of progress achieved in many fields by American investigators working under the sponsorship of the Committee on Medical Research of the Office of Scientific Research and Development.

Subject headings indicate the broad scope of the report: Medicine, Surgery, Aviation Medicine, Physiology, Chemical Warfare Agents, Anti-Pest Agents, Adrenocortical Steroids, Malaria, Penicillin, and Sensory Devices.

Joseph Earle Moore relates how it was learned that soap-and-water washing was of no value in prophylaxis of chancroid in volunteers deliberately inoculated, but that sulfonamides applied locally were effective. Eventually the Army adopted a single-tube prophylactic against venereal disease containing 15 per cent sulfathiazole and 30 per cent calomel in a vanishing cream base.

Those concerned with blood banks will be interested in Cohn's chapter on plasma fractionation, Janeway and Oncley's on blood substitutes, and Guest's on methods of preservation of whole blood.

Gordon M. Fair reviews the studies on water disinfection and gives data on survival times of certain pathogens under varying conditions of pH. Iodine was found preferable to chlorine for individual canteen water treatment on the bases of palatability, rapidity of disinfection, and ease of application. Tablets of a newly synthesized compound, triglycerine hydroperiodide, were developed for use of individuals in the field.

The story of the experiments with DDT and other new insecticides, with the rodenticides, sodium fluoracetate (1080) and alpha-naphthylthiourea (ANTU), is still amazing. It seems almost incredible to read that over 7,000 repellents and mixtures were tested at the Orlando, Fla., laboratories of the U. S. Department of Agriculture. Liquid repellents were compounded for skin application that were 100 per cent effective against *Aedes aegypti* for over 3 hours.

Carden, Elderfield, and Taliaferro tell of the testing of more than 14,000 compounds against one and often two or three avian malarial parasites in different hosts. Shannon reports on the many coöperative studies in testing the most promising of these compounds on volunteers, as a result of which at least one appears highly effective in suppressing malaria and another appears to have definite curative power against *vivax* infection.

Although most of the material contained in these volumes has been published previously in scientific journals, epidemiologists and sanitarians will find these concise summaries more convenient for reference purposes.

FRANKLIN M. FOOTE

IES Lighting Handbook—*Compiled under the auspices of the Illuminating Engineering Society. (1st. ed.).* New York: Illuminating Engineering Society, 1947. 856 pp. Price, \$7.50.

This first edition of the *IES Lighting Handbook* is of great value to the engineer who is interested in the field of illumination. There has been a need for a book like this for many years. The handbook condenses the accumulated knowledge of the past 40 years of lighting progress. It is evaluated and interpreted for convenient use of the lighting engineer. The book is divided into the Reference Division, Application Division, and Manufacturers' Data Index.

The Reference Division has 9 sections. Each of these sections briefly describes and gives pertinent data on the physics of light production, light and vision, standards, nomenclature abbreviations, color, measurement of light, light sources, light control, light calculations, and daylighting.

The Application Division has 5 sections. Each of these gives practical applications on such subjects as interior lighting, exterior lighting, sports lighting, transportation lighting, photographic, reproduction, projection and television lighting, miniature lamp applications, and miscellaneous application of radiant energy.

The illumination intensity standards as set forth in this handbook are, of course, the standards as approved by the Illuminating Engineering Society. These lighting standards at the present time are controversial. Authorities such as Dr. M. A. Tinker of the University of Minnesota have expressed concern over the increase of light intensities on the working plane as set forth by the Illuminating Engineering Society. It is understood by the reviewer that these differences of opinion are now being reviewed by a joint committee representing the American Public Health Association and the Illuminating Engineering Society.

GEORGE D. CLAYTON

Man, Weather, Sun — By William F. Petersen, M.D. Springfield, Ill.:

Charles C. Thomas, 1948. 462 pp. Price, \$10.00.

The first section of this book is devoted to a minute description of a large number of clinical observations performed on a set of young adult male triplets. In the second section the author states that "the evidence has been presented that the organic rhythm observed in the triplet group during June and July of the year 1940 could be observed in the general population." A number of graphs are used as evidence, including one (Fig. 154, p. 190), showing the sex ratio of persons dying in relation to the specific gravity of the urine of one of the triplets. In all, the book contains 294 charts and diagrams, many of them insufficiently labelled to permit interpretation. These charts, incidentally, are similar to those presented by Dr. Petersen in other of his writings.

The language used in this book is quite foreign to most students of medicine or public health, but seems to have much in common with that used by astrologers. As an example, the following passage is quoted (p. 110): "This brain was congenitally predisposed to early disturbance and the vascular state of the time merely pushed the amplitude of clinical reflection back and forth."

LEONARD J. GOLDWATER

Private Enterprise or Government in Medicine — By Louis Hopewell Bauer, M.D. Springfield, Ill.: Charles C. Thomas, 1948. 201 pp. Price, \$5.00.

The excellence of this volume consists chiefly in the convenience of access to the record of official actions, plans and programs of the American Medical Association over the decades in matters of public or social concern with medical care, and methods of paying for it.

The eleven chapters are brief, documented more by quotation than through bibliography, and carry at the

law, evidence, judicial procedure, legislative drafting, municipal corporations, and torts are all involved. Law publishers have heretofore had little occasion to promote such an organization of material, there having been no corresponding specialization in law practice, and for similar reasons the law schools have not attempted it. So far as this reviewer is aware, Dr. Tobey's is the sole up-to-date treatise on the subject, and he has done a thorough and comprehensive job. Programs and activities under the head of public health are, of course, undergoing rapid expansion. In the future such a book as this will probably be enlarged in scope to include more of the legal aspects of the administration and regulation of hospitals, clinics, and welfare institutions; of institutions and programs in the mental hygiene field; and of programs for extending the availability of ordinary medical care. Short of this, however, the author covers his field.

The book includes a short bibliography, index of cases, and an adequate topical index. The law reviews, unfortunately, are unrepresented. A selective bibliography of the comments and case notes dealing with public health issues which have appeared in these reviews—now quite numerous and in many instances of excellent quality—would have been useful. All primary sources, however, appear to have been fully canvassed. Health officers and students of public health, city and town attorneys, and all others professionally concerned with administration in this field will find the new edition of this standard work extensively useful.

GEORGE H. DESSON

The Mind in Action—By Eric Berne, M.D. New York: Simon and Schuster, 1947. 320 pp. Price, \$3.00.

The sub-title of this volume indicates that it is a layman's guide to psychiatry. The author in the first three

chapters of the book gives a background of the physical structure of the individual to indicate what he has to work with. Then follows a discussion of what human beings are trying to do and a chapter on the emotional growth of the individual. After a discussion of dreams and the unconscious, the author in the second part of his book describes the neuroses and psychoses, alcoholism, drug addiction, and certain types of behavior disorders. He follows this with a description of psychiatric treatment and of psychoanalytic treatment of mental disorders. There are two appendices, one which describes intuition and extra-sensory perception and the other describes man as a political animal.

The book is written within the frame of reference of orthodox Freudian theory. The author has also been influenced by his reading in the field of semantics with particular reference to the writings of Korzyboski and Hayakawa. At the end of each chapter are what are called footnotes for philosophers; "philosophers" being defined as those people who think about what they read. These footnotes indicate some of the divergent points of view with regard to the subject matter of the particular chapter and the references where these divergent points of view may be found in more detail. There are also a few bibliographical references in these footnotes which are in line with the point of view taken by the author in a particular chapter. These bibliographical suggestions have been exceptionally well chosen for their pertinent relevancy to the material in the previous chapter. They make no pretense of being exhaustive but are highly selective.

The author writes in extremely simple language with a minimum of technical terms. His style is witty and lay or professional readers may find considerable enjoyment in the humorous way in which material is presented.

mands on nurses is lost by the third page. As all of the material is timely, useful, and rich in content, it is regrettable that it should be offered in such jumbled order. The solution, of

course, is to read every word of the book as this reviewer has done. If you do not, you will miss valuable suggestions which are not in their logical places.

DOROTHY DEMING

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

- ABOUT THE KINSEY REPORT.** Observations by 11 Experts on "Sexual Behavior in the Human Male." Edited by Donald Porter Geddes and Enid Curie. New York: New American Library, 1948. 166 pp. Price, \$25.
- AMERICAN BUILDING.** The Forces That Shape It. J. M. Fitch. Boston: Houghton Mifflin, 1948. 328 pp. Price, \$5.00.
- AMERICAN YEAR BOOK 1947.** The. William M. Schuyler, Editor. New York: Thomas Nelson, 1948. 1125 pp. Price, \$15.00.
- APPROVED TECHNICAL INSTITUTES.** J. S. Noffsinger, Ph.D. Washington: National Council of Technical Schools, 1948. 48 pp. Price, \$.25.
- CANCER—A HANDBOOK FOR DENTISTS.** Prepared by the Tumor Committee of the Connecticut State Dental Society. Hartford: Connecticut State Department of Health, 1948. 52 pp.
- CATALOGUE OF CERTIFIED PROFESSIONAL MOTION PICTURE FILMS.** Presented as a Service of Academy-International of Medicine. Topeka, Kans.: Department of Audio-Visual Aids, 1948. 110 pp.
- CAUSES OF BLINDNESS.** Among Recipients of Aid to the Blind. Ralph G. Hurlin, Sadie Saffian, and Carl E. Rice, M.D. Washington: Supt. of Documents, 1947. 131 pp. Price \$.40.
- CITIZEN PARTICIPATION IN GOVERNMENT.** Helen E. Martz, Ph.D. Washington: Public Affairs Press, 1948. 63 pp. Price, \$1.00.
- DAIRY BACTERIOLOGY.** Bernard W. Hammer, Ph.D. (3rd ed.). New York: Wiley, 1948. 593 pp. Price, \$6.00.
- DEVELOPMENTAL PHYSICAL EDUCATION.** James S. Nicoll and May Belle Long. Yonkers-on-Hudson, N. Y.: World Book Company, 1947. 232 pp. Price, \$2.44.
- ESSENTIALS OF FEVERS.** Gerald E. Breen (2nd ed.). Baltimore: Williams & Wilkins, 1948. 351 pp. Price, \$4.50.
- THE FIGHT AGAINST MOSQUITOES.** Luis Najera Angulo, M.D. Madrid: El Jefe de la Seccion de Propaganda Sanitaria de la Direccion General de Sanidad, 1947. 200 pp.
- HANDBOOK OF COMMUNICABLE DISEASES FOR THE USE OF MEDICAL OFFICERS OF SCHOOLS.** Medical Officers of Schools Association (11th ed.) London: J. & A. Churchill Ltd., 1948. 71 pp. Price, 5s.
- HEALTH CENTER BUILDINGS.** Harry E. Handley, M.D. New York: Commonwealth Fund, 1948. 48 pp. Price, \$.50.
- THE ISSUE OF COMPULSORY HEALTH INSURANCE.** George W. Bachman and Lewis Meriam. Washington: Brookings Institute, 1948. 271 pp.
- KNOW YOUR HEART.** Howard Blakeslee. New York: Public Affairs Committee. 32 pp. Price, \$.20.
- LIVE LONG AND LIKE IT.** C. Ward Crampton. New York: Public Affairs Committee. 32 pp. Price, \$.20.
- MEDICAL RESEARCH IN WAR.** Report of the Medical Research Council for the Years 1939-1945. London: His Majesty's Stationery Office, 1947. 455 pp. Price, 7s.6d. net.
- METABOLIC ASPECTS OF CONVALESCENCE, CONFERENCE ON.** Transactions of the 15th Meeting. Edited by Edward C. Reifensstein, Jr., M.D. New York: Josiah Macy, Jr. Foundation. 163 pp. Price, \$2.25.
- PREJUDICE AND PROPERTY.** Tom C. Clark and Philip B. Perlman. Washington: Public Affairs Press, 1948. 104 pp. Price, Cloth, \$2.00, Paper, \$1.00.
- PSYCHIATRY IN A TROUBLED WORLD.** William C. Menninger, M.D. New York: Macmillan, 1948. 636 pp. Price, \$6.00.
- PSYCHOTHERAPY—ITS USES AND LIMITATIONS.** D. Rhodes Allison, M.D., and R. G. Gordon, M.D. New York: Oxford University Press, 1948. 160 pp. Price, \$3.00.
- PUBLIC HEALTH, TEXTBOOK OF.** W. M. Frazer, M.D., D.P.H. (12th ed.) Baltimore: Wil-

- liams & Wilkins, 1948. 571 pp. Price, \$6.50.
- RESEARCH REPORTS. FEEDING PROBLEMS IN MAN AS RELATED TO ENVIRONMENT. An Analysis of U. S. and Canadian Army Ration Trials and Surveys, 1941-1946. Robert E. Johnson, M.D., and Robert M. Kark. Chicago: Quartermaster Food & Container Institute for the Armed Forces Research, 1947. 94 pp.
- SANITATION FOR FOOD HANDLERS AND SELLERS. Berl Benmeyer, R.S. Los Angeles: Food Sellers Digest, 1948. 126 pp. Price, \$4.95.
- VERS LA MÉDECINE SOCIALE. René Sand. Paris: J. B. Baillière et fils. Liège Editors Desoer., 1948. 671 pp.
- VOLUNTARY MEDICAL CARE INSURANCE IN THE UNITED STATES. Franz Goldmann, M.D. New York: Columbia University Press, 1948. 228 pp. Price, \$3.00.
- WIDENING HORIZONS IN MEDICAL EDUCATION 1945-1946. A Report of the Joint Committee of the Association of American Medical Colleges and the American Association of Medical Social Workers. New York: Commonwealth Fund, 1948. 228 pp. Price, \$2.75.
- YOU CAN LICK TB (Handbook for Tuberculosis Patients) Pamphlet 10-18. Washington: Veterans' Administration, 1947. 36 pp.
- YOUR HEALTH AND PERSONALITY. Howard S. Hoyman. New York: Harcourt, Brace & Co., 1948. 180 pp. Price, \$1.20.
- THE FOLLOWING REPORTS HAVE BEEN RECEIVED
- ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT. Annual Report 1947. Oakland, Calif. 1-A Court House. 32 pp.
- BRIEFS. 1943-1947. 30th Annual Report. New York. Maternity Center Association. 15 pp.
- CANADIAN PUBLIC HEALTH ASSOCIATION 1947-1948. Toronto: C.P.H.A., 1948. 23 pp.
- THE CRUSADER OF THE WISCONSIN ANTI-TUBERCULOSIS ASSOCIATION. 40 Year Review May, 1948. Milwaukee: Wisconsin Anti-Tuberculosis Association. 15 pp.
- JOHN AND MARY R. MARKLE FOUNDATION, 1947. Annual Report. New York: John and Mary R. Markle Foundation, 1948. 96 pp.
- MEDICAL MISSION TO AUSTRIA July-August 1947. American Unitarian Service Committee in Coöperation with World Health Organization Interim Commission. New York: Medical Projects. 48 pp.
- MOUNT SINAI HOSPITAL, THE. Annual Report 1947. New York: The Mount Sinai Hospital. 194 pp.
- NATIONAL COMMITTEE FOR MENTAL HYGIENE, INC., THE. Annual Report 1947. New York: National Committee for Mental Hygiene, Inc., 1948. 48 pp.
- NATIONAL CONFERENCE ON SOCIAL WELFARE NEEDS AND THE WORKSHOP OF CITIZENS' GROUPS, REPORT OF THE. New York: National Social Welfare Assembly, 1948. 72 pp. Price, \$.25.
- NATIONAL SOCIAL WELFARE ASSEMBLY. Annual Report 1947. New York: National Social Welfare Assembly. 30 pp.
- NEW BRITAIN, CONNECTICUT. 42nd Annual Report of the Department of Health 1947. New Britain: The Record Print.
- NEW MEXICO SYSTEM COUNCIL. Annual Report for 1947. Rebecca Graham, Merit System Supervisor. 30 pp.
- PLANNED PARENTHOOD FEDERATION OF AMERICA, INC. Annual Report—Treasurer's Report 1947. New York: PPFA. 23 pp.
- PROVINCE NOVA SCOTIA. Report of the Department of Public Health for 1947 and of the Deputy Registrar General on Vital Statistics for 1946. Halifax, N. S.: Kings Printer, 1948. 459 pp.
- RICHMOND COUNTY BOARD OF HEALTH. Annual Report 1947. Augusta, Ga. Department of Health. 19 pp.
- STAMFORD, CONNECTICUT, ANNUAL REPORT FOR 1947. Stamford: Department of Health. 39 pp.
- SERVING THE COMMUNITY FOR BETTER HEALTH IN 1947. Louisville, Kentucky: Louisville & Jefferson County Board of Health. 99 pp.
- STORY OF U.N.R.R.A., THE. Washington, D. C.: United Nations Relief and Rehabilitation Administration, 1948. 48 pp.
- STRONG-CARTER DENTAL CLINIC. 27th Annual Report 1947. Honolulu: Palama Settlement. 40 pp.
- TOWARD BETTER HEALTH. Report for 1947. Rochester, Minnesota: The Rochester-Olmsted County Health Unit.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Evaluating Epidemiologic Procedures—Venereal disease case finding is tried and found not-wanting in Toronto. Having himself given in this *Journal*—just twenty years ago—a halting account of New Jersey's first free-hand attempts to apply epidemiologic technics to the venereal infections, it is cheering to this ancient annotator to read each new account of another Cortez, "silent, upon a peak in Darien" discovering, too, that the Pacific still is there.

BROWN, W. G., and NICHOLS, W. B. Epidemiologic Procedures as a Case-Finding Mechanism in Syphilis Control. *Canad. Pub. Health J.* 39, 4:123 (Apr.), 1948.

Aid vs. Gravy—Factors used in allocation formulas for grants-in-aid should be measurable and be based on data collectable by official agencies. Flexible patterns for such aid are now being formulated, say these writers.

CHAPMAN, A. L., and GREVE, C. State-Local Grant-in-aid Formulas. *Pub. Health Rep.* 63, 21:673 (May 21), 1948.

"First the Infant, Muling . . ."—Is this something you, too, never thought much about? "There has been little attempt to measure the extent of illness among infants." So begins this study, which reveals the causes of illness (and deaths) under 1 month, 1-2, 3-5, 6-8, and 9-11 months.

COLLINS, S. D. Illness among Infants, with Comparative Mortality Data. *Pub. Health Rep.* 63, 20:637, (May 14), 1948.

"99.99+ Per cent Successful"—This breakdown of 327 outbreaks of water-borne disease involving 111,320 cases (from 1938 through 1945) will prove an excellent antidote for your complacency about our peerless sanitary safeguards.

ELIASSEN, R. AND CUMMINGS, R. H. Analysis of Water-borne Outbreaks, 1938-45. *J. Am. W. W. A.*, 40 5:509 (May), 1948.

"Maturity and Solidity" are Added—This is an eloquent plea for 1,200 local health administrative units instead of 18,000 "boards of health." You know the program: this is your opportunity to view it when presented by a master of the art of influencing men. You'll be repaid with a mine of quotations.

EMERSON, H. Whither the Pegasus of Public Health? *New England J. Med.* 238, 20: 679 (May 13), 1948.

Big Job To Be Done—Reviewing our present knowledge of environmental factors in mental health (and lack thereof) the writers discuss the vast areas in which research is needed to improve our preventive and therapeutic armamentarium.

FELIX, R. H., AND BOWERS, R. V. Mental Hygiene and Socio-Environmental Factors. *Milbank Mem. Fund Quart.* 26, 2:125 (Apr.), 1948.

Beauty Note—Lady sanitarians will be relieved to learn that ammonium thioglycolate, the chemical used in the cold-waving process, is very seldom irritating to the skin of the person being beautified, though it is often tough on the hands of the beautician. Now that home permanents are making every home a beauty parlor, the problem seems to become more complicated; doesn't it? Amateur beauticians might use rubber gloves.

GOLDMAN, L., et al. Permanent Wave Process. *J.A.M.A.* 137, 4:354 (May 22), 1948.

A Little about a Lot—Reviewing recent advances in the control of the

common communicable diseases, this article moves on to cover new problems like rickettsialpox and old ones like rheumatic fever.

INGRAHAM, H. S. Recent Advances in Communicable Disease Control. New York State J. Med. 48, 10:1135 (May 15), 1948.

Just To Stir Things Up—I believe this subject is public health. A committee of New York doctors has proposed a workable bill to make voluntary euthanasia crime-proof and lawful. "As a subject for arm-chair debate, it rivals communism in its ability to evoke bitter words and hot tempers," says the writer.

JAMES, S. Euthanasia—Right or Wrong? Survey Graphic 37, 5:241 (May), 1948.

Old Enemy Raises Ugly Head—Caused chiefly by a minimus strain of *C. diphtheriae*, a diphtheria outbreak of 117 cases—with 11 deaths—was studied. Of the minimus cases, 59 per cent had had previous immunization. In a companion paper is a discussion of certain laboratory difficulties which may in the past have led to misinterpretation.

JENKINS, A. A. Diphtheria Epidemic in Utah in 1947 (and) GALBRAITH, T. W., et al. Appearance of "Minimus" Type Diphtheria in Utah. Pub. Health Rep. 63, 18:573 (Apr 30), 1948.

Jeremiad—It is an interesting commentary on our social organization, says this writer, that two antithetical forces like war and humanitarian institutions should protect the unfit at the expense of the fit. Yet we stage a war every twenty-five years and demand that only the physically fit and psychologically well adjusted be allowed the privilege of dying for their country.

JOHNSON, A. S. Medicine's Responsibility in the Propagation of Poor Protoplasm. New England J. Med. 238, 22:756 (May 27), 1948.

But It Still Helps—Last November your attention was called to a paper

which pointed out that, although fluorine in the water does reduce caries, it is also helpful to have parents with good teeth. Now comes another paper to warn us that molars are least protected by fluorine, front teeth most. Lower molars are protected only a third.

KLEIN, H. Dental Effects of Community Waters Accidently Fluorinated for Nineteen Years. Pub. Health Rep. 63, 18:563 (Apr. 30), 1948.

Convocation Address—This scholarly discussion of progress of public health from filth diseases to geriatrics ends on this high note. "There is every reason to believe the next 50 years will be at least as fruitful in the medical sciences as the last 50. Probably they will be much more so." To which we can all add a fervent amen.

LONG, E. R. Medical Science and the Longer Life. Science 107, 2778:305 (Mar. 26), 1948.

Sign of Social Maladjustment—Female contagious syphilis has increased ten times during the past eight years in one industrial community, reports a British medical observer. Though male contagious syphilis reveals a welcome fall, an increase in corresponding female statistics is reported throughout England.

MACFARLANE, W. V. Some of the Medico-Social Aspects of Venereal Disease. Pub. Health 61, 8:147 (May), 1948.

A Lot More About Viruses—The most heartening statement in this excellent series of papers is this: practical methods for the diagnosis of many of the viral and rickettsial diseases will be available as soon as the necessary special antigens can be produced. There is a lot more which you should not miss.

SCHULTZ, E. W. Virus Diseases (and five related papers). J.A.M.A. 136, 17:1075 (Apr. 24), 1948.

ASSOCIATION NEWS

SEVENTY-SIXTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
BOSTON, MASS., NOVEMBER 8-12, 1948

FELLOWSHIP IN THE AMERICAN PUBLIC HEALTH ASSOCIATION

The grade of Fellowship was established in the American Public Health Association in 1922. Professional workers in public health are eligible for election as Fellows under certain conditions and as an indication that they have achieved a recognized professional standing. As of January 1, 1948, the total membership of the Association was 11,124, including 1,913 Fellows, or 17 per cent of the total.

Questions are frequently asked regarding the requirements for Fellowship and the following statement outlines the provisions of the By-laws governing qualification and election.

Persons who have been members of the Association for at least two years and who have reached their 30th birthday are eligible to apply if, in their opinion, they meet the conditions of one or more of the six clauses in the By-laws defining "an established professional standing." These six possible approaches are as follows:

a. A person who has rendered acceptable service for two or more years in a responsible public health position and who has been awarded in course a degree of Doctor of Public Health, Doctor of Science in Public Health, Doctor of Philosophy in Public Health, Doctor of Medicine with at least one year of graduate study in public health in a University, Master of Public Health, Diploma in Public Health, or other equivalent

degrees, according to standards approved by the Executive Board of the American Public Health Association.

b. A person who has been awarded in course an academic or professional degree involving training in public health and who has been regularly engaged in health work for at least five years, having rendered meritorious service as a health officer or in responsible charge of work in either a public or private health agency.

c. A person who has done notable original work in public health or preventive medicine of a character to give him a recognized standing.

d. A person regularly engaged in health work for at least five years, who has given evidence of special proficiency, who has attained a recognized standing.

e. A teacher of public health or one of its constituent sciences who has attained distinction as an expounder of the principles of public health or its constituent sciences. Such a teacher shall have had at least five years' experience as a teacher of public health subjects. Any years of experience as defined in paragraphs "b" and "d" that the applicant may have had shall be considered the equivalent of the same number of years' experience as a "teacher."

f. A person not covered by the above, who has made substantial contributions to public health work in his chosen branch, who has attained a recognized professional standing.

Persons wishing to apply should request a Fellowship application blank from the American Public Health Association Membership Department, 1790 Broadway, New York 19, N. Y. Appli-

cations are accepted up to August 1 each year for consideration by the Governing Council at the fall meeting. It is important to make clear that members themselves should take the initiative in submitting such applications. Neither the Sections nor the A.P.H.A. administrative staff are authorized to solicit applications. This means that, although nearly 3,000 persons have been duly recognized with this grade of affiliation since 1922, there are other persons well qualified who have never initiated the process of applying for Fellowship. It should be clear that members should not await action by others if they wish to attain Fellowship. It is necessary and proper for them to take the first step.

An application for Fellowship requires sponsorship by two Fellows of the Section with which the applicant desires to be affiliated. These personal signatures are to be obtained by the applicant before submitting the completed application. The A.P.H.A. office will assist, on request, in determining the Section with which prospective sponsors are affiliated. Applications from persons not wishing to be identified with a particular Section and requesting unaffiliated Fellowship may be sponsored by any two Fellows of the Association.

When properly sponsored and otherwise completed, the application is sent to the A.P.H.A. office, after which the list of persons applying is published in the *American Journal of Public Health*, usually in the September issue, but in any case not less than 15 days before the date for the Annual Meeting. An established routine is followed for review by the Section Councils (unaffiliated applications are reviewed by the Executive Board) and by the Commit-

tee on Eligibility. This Standing Committee of the Association is made up of one Fellow from each of the 12 Sections, plus a Chairman elected by the Executive Board. This group is under instructions from the Governing Council to examine each application in accordance with the provisions of the clause of the By-laws chosen by the applicant, and to apply the criteria with precision in each case. Final election is by the Governing Council at the second meeting at each annual session.

The privileges of Fellowship include eligibility to serve as an officer of the Association or one of the Sections, Chairman of an Association or Section Committee (over one hundred in number), a member of one of the four Standing Committees, a member of the Governing Council or Executive Board, and the right to vote at the Annual Meeting for the elective members of the Governing Council and on amendments to the Constitution. Some Civil Service and merit system records depend upon Fellowship in the American Public Health Association as an achievement deserving recognition in applicants.

The dues of Fellows are \$12.00 annually, and include a subscription to the *American Journal of Public Health* and other services to which members are eligible. Life Membership is available at \$200, covering all future annual dues.

Applications for Fellowship to be considered at the 76th Annual Meeting in Boston, Mass., November 9-12, 1948, should be filed with the Association as soon as they are completed, and in any case not later than August 1. For further information, address the Membership Department, American Public Health Association.

THE 76TH ANNUAL MEETING

Boston, Mass., November 8-12, 1948

Hotel Reservation Form

The hotels listed below have rooms available for Association delegates at the rates indicated. Please note that NO RESERVATIONS WILL BE ACCEPTED DIRECTLY BY HOTELS. Make your reservation through:
The Convention Bureau, Boston Chamber of Commerce, 80 Federal Street, Boston 10, Mass.

Hotels	Singles	Doubles	Twin Beds	Suites
Bellevue	\$4.00-\$6.00	\$6.00-\$8.00	\$7.25-\$10.00	\$12.00-\$15.00
Bostonian	3.00- 4.50	5.00- 6.50	5.00- 7.00	8.00- 10.00
Bradford	4.00- 6.00	6.00- 7.00	6.50- 8.00	12.00- 14.00
Braemore	4.40- 6.60	6.40- 9.90	6.60- 9.90	9.90- 25.00
Continental	3.50- 4.00	6.60	7.00	8.00- 25.00
Copley Plaza	4.50- 6.60	7.75- 8.80	8.80- 10.00	15.00- 25.00
Copley Square	4.00- 5.00	6.00	7.00	10.00- 14.00
Gardner	2.50- 5.00	4.00- 6.00	4.00- 6.00	7.50
Hemenway	3.00- 3.85	4.40- 5.50	4.40- 5.50	None
Kenmore	4.00- 6.00	6.50- 8.50	6.50- 8.50	10.00- 12.50
Lenox	3.75- 5.00	5.50- 6.50	7.50	10.00- 16.00
Manger	3.85- 5.50	5.00- 7.50	5.50- 7.50	None
Minerva	3.00- 5.00	4.00- 6.00	5.00- 7.00	5.00- 8.00
Myles Standish	3.85- 6.50	5.50- 7.50	6.50- 7.50	6.50- 15.00
Parker House	4.00- 6.50	6.25- 8.50	7.50- 10.00	14.00- 16.00
Puritan	4.40- 6.60	6.60- 8.80	9.90	13.20- 17.60
Sheraton	4.00- 4.50	7.00- 8.00	7.00- 8.00	7.00- 16.00
Somerset	5.00- 9.00	7.00-11.00	7.00- 11.00	10.00- 20.00
Statler	4.00- 9.50	6.50-12.00	8.50- 14.00	17.50- 27.00
Touraine	4.00- 6.00	6.00- 9.00	7.50- 9.00	14.00- 16.00
Vendome	3.75- 7.00	5.50- 8.75	6.50- 8.75	10.00- 15.00

MAKE ROOM RESERVATIONS EARLY

APPLICATION FOR HOTEL ACCOMMODATIONS

AMERICAN PUBLIC HEALTH ASSOCIATION

76th Annual Meeting and Meetings of Related Organizations, Boston, November 8-12, 1948
(Note that the Meeting opens Monday, November 8, at 9.30 A.M.)

Please make hotel reservation as indicated below:
Give three choices of hotels.

Hotel 1st Choice; Hotel 2nd Choice; Hotel 3rd Choice

.... Room with Double Bed at \$. per day for persons

.... Room with Twin Beds at \$. per day for persons

.... Room for three people at \$. per day for persons

.... Single room at \$. per day

.... Suite at \$. per day for persons

ARRIVING. NOVEMBER Hour LEAVING: NOVEMBER Hour
Please print (or type) names and addresses of all occupants including persons making reservation.

NAME	STREET ADDRESS	CITY	STATE
.....
.....
.....

Name

Street Address

City State

MAIL TO: The Convention Bureau, Boston Chamber of Commerce, 80 Federal St., Boston, Mass.
RESERVATIONS WILL BE HELD UNTIL 6:00 P.M. ONLY, UNLESS
THE HOTEL IS NOTIFIED OF LATE ARRIVALS

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

- Antonio Jorge de Almeida, M.D., Caixa Postal 621, Belem, Para, Brazil, S. A., Health Officer, Servico Especial de Saude Publica
- William E. Amy, M.D., 1801 Ekin Ave., New Albany, Ind., Director, Floyd-Harrison County Health Dept.
- Frederico A. Simoes Barbosa, M.D., M.P.H., Av. Beira Mar 3058, Recife, Pernambuco, Brazil, S. A., Director, Dept. de Saude Publica
- Jackson P. Birge, M.D., Lewis Bldg., Bay City, Tex., Director, Matagordia County Health Unit
- J. F. Holtzmuller, M.D., Court House, Kenton, Ohio, Health Commissioner, Hardin County District Health Board
- Daniel J. Hurley, M.D., State Dept. of Health, Carson City, Nev., Health Officer
- Edward J. Montminy, Health Dept., Berlin, N. H., Health Officer
- Jonas N. Muller, M.D., M.P.H., 760 Market St., Dept. of Public Health, San Francisco, Calif.
- Max Sternlieb, M.D., M.S.P.H., 115½ N. Chestnut St., Ravenna, Ohio, Health Commissioner, Portage County Health Dept.
- Charles F. Thomas, M.D., 3 High St., Caribou, Me., District Health Officer, State Bureau of Health
- Donald W. Tripodi, M.D., M.P.H., 1115 Cedar, Cairo, Ill., Health Officer, Alexander-Pulaski County Health Dept.
- Milton Tully, M.D., 61 Albany Ave., Kingston, N. Y., Apprentice Epidemiologist, Ulster County, State Dept. of Health
- Alonzo S. Verby, M.D., 45 E. 135th St., New York 35, N. Y., Health Officer-in-training, City Dept. of Health

Laboratory Section

- Dorothy M. Adams, 4287 Farlin Ave., St. Louis 15, Mo., Senior Asst. Bacteriologist, St. Louis Health Division Laboratory
- Mary E. Graham, 3215 Southmore, Houston 4, Tex., Bacteriologist-Serologist, Houston City Health Laboratory
- Arthur R. Lack, Jr., M.D., 2103 West 109th St., Los Angeles 44, Calif., Resident in Pathology, Birmingham General Hospital, Veterans Administration, Van Nuys
- Ferdinand Stern, M.D., 8830 West McNichols Road, Detroit 18, Mich., Director, Clinical Laboratories, Marygrove Medical Center, Inc.

Vital Statistics Section

- Katherine Lehman, 523 Paulsen Bldg., Spokane 8, Wash., Medical Record Librarian, Deaconess Hospital
- Barbara M. Lucas, M.N., 8 Edgewood Ave., Apt. 16, New Haven, Conn., Student, Yale Univ. School of Medicine, Dept. of Public Health
- Mary Gwynne Sirls, 1895 Alabama Ave., S. E., Wash. 20, D. C., Medical Record Librarian, Group Health Assn., Inc.

Engineering Section

- Herbert B. Foster, Jr., M.S., 479 Kentucky Ave., Berkeley 7, Calif., Senior Sanitary Engineer, State Dept. of Public Health
- Gilbert M. Golden, 1518 Lafayette, St. Louis, Mo., Sanitary Inspector, Health Division, City of St. Louis
- Warren C. Holm, 704 Fourth St., San Rafael, Calif., Sanitarian, Marin County Health Dept.
- Gomer E. Jones, 1204 Sixth St., Arkadelphia, Ark., Sanitarian, District 3, State Board of Health
- John L. Kent, 3900 53rd Place, Bladensburg, Md., Liaison Information Officer, U. S. Public Health Service
- I. Alvin Pasarew, 4022 Bateman Ave., Baltimore 16, Md., Director, Maryland State Planning Commission
- Theodore Prober, 919 Marybeth Ave., El Monte, Calif., Public Health Engineering Associate, Los Angeles Dept. of Health
- John W. Shipp, Wood County Health Unit, Quitman, Tex., Senior Sanitarian
- Claudium J. Walker, M.S.P.H., 9782 South Nimitz Court, Jacksonville 7, Fla., Sanitation Consultant, State Board of Health

Food and Nutrition Section

- Catherine M. Adams, M.S., 10 Maplehurst Park, Knoxville, Tenn., Nutrition Consultant, State Dept. of Health
- Edwin H. Browne, 585 Cleveland Ave., Columbus 16, Ohio, Bacteriologist, M & R Dietetic Laboratories, Inc.
- Clayton F. Holoway, M.S., Springfield College, Dept. of Chemistry, Springfield, Mass., Instructor in Organic, Physiological Chemistry & Nutrition
- Carlos M. Muniz, D.V.M., M.P.H., Box 4427, San Juan, Puerto Rico, Public Health Consultant, Puerto Rican Agricultural Company

Pearl L. Thoreson, 812 Daniel St., Ann Arbor, Mich., Student, Univ. of Michigan

Emory W. Thurston, 1207 South Vermont Ave., Los Angeles 6, Calif., Biochemist, The Emory W. Thurston General Research Laboratories

Everett R. Wolford, 800 Buchanan St., Albany 6, Calif., Bacteriologist, Western Regional Research Laboratory, U. S. Dept. of Agriculture

Public Health Education Section

Alice Beardslee, Berlin, Conn., Student, Univ. of Michigan School of Public Health

Robert G. Boyd, M.Sc., 13 Green Hill, Morristown, N. J., Hospital Director, Morristown Memorial Hospital

Gerald D. Fry, M.A., 503 Oak St., Columbus, Ohio, Exec. Secy., Columbus Tuberculosis Society

Milton Geyer, 30-06 29th St., Astoria L. I., N. Y., Asst. in Health Education, Health Dept., City of New York

Emilie T. Gibson, M.A., Box 4, Lindale, Ga., Health Counselor, Pepperell Manufacturing Company

Rose L. Goldman, 7 E. 82nd St., New York 28, N. Y., Information Consultant, New York Heart Assn.

Francis Owen Grace, 606 Common St., Room 501, New Orleans, La., State Representative, National Foundation for Infantile Paralysis, Inc.

M. Jane Jones, 327 Topeka, Topeka, Kan., Health Educator, Topeka Tuberculosis Assn.

J. C. McGough, P.O. Box 517, Fayette, Ala., Probate Judge, Fayette County

Daniel T. O'Connor, A.M., 54 W. Hubbard St., Chicago 10, Ill., Director of Health Education, Chicago Health Dept.

M. L. Reimann, Box 544, 14 Boyle Bldg, Sharon, Pa., Christmas Seal Program Director, Mercer County Tuberculosis & Public Health Society

Hiram Sibley, M.A., 152 Temple St., New Haven, Conn., Exec. Director, Connecticut Hospital Assn.

Henry J. L. Ushmann, 11806-101st Ave., Richmond Hill 19, N. Y., Student, Social Group Work, New York Univ.

Frank R. Williams, M.S.P.H., State Dept. of Health, Capitol Annex, Phoenix, Ariz., Director of Health Education

Public Health Nursing Section

Ruth Baer, 2372 N. 57th St., Milwaukee 10, Wis., Communicable Disease Consultant, Milwaukee Health Dept.

Elizabeth H. Boeker, Box 431, Winfield, Kan., Supervisor, Public Health Nurses General Program, Cowley County Health Dept.

Helen S. Hartigan, University Hospital, Columbia, Mo., Director of Nursing Services, State Crippled Childrens Service

Marion Jackson, R.N., B.S.N.Ed., 2400 Lakeview Ave., Chicago 14, Ill., Student, Loyola Univ.

Ida Lyon, R.N., 824 Avenue M, Brooklyn 30, N. Y., Field Supervising Nurse, City Dept. of Health

Evelyn E. Pueser, R.N., B.S.N.Ed., 8020 Bonhomme, Clayton 5, Mo., Field Supervisor, St. Louis County Health Dept.

Dorothy Riehl, R.N., 27 Barrow St., New York 14, N. Y., Student, New York Univ.

Walborg S. Wayne, 301 Evergreen Apts., Bozeman, Mont., Supervisor, Public Health Nursing, U. S. Public Health Service

Mildred R. Welsch, Box 385, Thompson Falls, Mont., Public Health Nurse, Sanders County

School Health Section

Darleen Bell, Davidson County Courthouse, Nashville 3, Tenn., Health Coordinator, Board of Education

Helen A. Law, Route 10, Minneapolis, Minn., School Nurse

Dental Health Section

Archie A. Albert, D.M.D., 84 Broad St., Pawtucket, R. I., Dentist

John H. Dawe, D.D.S., 810 N. Vineyard St., Honolulu 10, Hawaii, Director, Strong-Carter Dental Clinic

John S. Eilar, D.D.S., 512 First National Bank Bldg., Albuquerque, N. M., Dentist

Jasper A. Hennigar, D.D.S., 54 Lafayette Place, Greenwich, Conn., Council on Dental Health, State Dental Assn.

Robert A. Mason, D.D.S., 964 27th St., Milwaukee, Wis., Dentist, Private Practice

Michael B. Messore, D.D.S., 807 Union Trust Bldg., Providence 3, R. I., Dentist

Frank S. Rotchford, D.D.S., 1108 S. Washington Ave., Olympia, Wash., Dentist, Chairman of Council of Dental Health, Washington State Dental Assn.

R. J. Sutcliff, D.D.S., P.O. Box 1075, Twin Falls, Idaho

Unaffiliated

Frank R. Bradley, M.D., 600 S. Kingshighway, St. Louis 10, Mo., Director, Barnes Hospital

Winslow Carlton, 70 Wall St., New York 5, N. Y., Chairman of the Board, Group Health Insurance Inc.

Richard M. Jones, 18 E. Division St., Chicago 10, Ill., Director, Blue Cross Commission of the American Hospital Assn.

Ray W. Kerr, 111 Humboldt St., Rochester 9, N. Y., Sales Manager, The Anstice Co.

Theresa U. Lowenthal, M.D., 98 Hemenway St., Boston, Mass.

Elizabeth D. Massier, 920 S. Third St., Tacoma 3, Wash., Secy., Tacoma City Health Dept.

Julio A. Perez, Dept. of Health, Santurce, Puerto Rico, Director, Hospital Survey and Construction Bureau

Leo Price, D.V.M., M.D., 275 Seventh Ave., New York 1, N. Y., Director, Union Health Center

Howard C. Raether, LL.B., 135 W. Wills St., Milwaukee 3, Wis., Exec. Secy., National Funeral Director Assn.

Leah Resnick, 1390 Tewksbury Place, N. W., Washington 12, D. C., Asst. Administrative Analyst, Hospital Section, Bureau of the Budget, Estimates Division

John H. Riemer, 4017 N. Rampart St., New Orleans 17, La., Secy.-Treas., City Health Dept.

James W. Stephan, 121 Millard Hall, Univ. of Minnesota, Minneapolis 14, Minn., Assoc

Professor of Course in Hospital Administration

Frank C. Sutton, M.D., 501 W. Main St., Rochester 8, N. Y., Director, Rochester General Hospital

E. A. van Steenwyk, 112 South 16th St., Philadelphia 2, Pa., Manager, Blue Cross Plans, The Associated Hospital Service of Philadelphia

DECEASED MEMBERS

Richard S. Austin, M.D., Cincinnati, Ohio, Elected Member 1937, Health Officers Section

Midian O. Bousfield, M.D., Chicago, Ill., Elected Member 1931, Elected Fellow 1935, Public Health Education Section

Samuel McC. Hamill, M.D., Philadelphia, Pa., Elected Member 1922, Elected Fellow 1940, Maternal and Child Health Section

Millard Knowlton, M.D., Hartford, Conn., Elected Member 1915 (Charter Fellow 1922), Epidemiology Section

THE PROBLEM OF PROPER ILLUMINATION

The Association has been aware of the importance of proper illumination as a concern of public health workers for several years. To the industrial hygienist illumination is an ever present factor for consideration. The school nurse, physician, and teacher are all keenly aware of the need for proper lighting—and for reliable criteria of good lighting. The Subcommittee on the Hygiene of Housing and the Subcommittee on Accident Prevention serve as two other illustrations of the widespread interest in lighting on the part of the Association.

The article by Miles A. Tinker, Ph.D., "Illumination Standards," and the accompanying editorial, "How Many Foot Candles?" which appeared in the September, 1946, issue of the *A.J.P.H.*, brought to a head discussions that had been going on for several years between the A.P.H.A. and the

Illuminating Engineering Society. This Association, representing the professional public health group, and the Illuminating Engineering Society, representing the engineers professionally active in illumination, are two organizations intimately involved in standards of healthful illumination. It was recognized that a joint study of the basic data and their interpretation into standards might be a constructive activity for the two groups. A joint committee composed of representatives from each organization was formed for this purpose. Representatives of the two organizations are:

A.P.H.A.

Leonard Greenburg, M.D.

M. Allen Pond

Donald Y. Solandt, M.D., D.P.H.

I.E.S.

Conrad Berens, M.D.

E. S. Crittenden, D.Sc.

E. M. Strong

C. L. Crouch, Technical Secretary of the I.E.S., serves as a consultant, and Francis B. Elder, Engineering Associate, A.P.H.A., as secretary.

Several meetings of the committee have been held during which Dr. Tinker and Dr. Matthew Luckiesh have met with the committee. Since Dr. Greenburg was also a member of the American Standards Association Sectional Committee on School Lighting, the committee made one of its concerns the matter of illumination for the classroom. As a next step, the committee plans to communicate with those physiologists, psychologists, ophthalmologists, engineers, and others who are currently active in research in the lighting field, inviting consultation on needed research. At the last meeting the following progress report was presented:

"The committee recognized early that an essential difference exists between the approach of the applied and the laboratory scientist. The practising engineer must act on the basis of currently available evidence, while those disciplined in the basic sciences may demand firm proof before action is recommended. However, after hearing the views of both the biological and engineering interests, it was found that their differences were more apparent than real. Where dif-

ferences existed they were found to be due mainly to the fact that different types of tasks were being considered. When the seeing conditions for a given task were specified, it was found that the levels of illumination considered desirable by the two groups were close together and a compromise satisfactory to both was reached.

"As an initial step toward establishing standards, the committee provided Dr. Greenburg with a statement for school lighting (healthy children with normal eyes) to the effect that 'for normal classroom work (reading and writing) there is good evidence that 30 ft.c. properly delivered and maintained is a satisfactory level and, further, that there is no evidence that more than 30 ft.c. would not be useful.'

"It is the opinion of the committee that, whereas standards commensurate with those for schools can be set for other tasks, the experimental evidence at present available is insufficient to justify the recommendation on a scientific basis of an ideal level of illumination for many given tasks. Fundamental research is needed on lighting, on visual phenomena and on their interrelations. This is essential before standards can be established more firmly on scientific fact than on engineering judgment. Toward this end the committee is undertaking the preparation of a list of research projects designed to provide data that will fill the more obvious gaps in present knowledge relating illumination to the visual processes. The committee will encourage other agencies to carry out these projects as the need is indicated."

WESTERN BRANCH A.P.H.A. MEETS IN SALT LAKE CITY

The 1948 meeting of the Western Branch, American Public Health Association was held in Salt Lake City, Utah, May 25-27 under the Presidency of Dr. Florence R. Sabin of Denver. More than 300 persons attended, representing the eleven states of the Branch territory and several of the Canadian provinces. A comprehensive three day program was arranged by a committee under the Chairmanship of Dr. Louis P. Gebhardt of the Department of Bac-

teriology, University of Utah, Salt Lake City. The affairs of the Western Branch were managed by Walter Mangold, Associate Professor at the University of California School of Public Health, Berkeley, Secretary.

Newly elected officers of the Western Branch for the year ending with the 1949 meeting include the following:

President—George M. Uhl, M.D., Health Officer, Los Angeles, Calif.

President-Elect—Arthur L. Ringle, M.D., State Director of Health, Seattle, Wash.

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

(Supplemental to list in June Journal)

POSITIONS AVAILABLE

General Sanitarian whose principal duties will be restaurant sanitation; should have Bachelor's Degree with major in Chemistry or Bacteriology, and a minimum of one year's experience in full-time local Health Department. Post-graduate work of at least one semester in a school of public health desirable. Densely populated county; large, well organized department staff; salary open. Write Director, Will County Health Department, 21 East Van Buren Street, Joliet, Ill. Include snapshot and short history in the first letter.

Town of 26,000, convenient to medical and cultural centers needs full-time **Health Officer**, salary \$6,000, plus mileage. Write Board of Health, Milford, Conn., for application.

Bacteriologist with B.S. or B.A. degree, and 1 year training in public health bacteriology and serology, and 1 year's experience in a public health laboratory to work in State Public Health Laboratory. Salary \$3,120 to \$3,984. Apply State Department of Health, Box 1877, Richmond, Va.

Health Educator for generalized full-time public health program; atomic energy project Pacific Northwest; salary depending upon experience and training; 40 hour week; complete community and plant program; M.P.H. required. Write or wire: Administrator, Kadlec Hospital, Richmond, Wash.

Senior Bacteriologist, County Health Department Laboratory. Salary \$3,600-\$4,560. Write Kern County Health Department, P.O. Box 120, Bakersfield, Calif.

Clinical Laboratory Technician in Kern County Department of Public Health, California. Salary \$2,640 to \$3,120 annually. Write P.O. Box 120, Bakersfield, Calif.

Nurses are needed for public health work in Texas. The program is conducted under a Merit System. The compensation range for Sr. Public Health Nurses is from \$189.75 to \$212.75 per

month. The compensation range for Jr. Public Health Nurses is from \$166.75 to \$201.25 per month. The compensation for War Emergency Nurses is from \$143.75 to \$178.25 per month. In addition to the above salary there is usually provided approximately \$600.00 per year car allowance. Write State Health Department, Austin, Tex.

Industrial Hygiene Physician. \$6,720 to start. Advances to \$7,440. Minimum of three years' experience in industrial medicine. Graduation from medical school, one year internship and at time of appointment or within three years thereafter one year of graduate training. Permanent. Civil Service status. Retirement. Apply to: Harold M. Erickson, M.D., State Health Officer, Oregon State Board of Health, 1022 S. W. 11th Ave., Portland 5, Ore.

Public Health Nurses for pleasant rural county in Southwestern Michigan within 125 miles of Chicago, 150 of Detroit, 17 of Kalamazoo. A recreation area bordering on Lake Michigan with many lakes. Excellent opportunity to obtain generalized Public Health Rural Nursing experience, under well qualified supervision. Salary dependent upon training and experience, generous travel allowance, 40 hour week, liberal vacation and sick leave allowance with pay. Write, Director Van Buren County Health Department, Paw Paw, Mich.

Several Qualified Public Health Officers in Texas. Must meet Merit System requirements. Formal specialized training or experience needed. Salary range \$5,500 to \$7,200 per year, plus \$600 per year travel allowance. Write, Dr. Geo. W. Cox, State Health Officer, Austin, Tex.

Full-time Health Commissioner to direct and develop public health program in Lorain, Ohio, an industrial city of 50,000 and to head staff of assistants. Write: William Lefever, Board of Health, Lorain, Ohio.

Public Health Nurses to render generalized nursing service which includes school nursing. Salary \$2,400 to \$3,000

with bonus of 10 per cent for 1948. Write: Town Nursing Service, Greenwich, Conn.

Sanitarian or Public Health Engineer as Director of milk, food, meat, and sanitation in sixty person Health Department of midwest city of 160,000. Sanitation staff of thirteen at present. Degree in Sanitary Engineering or related science and experience required. Usual Civil Service status and benefits, car and travel expenses including important meetings provided. Salary \$4,400 to \$4,850 at completion of two years' service. Write Box A-21, Employment Service, A.P.H.A.

Sanitary Engineer, experienced for foreign duty with industrial company in East Indies. General environmental sanitation program with emphasis on insect control and drainage. Two years' minimum service required with optional extension. Family could accompany when facilities become available. Preferable age 30-35. Write Box A-22. Employment Service, A.P.H.A.

Assistant Bacteriologist, male, U. S. citizen, for City Public Health Laboratory for bacteriological and serological work and related duties. College degree with major in the natural sciences including courses in bacteriology and one year's pertinent experience or equivalent combination required. Applicants with less than one year's experience may be taken on as trainees. Write Personnel Officer, 4th floor, City Hall, 241 W. South Street, Kalamazoo 13, Mich.

Wanted—M.D., Masters in Public Health, experience in local health department. Starting \$7,920, top of range \$9,000, new auto furnished, large staff, adequate budget, Chicago area. Apply Will County Health Department, 21 E. Van Buren, Joliet, Ill.

Public Health Educator (Lecturer in Social Hygiene). Monthly salary \$270-\$325. Write Personnel Officer, State Board of Health, Madison 2, Wis.

Public Health Nurse wanted with Public Health Certificate. Beginning salary \$3,428 to maximum of \$4,018. Car furnished. Permanent tenure, vacation and sick leave, five day week. For further information apply to the Civil Service Board, City Hall, Dearborn, Mich.

Sanitarians wanted for Food and Sanitation Division of a city—population approximately 85,000. College graduates preferred who have working knowledge of modern methods, techniques, and practices of public health sanitation. Permanent tenure, liberal vacation, sick leave, and retirement privileges. Salary

range \$3,854-\$4,248. Apply to Civil Service Board, City Hall, Dearborn, Mich.

Two Staff Nurses for generalized Public Health Nursing Program, adjacent to Washington, D. C. Three weeks paid vacation, sick leave, 40 hour week, merit salary increases, opportunity to attend universities part-time in Washington. Must own car. Apply Personnel Director, Arlington Court House, Arlington, Va.

Public Health Nurse, salary range \$2,700 to \$3,000. Must have certificate or degree in Public Health Nursing. Generalized service. Write to Tuscarawas County General Health District. Box 249, New Philadelphia, Ohio.

Sanitary Engineer for permanent connection with established company manufacturing sanitary equipment. Duties include technical advisory functions with the company as well as educational work with health departments and trade groups. No direct selling involved. Headquarters Northeast, travel half time. Desire man experienced in public health work and, if possible, sewage disposal work. Starting salary \$4,000, plus actual traveling expenses. Write Box A-16. Employment Service. A.P.H.A.

Commissioner of Health, well established county health department, New York State. Salary \$7,500 plus necessary traveling expenses. Write Box A-17. Employment Service. A.P.H.A.

Two qualified Public Health Nurses for staff duty in well established generalized program for California city and county population of 65,000. Full staff consists of supervisor and 9 staff nurses. Salary \$2,916 to start, 5 increments to \$3,540. Car required, 6¢ mileage. 5½ days, 38 hours; 15 days' annual vacation; 5 days' annual sick leave. Apply: H. O. Swartout, M.D., Dr.P.H., County Health Officer, P. O. Box 360, San Luis Obispo, Calif.

Supervisor Health Education Department for Chicago and Cook County Tuberculosis Institute, man preferred. Candidates must have public health background and experience in community education programs. Salary open. Excellent opportunity for developing broad education in tuberculosis control programs. For further information write: Dr. E. E. Kleinschmidt, Tuberculosis Institute of Chicago and Cook County, 1412 Jackson Boulevard, Chicago 7, Ill.

Bacteriologist with Ph.D. for full-time research in medical institute; research experience. Salary \$6,000 annually, dependent upon training and experience. Write Box A-18. Employment Service. A.P.H.A.

Engineering Graduate, age 35-40, not less than 5 years' experience in water pollution correction work. Technical competence as well as knowledge control techniques; experience in dealing with industrial management and municipal officials; required residency western part of state. Salary range \$4,020-4,740, plus expenses outside home station. Civil Service appointment. Apply Michigan Stream Control Commission, Box 87, Lansing 1, Mich.

Physician for well established California health department serving mixed urban and rural population of about 65,000. Male or female. Work largely in child hygiene conferences but moderate amount of time spent in field epidemiology; immunization campaigns; diagnosis and treatment venereal diseases. Five and one-half days; 38 hours; 15 days' vacation, 5 days' sick leave annually. Car needed, 6¢ mileage. Salary \$5,232 to start, five increments to \$6,360. Experienced candidate may start at higher level. Apply: H. O. Swartout, M.D., Dr.P.H., County Health Officer, Box 360, San Luis Obispo, Calif.

Three Staff Nurses, postgraduate work public health nursing or acceptable public health experience. Salary range \$2,640-2,940. Starting rate based on training and experience. Own automobile required; 7¢ mileage. Write J. B. Eason, M.D., City Health Officer, City Hall, Spokane, Wash.

County and District Health Officers, \$7,200 to start; ample travel allowance. Openings coastal and north central Oregon; merit status; written examination unnecessary. Graduation from approved medical school including one year internship and preferably one year graduate study in public health. Permanent. Apply to: Harold M. Erickson, M.D., State Health Officer, 1022 S. W. 11th Avenue, Portland 5, Ore.

Public Health Nurses for attractive rural area; southern Michigan; short distance several important urban centers. Opportunity for supervised experience and university study. Salary excellent, dependent upon experience and qualifications; systematic increments; 40 hour week, liberal travel allowance. Write Director, Eaton County Health Department, Charlotte, Mich.

Physician to head established health and medical service center in Greenbelt, Md. Population 8,000. Planned community, 30 miles from Washington, D. C. Prepayment plan in effect now. Minimum annual income guaranteed as agreed upon. Housing available. Write Green-

belt Health Association, 30 D Ridge Road, Greenbelt, Md.

1. Health Officer

2. Public Health Nurses

for six county health unit in Northeastern Colorado. Population 59,000, essentially rural, 2½ hours from Denver. Staff of 16 anticipated. Health Department will be housed in a new wing of the local hospital. Write: P. O. Box 1296, Sterling, Colo.

Public Health Staff Nurses in new Quadri-County Health Department, Southern Illinois. Generalized service. Salary \$2,400 plus mileage. Write or wire: Medical Director, Quadri-County Health Department, Golconda, Ill.

Statistician, graduate accredited college or university. Statistics or higher mathematics major. At least 2 years' experience in Public Health Statistics within past 5 years. Salary range \$2,700-\$3,900 with excellent opportunity for promotion. Liberal retirement privileges. Write: State Health Officer, P. O. Box 210, Jacksonville, Fla.

Assistant Director of Public Health in city public health department of 150 employees. Southern city of approximately 200,000. Must have M.D. and either Master's degree in public health or equivalent in experience. Salary \$6,144-\$7,368. Write Box A-19. Employment Service. A.P.H.A.

Superintendent of Sanitation. Degree in sanitary engineering with municipal experience. Salary \$4,080-\$4,896. Write: Box A-19. Employment Service. A.P.H.A.

Tuberculosis Clinician to serve as Assistant Director of Bureau of Tuberculosis Control and Director of Clinics for Tuberculosis Control, Florida State Board of Health with residence in Jacksonville, Fla. Must be graduate of A.M.A. approved School of Medicine and have minimum of 4 years' full-time paid experience in Public Health or Tuberculosis Control. Salary up to \$7,200 depending upon training and experience. Daily allowance of \$6.00 while traveling. Must obtain license to practise in Florida within one year of appointment. Write Wilson T. Sowder, M.D., State Health Officer, P. O. Box 210, Jacksonville 1, Fla.

Field Associate with a national voluntary health agency at interesting salary in an interesting job. Experience, training, ability, and personality are factors which will be equally important in determining eligibility. Offers opportunity to implement national policy in program development and community organization for public health action on state and local levels.

Male or female, over 30 and under 50, willing and able to travel, with graduate degree in public health or social work, and at least three to five years' executive experience. Retirement plan, one month vacation. For further details, communicate with **Box A-20, Employment Service, A.P.H.A.**

Public Health Nurses for staff positions in generalized program. Rural and urban. Forty hour week. Vacation and sick leave according to Washington State Merit

System. Monthly salary scale \$200-\$280. Car essential; mileage allowance. Write District Health Officer, Clark County-City Health Department, Box 149, Vancouver, Wash.

Public Health Nurse Supervisor in generalized program. Rural and urban. Vacation and sick leave according to Washington State Merit System. Monthly salary scale \$250-\$310. Write District Health Officer, Clark County-City Health Department, Box 149, Vancouver, Wash.

Opportunities for Physicians in Wisconsin

The Wisconsin State Board of Health announces a number of vacancies for qualified public health physicians and medical specialists. Attempts to revise upward the salary scale for these positions have recently met with success. The following are the most important medical vacancies and the new monthly salary scales:

Medical Specialist I (Obstetrics and Gynecology) \$545-\$645 per month.

Medical Specialist I (Pediatrics) \$545-\$645 per month

Medical Specialist I (Psychiatry) \$545-\$645 per month.

Public Health Physician I (District Health Officer) 4 vacancies, \$545-\$645 per month.

Public Health Physician II (Ass't Chief M.C.H.) \$625-\$735 per month.

Public Health Physician II (Tuberculosis) \$625-\$735 per month.

Public Health Physician II (Venereal Disease and Epidemiology) \$625-\$735 per month.

Write: Personnel Officer, State Board of Health, Madison 2, Wis.

Public Health Opportunities in Connecticut

Openings for epidemiologist; crippled children's physician; child hygiene physician and local health consultant at \$6,300-7,500 salary range. Clinical psychiatrist, salary range \$6,840-8,280. Three years' employment or training including experience in child psychiatry required.

Write: Personnel Department, State Capitol, Hartford, Conn.

POSITIONS WANTED

Health Agency Executive—considerable experience in community organization, voluntary health agency administration and health interpretation desires similar position in East or Middle West. Interested in health or educational agency or industrial organization concerned with planning and promotion of health services and education program. Write Box C-1, Employment Service, A.P.H.A.

Health Educator, male, Negro, M.A., M.P.H., 10 years of health education and teaching in school systems and colleges, 20 months' community health education in a metropolitan area. Interested in community or school health education. Write Box HE-4, Employment Service, A.P.H.A.

Health Educator, Negro, Male, 39. M.S.P.H. (Columbia), 4 years' experience in official health agency. Interested in community health education or health education in schools. Write Box HE-5, Employment Service, A.P.H.A.

Physician, Woman, M.P.H. 1948; 3 years' internship and residency experience; 1 year college health work. Interested in epidemiology, health education, school health, teaching. Write Box Ph-7, Employment Service, A.P.H.A.

Graduate Veterinarian, experienced in disease control work and private practice, desires position in industry and/or public health field. Write Box V-4, Employment Service, A.P.H.A.

Biological and Physical-Chemist, Ph.D. available soon, for Research or Teaching, extensive experience in pharmacology, pharmaceuticals, biologicals, bio-assays. Former university professor, former head, development department of large pharmaceutical manufacturer; 60 publications, many in medical research; books. Executive ability and experience. Age: 35; married; children. Seeks responsible position, educational institution or hospital laboratory. New York Metropolitan area preferred. Answer Box L-2, Employment Service, A.P.H.A.

Recent Graduate Veterinarian (KSC '47) with B.S. degree in bacteriology desires employment. Some experience as a sanitarian. Write Box V-5, Employment Service, A.P.H.A.

Clinician, 12 years' practice in surgery, gynecology, and general medicine abroad and in the U. S. Citizen, male, married. Interested in clinical opening in group practice hospital, industry, or health department. Write Box Ph-4. Employment Service, A.P.H.A.

Dentist, male, 30 years old, single. M.P.H. expected in June, 1948. Three years' experience in clinical and administrative work. Interested in administrative dental opening with or without clinical responsibilities. Write Box D-1, Employment Service, A.P.H.A.

Veterinarian, M.P.H. degree; 2 years' experience federal meat inspection; 2 years teaching milk hygiene and assistant in bacteriology in large university. Interested in public health openings. Will consider full-time positions (or part-time with practice opportunities) in state or local work, agencies or institutions. Available between July 1 and August 1. Write Box V-3, Employment Service, A.P.H.A.

Sanitary Engineer, B.S., M.S., M.P.H.; seven years' experience with State Health Department; three years in Army Sanitary Corps; two years in industry, desires position in public health engineering. Write Box E-4, Employment Service, A.P.H.A.

Bacteriologist, M.S., minor chemistry, 9 years' extensive experience in research, clinical bacteriology, and industrial development. Interested in responsible position in public health, industrial laboratory, or teaching institution. Write Box L-D-1, Employment Service, A.P.H.A.

Health Educator, female, six years' experience in community organization for health with voluntary agency; 5 years' experience as supervisor of a community health center; 5 years' experience in university health service, R.N., B.S. Seeks opportunity in health education or administrative opening. Write Box H-E-3, Employment Service, A.P.H.A.

Physician, woman, considerable experience in practice of pediatrics and school health administration, consultant to professional and voluntary agencies, desires interesting position part or full time in greater New York area. Write Box Ph-6, Employment Service, A.P.H.A.

Advertisement

Opportunities Available

WANTED—(a) Director of student health; graduate nurse with baccalaureate degree and experience in public health, health education, or counselling; should be interested in developing good health habits and attitudes among students; \$3,360, maintenance; large general hospital; East. (b) Supervising nurse and also staff nurse; County Health Department; headquarters in residential town midway between Los Angeles and San Francisco; salary for supervisor, \$3,900; for staff nurse, \$3,000. (c) Assistant professor of public health nursing; collegiate school; \$4,000–\$5,000; additional income for summer teaching. (d) School nurses; health department of public school system; \$2,600–\$3,000; additional experience or training increases salaries to \$4,200; short distance from Chicago. (e) Clinic nurses; student health department; large university; winter resort area of the South offering many cultural advantages. **PH7-1** Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

WANTED—(a) Physician to direct student health department; approximately 9,000 on campus; excellent facilities; unusual opportunity for developing program. (b) Public Health Physician for appointment as State Commissioner of Health; Master's or Doctor's degree in public health medicine with minimum of five years' experience; \$12,000. (c) Physician trained and experienced in infant care to direct maternal and child health services, municipal department of health; newly created position unim-

peded by politics; woman eligible; Middle West. (d) District health officer; duties consist of directing county health department and developing program; \$7,400–\$9,100; Pacific Coast. (e) Assistant Director, Student Health Department; state supported university; approximately 6,000 students; expansion program; \$7,500; South. **PH7-2** Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

WANTED—(a) Health Educator to work with colleges and educators; preferably one who has taught Health Education in a teachers' college, willing to travel; East. (b) Sanitarian; health department serving three counties; Michigan. (c) Two nutritionists; state department of health; salary dependent upon experience. (d) Two young women, Ph.D.'s or M.D.'s for academic appointments; university having highly organized program of professional training in health field for teachers; one should be qualified in teaching correctives; other in health education; students, undergraduates, and graduates; ranks dependent upon qualifications. (e) Sanitary Chemist, with working knowledge of chemistry of water and sewage; experience in water filtration plants and sanitary engineering laboratories advantageous; health department of modern community, new research institution; \$4,900–\$5,900; Southwest. (f) Health educator; middle western city of 40,000; \$4,500–\$5,000. **PH7-3** Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

Advertisement

Opportunities Wanted

Dentist—Experienced in public health work is available; several years' private practice limited to children's dentistry; past six years, public health dentistry. For further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago, Ill.

Health Educator—M.P.H., Yale, three years, health teacher in elementary schools; several years, health educator city health department. For further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago, Ill.

Public Health Nurse is available for administrative position; M.A. public health nursing; six years, educational supervisor, city health department; eight years, nursing consultant, state board of health. For further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building Chicago, Ill.

Public Health Physician; medical degree, eastern school; M.P.H. Harvard; six years, director county

health department; in '38 reorganized city health department and remained as its director; teaching experience; available for relocating because of desire for broader administrative responsibilities. For further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago, Ill.

Sanitary Engineer; Bachelor of Science in Civil Engineering, Major in Sanitary Engineering, Master's in Public Health Engineering; ten years, director, department of engineering, state department of health; duties include responsibility for entire environmental sanitation in public health engineering program for a population of over a million. For further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago, Ill.

Student Health Physician, B.A., B.S., M.P.H., M.D. degrees, eastern schools; eight years, director, student health department, state university. For further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago, Ill.

NEWS FROM THE FIELD

NATIONAL CONFERENCE ON FAMILY LIFE

The background of the National Conference on Family Life was given in the *March Journal* (p. 453). Held in Washington May 6-8, with about 900 persons representing 125 sponsoring agencies, it explored ten areas of current American life that affect family living and that need to be properly used to protect and strengthen family relations. Representatives were present from 30 countries in addition to the United States.

The 10 areas considered were community participation, counselling and guidance, economic welfare, education, health, home management, housing, legal problems, recreation and social welfare. Co-chairmen of the health section were Leona Baumgartner, M.D., and Haven Emerson, M.D. This section was chiefly concerned with measures to assure families of adequate health and medical services at all stages of the family cycle.

Delegates in the housing section, whose concern was adequate housing for a safe, healthy, and wholesome family life endorsed the Taft-Ellender-Wagner Bill, including its public housing program. The education groups placed particular emphasis on training and personal help for marriage and family problems for high school boys and girls.

A feature of the conference was a plenary session addressed by President Truman. Speaking extemporaneously he urged the delegates to use their influence in getting the housing bill passed and pointed out the close relationship between a happy and prosperous America and world peace.

Eric Johnston served as Chairman of the Conference. In his closing address, he said in part:

"Never before in the history of America has so much solid and constructive thinking been devoted to the position of the family in America. You who came here and gave so generously of your skills and your time are responsible for this happy result.

"What we have done here will be largely lost unless the work of this Conference is translated into programs of action on the local level. The problems of the family—in everything that these problems imply and entail—can be most effectually met in the community where the family lives. There are obvious areas for national action but the major efforts must be in the community.

"On your return home, I hope that you will take appropriate steps to establish Community Councils on Family Life. This conference has set standards and patterns for such councils. The councils should embrace every group and organization whose activities touch on the problems of family living."

The *Survey Midmonthly Magazine* of June reported the highlights of the conference in a special section entitled "Security in Family Life; Threats and Opportunities." This includes a discussion guide for club leaders. It is available in a 16 page reprint from *Survey Midmonthly*, 112 East 19th St., New York 3, at 15 cents per copy; 10-99 copies 12 cents; 100 copies or more 10 cents.

MIDCENTURY WHITE HOUSE CONFERENCE ON CHILDREN

At a meeting of the National Commission on Children and Youth in Washington in January, preliminary plans were discussed for a 1950 White House Conference on Children and Youth. This would be the fifth such decennial conference.

Previous White House Conferences on Children have served as "starters" for state and local action on objectives agreed to by the National Commission.

This time the commission recommends a new and reverse approach: That

the 1950 meeting come as a climax to a 2 year preparatory program of action in states and communities so that the 1950 conference can count gains made and plan for the next decade.

It recommended that the conference place its primary emphasis on "The Child in His Family and Community." It would be planned to evaluate progress since 1940, to assess the status of services and opportunities provided children, and to stimulate the achievement of a greater measure of security and opportunity for all children.

The 2 year program of preparation suggested would include (a) action by states and communities and (b) a national program of research with state cooperation.

The preliminary planning of the commission for the 1950 conference was reported in *The Child*, March, 1948. Reprints are now available from the Government Printing Office, Washington 25, D. C. The U. S. Children's Bureau also has prepared a mimeograph summary of the early planning meeting, which is available on request.

CONFERENCE ON SCHOOL HEALTH PROPOSED

The maternal and child health section of the recent National Health Assembly advocated a major attack on the school health problem. The report, drafted by a steering committee headed by Leona Baumgartner, M.D., Director of the Division of Child Hygiene of the New York City Health Department, asks the Federal Security Administrator to call a national conference on school health with a particular view to getting health and education departments to work together. The report indicates that the problem of administrative responsibility for school health services has been a major stumbling block to their adequate development and that the concept of single agency responsibility must be replaced by joint plan-

ning and mutual recognition of respective responsibilities.

SOCIAL HYGIENE LIFE MEMBERSHIP TO DR. HALVERSON

Wilton L. Halverson, M.D., was presented with honorary life membership in the American Social Hygiene Association at the Social Hygiene Institute of San Francisco in March. The Institute was held jointly by the American Social Hygiene Association, its San Francisco Chapter, and the San Francisco Health Department.

In making the award, the Association issued the following statement:

"Wilton L. Halverson, Physician, Public Health administrator and educator, from the beginning of his brilliant career, has been a strong friend and dependable ally of local, state, and national social hygiene work.

"As a physician, he has required the highest standards of medical care for the victims of syphilis and gonorrhea. As a public health administrator, he has instituted in local and state agencies and encouraged nationally the comprehensive modern attack on the venereal diseases with medical, educational and social weapons. As an educator, he has taught preventive medicine with due regard for the social factors in health and disease.

"His qualities of leadership, his wisdom and his generosity have raised him in a comparatively few years to a position of highest distinction among public health workers.

"Grateful for his never-failing support and in recognition of his outstanding service, the Committee on Awards is pleased to confer on Dr. Halverson, Honorary Life Membership in the American Social Hygiene Association."

NEW FILM ADVISORY SERVICE

A film advisory service for medical, public health, and welfare organizations was inaugurated in May by David Resnick, Public Relations Counsel, 1775 Broadway, New York City. The service furnishes advice in the planning, production, and distribution of non-theatrical motion pictures and slide films.

Mr. Resnick's consultants include Maurice Feuerlicht, former Director of Medical and Health Films for the Office of the Coordinator of Inter-American

Affairs; Edward F. Kerns, Technical Director of the Museum of Modern Art Film Library; and William S. Resnick, film writer and director.

SAFETY FILM OSCARS

The National Committee on Films for Safety, representing 17 national organizations interested in safety, including the American Public Health Association, recently awarded Safety "Oscars" to three motion pictures and three sound slidefilms for their outstanding contributions to safety in 1947. Five films received honorable mention. The awards are made annually in three fields of safety—traffic, occupational, and home and general.

In the general safety field, "Safety Our No. 1 Crop," produced for General Motors Corporation (1775 Broadway, New York 19) by Sound Masters Inc., was judged the best motion picture. This has been described as a pastoral treatment of farm safety pointing out the hazards and the safety practices that overcome them. Among sound slidefilms top honors were won by "The Fire Bug" produced by the Atlas Educational Film Co. for the Zurich Insurance Company (135 South LaSalle St., Chicago). Honorable mention was given to "Danger Is Your Companion," a motion picture produced by the American National Red Cross, (Washington, D. C.). This emphasizes first aid as a means of keeping minor injuries from becoming serious.

In the occupational field the motion picture winner was "Diagnosis—Danger" produced for St. Paul-Mercury Indemnity Co., (111 W. 5th St., St. Paul 2) by Chicago Film Studios. This depicts a hospital superintendent whose eyes were opened to accident hazards in his own hospital when he broke his leg falling down its marble stairs. The slidefilm adjusted best is "Fifteen Minutes to Go," produced for the National Safety Council (20 N. Wacker

Drive, Chicago) by Sarra Inc. Also receiving honorable mention were the motion picture "Use Your Head," produced by the Denver, Rio Grande and Western R.R. (Denver, Colo.) and the sound slidefilm "Falling Ground" produced by Anaconda Copper Mining Co., (25 Broadway, New York).

In the traffic field, no motion picture award was made. "Destination — Death," produced by Burton Holmes Films, Inc. for Zurich Insurance Company, was judged the best sound slidefilm. The motion picture, "Live and Let Live," produced by Aetna Casualty and Surety Co. (Hartford, Conn.) received honorable mention.

The theatrical motion picture on safety judged best is "Going to Blazes" produced by Herbert Morgan and released by Metro-Goldwyn-Mayer. It is described as thrilling and a good send-off for a fire prevention program.

For information as to purchase, loan, or showing of these films, inquire from individual producers.

WHO WORLD AGENCY FOR VITAL STATISTICS

Convening in Paris late in April at the call of the French Government, the International Conference for Revision of International Lists of Diseases and Causes of Death decided to transfer to the World Health Organization all responsibility in the field of international vital and health statistics. Thirty countries participated in the Conference and recommended a program to make available comparable health statistics collected the world over and thus facilitate the study of health problems. National committees for the purpose of coördinating statistical activities within countries were recommended as was a program of medical statistical research. It is expected that the World Health Assembly will appoint an Expert Committee on Health Statistics to carry out this program.

MEETINGS OF AFFILIATED SOCIETIES
OF THE A.P.H.A.

Colorado Public Health Association—"TOGETHER Let's Make Colorado First in Health" was the theme of the Colorado Public Health Association's Annual Meeting held in Denver on May 21 and 22. The discussions and panels were centered around problems and progress in Colorado, and the speakers were drawn from field workers. The Florence R. Sabin Award for "outstanding contribution to the health and well-being of the people of Colorado" was presented to Dr. Solomon S. Kauvar. Officers to serve for the ensuing year were elected as follows:

President—Mary H. Emberton, R.N., Denver
Vice-President—John A. Brown, Colorado Springs
Treasurer—Norma Johannis, Denver
Secretary—Sara Lou Harrison, Denver

Connecticut Public Health Association—This society met on May 12 to honor Stanley H. Osborn, M.D., for his service as Commissioner of Health during the past 25 years. "Stanley H. Osborn Day" was developed by the faculty of the Department of Public Health of Yale University. Registration for the day-time meeting was 212. The program was highlighted by an unusually fine exhibit depicting Connecticut's Health History in Vital Statistics. Richard O. Shea, M.D., was selected as the new representative on the A.P.H.A. Governing Council and the following officers were elected:

President—George B. Davis, M.D., Norwalk
President-Elect—Sterling P. Taylor, M.D., North Haven
Vice-President—Benjamin N. Pennell, D.V.S., New London
Secretary-Treasurer—Muriel F. Bliss, Ph.D., Hartford

Georgia Public Health Association—The Georgia Public Health Association held its 19th Annual Meeting in Savannah May 10-12, at which time the following officers were elected:

President: Clair A. Henderson, M.D., Savannah
President-Elect: James A. Thrash, M.D., Columbus
Vice-President: F. W. Rhodes, Rome
Secretary-Treasurer: Annie J. Taylor, Atlanta
Representative on A.P.H.A. Governing Council: M. E. Winchester, M.D., Brunswick

The three days of meetings included sessions of the Medical Officers, Public Health Engineering, and Public Health Nursing Sections, three General Sessions, and one Special Session entitled "A Governor Looks on Public Health," the address being presented by the Hon. M. E. Thompson, Governor of Georgia.

Idaho Public Health Association—The 9th Annual Meeting of the I.P.H.A. was held on May 3 and 4 in Coeur d'Alene. The overall theme was "Idaho Health Problems by Idaho Speakers" and included such subjects as Complete Local Health Service Coverage, Organizing Community Activity with Respect to Health, Blood Banks, Cancer, Tuberculosis, Hospital Programs, Dental Problems, Venereal Disease Control, Prepaid Medicine, and Poliomyelitis. The following new officers were elected:

President—Mrs. Grant Hess, Boise
1st Vice-President—Etta Lee, R.N., Idaho Falls
2nd Vice-President—Sister M. Alma Dolores, Boise
3rd Vice-President—J. A. Rice, D.D.S., Coeur d'Alene
4th Vice-President—Mrs. John E. Hayes, Twin Falls
5th Vice-President—R. L. White, M.D., Boise
Secretary—A. W. Klotz, Boise
Treasurer—Frances M. Goodwin, Boise
Representative to the Governing Council of A.P.H.A.—Lawrence J. Peterson, Boise

Iowa Public Health Association—A registration of 138 has been reported for the Annual Meeting of the Iowa society held in Des Moines on May 27 and 28. Several panel sessions were held with gratifying audience participation. The following officers were elected at the annual business session:

President—Carl C. Potter, Des Moines

President-Elect—I. H. Borts, M.D., Iowa City

Vice-President—Sophie Fevold, R.N., Des Moines

Secretary-Treasurer—Loren Chancellor, Des Moines

Kansas Public Health Association—

Following what has now become an annual custom, the Kansas Public Health Association selected an honor guest for its 1948 annual meeting held in Topeka in April. He is C. H. Lerrigo, M.D., for 26 years Executive Secretary of the Kansas Tuberculosis and Health Association, and currently Secretary Emeritus.

Among the speakers at the three day meeting were Reginald M. Atwater, M.D., A.P.H.A.; Leroy E. Burney, M.D., Indiana State Health Officer; and J. O. Dean, M.D., Medical Director of U. S. Public Health Service District 7.

Officers elected for the coming year are:

President: M. Leon Bauman, M.D.

President Elect: James M. Mott, M.D.

Secretary-Treasurer: Evelyn Ford

Missouri Public Health Association—

At its 22nd Annual Meeting held in St. Louis May 12 to 14 the Missouri Public Health Association elected the following new officers to serve for the forthcoming year:

President—Alexander E. Murphy, D.D.S., St. Louis

President-Elect—J. Earl Smith, M.D., St. Louis

First Vice-President—Ida E. Gutschke, R.N., Springfield

Second Vice-President—A. R. Baron, Fredericktown

Treasurer—John Buxell, St. Louis

Secretary—L. E. Ordelheide, Jefferson City

Representative to A.P.H.A. Governing Council—Joseph C. Willett, D.V.M., St. Louis

Representative to Southern Branch A.P.H.A. Governing Council—John W. Williams, Jr., M.D., Jefferson City

Several meetings were held by the Laboratory, Health Officers, Engineer-

ing, Vital Statistics, and Nursing Sections, and one day was devoted to important General Sessions in the morning, afternoon and evening.

New Mexico Public Health Association—

The 20th Annual Meeting of the New Mexico Public Health Association was held at Las Cruces May 20 to 22 inclusive. Participating in this meeting were Dr. J. L. Troupin of Columbia University School of Public Health, representatives from the State Health Departments of Arizona and Texas, and officials from the El Paso office of the Pan American Sanitary Bureau and the International Boundary and Water Commission. Officers for the forthcoming year were elected as follows:

President—Eunice L. Vandervoort, Sante Fe

Past President—C. E. Kaufman, M.D.

President-Elect—H. D. Newman, M.D., Clovis

Vice-President—Geraldine M. Beery

Secretary-Treasurer—Leon duFlon, Albuquerque

Mrs. Hazel Losseff was reelected delegate to the Western Branch, A.P.H.A., and James R. Scott, M.D., was continued as official representative to the A.P.H.A. Governing Council with Myrtle Greenfield as alternate.

Tennessee Public Health Association

The Tennessee society held its Annual Meeting in Nashville May 3, 4, and 5. The theme of the general session was Health Education, with four excellent papers on the program. The sectional meetings were well attended and good papers were presented. New officers were elected as follows:

President—Helen Jean, R.N., Johnson City

Vice-President—Dick C. Thompson, Nashville

Secretary-Treasurer—Munroe F. Brown, M.D., Nashville

The Executive Committee reelected John J. Lentz, M.D., to represent the society on the A.P.H.A. Governing Council.

WALTER REED IN THE HALL OF FAME

On May 20 the bust of Walter Reed, M.D. (1851-1902) was unveiled in the Hall of Fame, New York University, of which he was an alumnus. The bust, sculptured in bronze by Cecil Howard, was unveiled by Dr. Reed's son, Major General Walter L. Reed, U.S.A. Rt.

Dr. Reed, as the conqueror of yellow fever, was elected to the Hall of Fame at the last meeting of the election committee in 1945. He missed election by only four votes in 1935. Nominees are not eligible for consideration until at least 25 years after their death. The Hall has niches for 150 busts, of which more than half are filled.

Dr. Reed organized the Yellow Fever Board when an epidemic of yellow fever broke out among American troops in Cuba during the Spanish-American War. Proving through intensive investigation that the disease was carried by the mosquito, as had been argued by Dr. Carlos J. Finlay for 20 years in the face of professional ridicule, Dr. Reed checked the epidemic in a short time by instituting an island-wide sanitation campaign to destroy mosquito infested areas.

Dr. Reed, who joined the American Public Health Association before the turn of the century, presented a preliminary report of the Yellow Fever Board and its investigations at the Association's 29th Annual Meeting in Indianapolis in 1900. A later paper at the American Medical Congress in 1901 presented further evidence, based on

controlled experiments in which volunteers subjected themselves to possible infection.

At the 62nd Annual Meeting of the Association in 1933, also in Indian-



apolis, a special memorial banquet to Dr. Reed and his Associates on the Yellow Fever Board was held at which addresses were made by Major General Robert U. Patterson, Surgeon General, U.S.A. (*A.J.P.H.*; Vol. 23, p. 1127) and Frederick F. Russell, M.D., of the International Health Division of the Rockefeller Foundation (Vol. 34, p. 1). Present also were four of the volunteers who submitted to the bites of infected mosquitoes as a part of Dr. Reed's experiments.

NEW UNION HEALTH CENTER

Plans for a new \$1,000,000 labor union health center in New York City were announced jointly by the Amalgamated Clothing Workers, CIO, and the New York Clothing Manufacturers Exchange at the annual meeting of the former in May. The health center

is expected to be in operation by September. The annual operating budget of \$500,000 will be contributed by employers and the center will be administered jointly by the employers and the union.

The center in New York will be the forerunner of similar centers to be es-

tablished in Chicago and Philadelphia. These centers will supplement the benefits Amalgamated members receive under their industry-wide health insurance program.

The Union Health Center of the International Ladies' Garment Workers in New York City celebrated its 30th year in 1947 by enlarging its quarters and services. Similar union health centers are in operation in other cities, notably Detroit and St. Louis.

INDIANAPOLIS-MARION COUNTY HEALTH UNIT URGED

The *Indianapolis News* of April 28 reported action by the health section of the Indianapolis Council of Social Agencies urging legislation to permit setting up a combined Indianapolis-Marion County Health Department. At present Indianapolis, which has more than four-fifths of the county's population of approximately half a million, has a health department under the full-time leadership of G. F. Kempf, M.D. The remainder of the county is without the services of a full-time health officer.

U.S.P.H.S. ESTABLISHES "SANITARIAN" CATEGORY IN THE REGULAR CORPS

The category of "Sanitarian" has been established by the Surgeon General of the U. S. Public Health Service upon recommendation of the Central Personnel Board. It will be a restricted category, at a grade still to be finally determined. The Regulations Board is recommending that the senior grade be restricted which, if approved, would mean that length of service promotions would be made up to and including the full grade.

In addition to the qualifications prescribed in the Regulations for all candidates, applicants for appointment as sanitarian officers in the Regular Corps are required to possess the following:

A. For the Assistant Grade seven years of education and experience (exclusive of

high school) are required and must include the following:

1. A baccalaureate or equivalent degree from an institution of recognized standing, with emphasis on one or more of natural or social sciences as follows:

(a) Bacteriology, biology, parasitology, entomology, chemistry, physics, psychology, mathematics, nutrition

(b) Sociology, government, economics, public administration, and education

2. Satisfactory completion of one year of postgraduate study in a school of public health approved by the American Public Health Association, with a master's degree in public health or its equivalent. In the case of a candidate in the natural sciences a master's degree in natural sciences may be substituted for the graduate degree in public health.

3. One year of experience which, in the opinion of the examining board, would qualify the candidate to perform the duties of an officer in the special field.

B. For the junior Assistant Grade all of the qualifications listed above are required except either A 2 or A 3.

C. For grades above Assistant Grade all qualifications specified in paragraph A are required, in addition to those to be specified for higher grades in Regulations.

GRADUATE TRAINING IN SANITARY AND PUBLIC HEALTH ENGINEERING, UNIVERSITY OF MISSOURI

New classes in engineering and in other departments of the University of Missouri have been established to meet modern requirements for graduate work in sanitary and public health engineering. The new program, developed in consultation with leaders in the educational, consulting, and public health fields, is directed by Professor Lindon J. Murphy of the university, and W. Scott Johnson, Chief Engineer of the Missouri State Board of Health. In order to make the program more effective, an undergraduate sanitary engineering option in the Civil Engineering Department has also been developed.

Candidates for graduate degrees must fulfil the usual requirements for admission to the Graduate School, which include a bachelor's degree in engineering from a school of recognized standing.

Candidates for the degree of Master of Science are required to complete two semesters of graduate study. Many of the courses will be offered during the summer session.

Further information can be obtained from Harry A. Curtis, Dean, College of Engineering, University of Missouri, Columbia, Mo.

AMERICAN CANCER SOCIETY'S ADVISORY NURSING COMMITTEE

A Nursing Advisory Committee on nursing care for cancer patients has been created in the American Cancer Society. The committee is made up of representatives of seven national nursing organizations and three institutions with a leading role in cancer nursing. This committee, whose chairman is Katharine R. Nelson of Teachers College, Columbia University, functions under the medical and scientific division of the society and reports to the education committee of the Board of Directors.

At the first meeting of the committee in New York in April the committee outlined its purpose as (1) to help in the development and use of materials being prepared for nurses, and (2) to help develop new program ideas as suggested by needs in the field.

To further these purposes an editorial committee to advise on a new *Manual on Cancer Nursing* was appointed as was a film committee to advise on the production of a series of three 15 minute teaching films on cancer nursing.

Also announced at this meeting was a new exhibit for nurses which emphasizes the nurse's responsibility in cancer control and the importance of early detection. This exhibit, using transparencies, was first shown at the recent Biennial Nursing Convention in Chicago. It is

available on loan to professional groups, public health and other agencies, without charge. Write Marjorie Schlotterbeck, Nursing Consultant, American Cancer Society, 47 Beaver St., New York 4.

TRI-COUNTY HEALTH DISTRICT IN COLORADO

The *Colorado Health News* reports that the Tri-County Health Department, comprising Adams, Arapahoe, and Jefferson Counties (1940 population, 85,000), is the first district unit to begin operation with a full staff in both central and district offices.

The Medical Director is Marion McCallum, M.D. The central office is at the University of Colorado Medical Center in Denver, and there is a sub-center in each of the three counties.

WATER AND SEWAGE WORKS DATA

The April, 1948, issue, Vol. 95, No. 4, of *Water and Sewage* includes the annual reference and data section on water and sewage works for 1948. These data are presented in two general sections; one on water supply and one on sewage treatment. The material was prepared by Dr. George E. Symons.

FLUORIDE THERAPY IN KANSAS

The Kansas State Board of Health, through its Division of Dental Hygiene, is distributing to all practising dentists who request it, a 2 per cent aqueous solution of sodium fluoride together with instructions for use. Its purpose is to make this treatment available to all desiring it.

This phase of fluoride therapy has been proved effective in reducing dental decay 40 to 50 per cent in school children. The procedure recommended to the dentist entails cleaning of the teeth, thoroughly drying them, applying a 2 per cent solution of sodium fluoride to all surfaces and allowing to dry 4 minutes. Application of the solution is re-

peated three times at intervals of one day to one week.

More than a third of the dentists in Kansas have received the solution. The treatment is not recommended in areas where the water supply contains adequate amounts of fluorides.

RESOLUTION IN MEMORY OF DR. WADE H. FROST

At its spring meeting on April 30 in New York, the Executive Board of the American Public Health Association adopted the following Resolution in recognition of the anniversary of the passing of Dr. Frost on May 1, 1938:

The Executive Board of the American Public Health Association is reminded that ten years have now passed since Dr. Wade Hampton Frost died May 1, 1938.

Although a decade is usually sufficient to obliterate much of the personality and influence of ordinary men, in the case of Dr. Frost it is now even more evident than in 1938 that he influenced his generation in lasting ways. He not only established a point of view and a characteristic method of scientific work, but he brought up young men to carry on the tradition so well established.

The Executive Board has reason to recall the contribution which he made to this professional society. He was Chairman both of the Laboratory and of the Epidemiology Sections and for many years was a prominent member of the Governing Council. In 1948 there has been reprinted his carefully formulated statement on Authoritative Standards and Association Policy which he presented at a meeting of the Executive Board on December 19, 1935. It is well for a new generation to catch the breadth and precision of his thought.

The Board wishes on this occasion to send this word of appreciation and respect to Mrs. Frost and to repeat the words written ten years ago, "Those who were privileged to have his friendship find their sorrow embedded in deep thankfulness."

On the tenth anniversary of Dr. Frost's death, Dr. Reginald M. Atwater, Executive Secretary, presented the above Resolution to Mrs. Frost at her home — 508 Woodlawn Road, Baltimore, Md., together with nearly fifty letters in tribute to Dr. Frost from his former students and associates.

ARIZONA HEALTH EDUCATION WORKSHOP

The Arizona State College, Flagstaff, with the coöperation of 18 state and national agencies, announces a Health and Safety Education Workshop August 2-14, with daily programs from 7 A.M. to 4:15 P.M. Among the Consultants will be Dr. Clair E. Turner of the National Foundation for Infantile Paralysis, and Vivian Drenckhahn of the National Tuberculosis Association.

The Workshop rate of \$35 covers room and board for the two weeks. Applications should be filed with the Registrar, Arizona State College, Flagstaff, not later than July 15.

ONE YEAR OF THE NEW YORK HEALTH COUNCIL

The Health Council of Greater New York celebrated its first birthday with a luncheon on May 19, attended by about 300 guests. The guest speaker was Bleeker Marquette, Executive Secretary of the Cincinnati Public Health Federation, who told of some of the achievements—as well as some of the failures—of Cincinnati's quarter of a century old health council.

The meeting also heard a report from Dr. E. H. L. Corwin on the survey of health needs and services in New York. This study is being made by the Council in coöperation with the New York Academy of Medicine's Committee on Public Health Relations. The joint committee directing the study includes, in addition to Dr. Corwin as Chairman, Drs. Thomas D. Dublin, Haven Emerson, Henry E. Meleney, Harry S. Mustard, and Wilson G. Smillie and Mr. David Heyman.

Newly elected officers of the Council:

President: I. Ogden Woodruff, M.D.

Vice Presidents: Mrs. Sidney C. Borg, Thomas D. Dublin, M.D., Mrs. Jose Ferrer, Roderrick Stephens

Treasurer: Harry P. Davison

Assistant Treasurer: Mortimer J. Gleason

Secretary: Fred M. Stein

WATER AND SEWAGE WORKS MANUFACTURERS ELECT

At the Annual Meeting of the Water and Sewage Works Manufacturers Association, Inc., the following officers were elected to take office on January 1, 1949:

President: Willard F. Rockwell, Chairman, Board of Directors of the Rockwell Manufacturing Company

Vice-President: Reginald F. Hayes, Vice-President and General Sales Manager, Hydraulic Development Corporation

Treasurer: Edgar J. Buttenheim, President, The American City Magazine Corporation

Secretary-Manager: Arthur T. Clark

ACADEMY OF SCIENCES NAMES MEDICAL MEN

The following medical scientists were among those whom National Academy of Sciences honored with elections to membership at its annual meeting in Washington in April: Eric G. Ball (Harvard), Hallowell Davis, (Washington, St. Louis), Karl Folkers (Merck & Co.), Thomas Francis, Jr., (Michigan), Haldan K. Hartline (Penn.), Frank L. Horsfall, Jr., (Rockefeller Inst.), Raymond A. Kelser (Penn.), Cyril N. H. Long (Yale), and James B. Sumner (Cornell). The only woman elected this year, and the fourth in the Academy's history, was Dr. Gerty T. Cori, fellow and research associate in pharmacology and biochemistry at Washington University School of Medicine (St. Louis).

DIRECTORS OF LOCAL HEALTH SERVICES MEET

The second annual meeting of the Association of State and Territorial Health Officers was held at the Lake of the Ozarks, Missouri, on April 22 and 23. The 25 directors of local health services who attended discussed on an operating level the many common problems of local health administration. Among these were the Local Health Services Act of 1948, Special Services as a Part of Local Health De-

partment Programs, a panel led by Roscoe P. Kandle, M.D., Field Director of the American Public Health Association, and Making Local Health Service Attractive.

Richard Boyd, M.D., reported on the Princeton Conference and R. N. Barr, M.D., on the National Conference on Rural Health.

The following officers were elected:

President: John W. Shackelford, M.D., Oklahoma

Vice President: V. A. Van Volkenburgh, M.D., New York

2nd Vice President: John W. Williams, Jr., M.D., Missouri

Councilor: John K. Altland, M.D., Michigan

Councilor: Ellis D. Sox, M.D., California

Secretary: Trois E. Johnson, M.D., Louisiana

DR. GEBHARD IS HONORED

Bruno Gebhard, M.D., director of the Cleveland Health Museum, was awarded honorary fellowship for "his untiring efforts in the field of public health education" by the Board of Commissioners, Rochester, N. Y., Museum of Arts and Sciences. The citation reads in part:

"Bruno Frederic Gebhard, physician, museum director and outstanding authority in the field of public health exhibits. As founder and head of the first museum of its kind in the western world, the Cleveland Health Museum, this versatile scientist has spent the greater part of his life making health visible."

ENGLISH SUMMER SCHOOL IN HEALTH EDUCATION

The Central Council for Health Education (London) will hold its annual Summer School in Health Education at "High Leigh," Hoddesdon, Hertfordshire, August 11-25, 1948. There are still a few places not yet taken, and educational and medical administrators, doctors, teachers, youth leaders, public health nurses, industrial nurses, industrial welfare workers, training or-

ganizers, and students may apply at once for further details to The Medical Adviser and Secretary, The Central Council for Health Education, Tavistock House, Tavistock Square, London, W.C.I.

NINTH INTERNATIONAL CONGRESS ON INDUSTRIAL MEDICINE

Announcements have been made from London that the Ninth International Congress on Industrial Medicine will be held at Caxton Hall, Westminster, London, September 13-17, 1948. This is the first international congress of its kind to be held in ten years, and it is hoped that representatives from at least twenty-two countries will attend. The special interest of the congress will be with the recent advances in the practice of industrial medicine and research into many of the facets of modern industrial life.

The American Public Health Association has been invited to name a delegate, and Fellows or members of the Association who expect to attend the congress are asked to communicate with the Executive Secretary, A.P.H.A., 1790 Broadway, New York 19.

EMPLOY THE HANDICAPPED WEEK

The American Federation of the Physically Handicapped has announced the date for the 1948 national Employ the Physically Handicapped Week for October 3-9. Such a week was first observed in 1945, the inspiration of Paul A. Strachan, himself handicapped by total deafness. For further information inquire of American Federation of the Physically Handicapped, 1376 National Press Building, Washington 4, D. C.

U.S.P.H.S. CREATES HEALTH EMERGENCY PLANNING UNIT

Dr. Leonard A. Scheele, Surgeon General, recently signed an order creating a Health Emergency Planning Unit in

the Public Health Service. According to the *Washington Report on the Medical Sciences*, the function of the new Section is to deal with both public and private agencies in matters relating to public health preparedness against attack or invasion. Dr. Norvin C. Kiefer, Senior Surgeon, has been placed in charge of the Unit with instructions to work closely with the National Security Resources Board, the Office of Civil Defense Planning, other official, federal and state organizations, and with professional and voluntary organizations interested in protection of civilian health.

PERSONALS

Central States

JOHN MACKENZIE CORY has been appointed Executive Secretary of the American Library Association with headquarters in Chicago. Currently Associate Librarian of the University of California Library, he will take his new office September 1, succeeding CARL MILAM who recently became Director of United Nations Libraries.

BEN D. KININGHAM, JR.,† was appointed Executive Secretary of the Illinois Tuberculosis Association effective in April. He succeeds the late W. P. SHAHAN.† Mr. Kinningham was formerly Health Education Director of the Illinois Association.

EARL G. LIPPENCOTT† has joined the staff of the United Health and Welfare Fund of Michigan in Lansing as Secretary to the Admissions and Budget Committee, and serving in the field of agency relationships. Mr. Lippencott has most recently been a research associate in the Russell Sage Foundation, New York City, and earlier was a regional representative of the Social Protection Division, Federal Security Agency.

THOMAS F. MOONEY,† formerly head hygienist of the Ford Motor Company, has opened an industrial hygiene laboratory specializing in analysis such as urinary or other atmospheric lead, also biological fluorides, dust counts, and other specialized analysis. The laboratory is called MED-FAC Laboratories, the address is 4617 Allen Road, Allen Park, Mich.

OLIN W. MORRIS, D.V.M., Assistant Chief Veterinarian, Kansas State Board of Health, was recently elected Secretary of the Kansas Medical Veterinary Association, and also was appointed to the State Board of Veterinary Examiners by GOVERNOR CARLSON.

Eastern States

CHARLES O. BRADLEY, M.D., previously Director of the Emma Pendleton Bradley Home for the study of atypical children in East Providence, R. I., recently became Director of the Joint Child Guidance Clinic of Portland, Ore., operated by the Oregon State Board of Health and the University of Oregon Medical School, where Dr. Bradley is also Associate Professor of Pediatrics and of Psychiatry.

DORIS M. HEALY, who has recently completed the five weeks' training course offered by the National Tuberculosis Association, has been appointed as trainee on the staff of the State Committee on Tuberculosis and Public Health, State Charities Aid Association, New York City.

W. C. HUEPER, M.D., has been appointed Chief of the new section of the environmental cancer section of the National Cancer Institute, U. S. Public Health Service, where he will be available as consultant to state and local health departments and industrial hygiene commissions. He was formerly Assistant Director

and Principal Pathologist of the Warner Institute for Therapeutic Research in New York City.

JAMES H. LADE, M.D.,* has been appointed Director of the Venereal Disease Control Bureau of the New York State Department of Health. Dr. Lade came to the department in 1938 as medical consultant in the Division of Syphilis Control and in 1940 was promoted to Assistant Director. He has been Acting Director since the first of 1948, and succeeds WILLIAM A. BRUMFIELD, M.D.,* recently appointed as Deputy State Health Commissioner.

ALBERT PLEYDELL recently resigned as General Manager of the Health Insurance Plan of Greater New York to join Survey Institute, management consultants on governmental and business problems, 37 Wall Street, New York, N. Y.

THOMAS ST. JOHN, M.S., a graduate of the New York School of Social Work, who has done field work with the Health Council of Greater New York, has joined the staff of the State Committee on Tuberculosis and Public Health, State Charities Aid Association, New York, N. Y., as trainee.

BRIGADIER GENERAL JAMES STEVEN SIMMONS, M.D.,* U.S.A., Retired, Dean of the Harvard School of Public Health, was elected President of the Association of Schools of Public Health at the annual meeting of the Association held at the Connaught Laboratories, University of Toronto, in April. He was awarded "The James D. Bruce Memorial Medal for Achievement in Preventive Medicine" at the Annual Convocation of the American College of Physicians in San Francisco, Calif., in April. He delivered the James D. Bruce Memorial Lecture in Preventive

* Fellow A.P.H.A.

† Member A.P.H.A.

Medicine at this meeting on the subject, "The Challenge of Preventive Medicine."

ARTHUR J. STRAWSON* retired on March 31 as Executive Secretary of the Massachusetts Tuberculosis League, Boston, Mass. He has been succeeded by C. W. KAMMEIER,† formerly Executive Secretary of the Iowa Tuberculosis Association, Des Moines.

KATHERINE Z. WHIPPLE,* Secretary of the Health Education Service of the New York Tuberculosis and Health Association, has been appointed Chairman of the Public Health Committee, Women's City Club of New York.

Southern States

NEW APPOINTMENTS TO THE U. S. PUBLIC HEALTH SERVICE, WASHINGTON, D. C.

W. PALMER DEARING, M.D.,* has been appointed Deputy Surgeon General succeeding JAMES A. CRABTREE, M.D.,* who is now head of the Medical Unit of the National Security Resources Board. In his new post, Dr. Dearing will be second in command of the Service and will act as Surgeon General in Dr. Scheele's absence. With the Service since 1934, he has been for the last 2 years Chief of the Division of Commissioned Officers. He is succeeded by EUGENE A. GILLIS, M.D.,* currently Assistant Chief of the Division of Commissioned Officers.

BRUCE D. FORSYTH, D.D.S., has become Assistant Surgeon General and Chief of the Dental Divisions, succeeding WILLIAM THOMAS WRIGHT, JR., D.D.S., who is now jointly with the Bureau of Employees Compensation, Federal Security Agency, and the Bureau of Indian Affairs, Department of the Interior.

W. THURBER FALES, M.D.,* Director of the Statistical Section in the Baltimore, Md., Health Department, was authorized by the Board of Estimates to go to Paris and Geneva at the call of the Interim Commission of the World Health Organization to participate in the International Conference for the Sixth Decennial Revision of the International Lists of Diseases, Injuries, and Causes of Death. He has also been designated a member of the United States delegation to the Paris Conference.

JOHN J. FORBES became chief of the Health and Safety Division, U. S. Bureau of Mines, Washington, D. C., on May 1, succeeding DANIEL HARRINGTON, retired. Mr. Forbes joined the Bureau of Mines as a first aid miner in 1915.

CONSTANCE LONG, R.N., has been appointed Chief of the Office of Nursing, Hospital Division, U. S. Public Health Service, succeeding JESSIE MACFARLANE, recently retired after a quarter of a century with the Service.

Western States

ADDITIONS TO COLORADO STATE HEALTH DEPARTMENT STAFF:

DOROTHY BROWN and RUTH C. COHIG as Medical Social Consultants respectively to the Tuberculosis and Maternal and Child Health Sections.

RUTH K. NESBET† as Food Sanitarian.

EUGENE A. TESELLE as Milk Sanitarian.

MARY H. EMBERTON† resigned on April 1 as Director of Public Health Nursing, Colorado State Health Department, to become Director of the Division of Visiting Nurse Service, Denver Health Department. This division is a unification of all public health

services in the city except the school nursing service.

ALFRED S. LAZARUS, PH.D.,† on July 1, became Associate Professor of Public Health and Preventive Medicine in the new School of Medicine of the University of Washington in Seattle. He will also be responsible for the establishment and operation of a laboratory for diagnostic and research work in the field of virus diseases, to cover the state. Dr. Lazarus was formerly Associate Professor of Bacteriology, University of California, Medical School, San Francisco.

Deaths

RICHARD S. AUSTIN, M.D.,† Professor of Pathology of the University of Cincinnati died April 30. He had been a member of the Coordinating Committee of the Cincinnati Public Health Federation continuously since 1932, and served as its President 1934-1937. At the time of his death he was Chairman of three important committees of the Federation, and a member of a fourth. Dr. Austin became a member of the A.P.H.A. in 1937.

SAMUEL MCCLINTOCK HAMILL, M.D.,* former President of the American Academy of Pediatrics and of the American Pediatric Society, died in Philadelphia on May 3 at age 83.

MILLARD KNOWLTON, M.D.,* who retired in 1947 after spending 23 years as Director of the Connecticut State Health Department's Bureau of Preventable Diseases, died in Hartford at the age of 73. Dr. Knowlton had been in public health work since

1911, when he directed tuberculosis prevention for the New Jersey Health Department. Later he was with the U. S. Public Health Service and the Veterans' Bureau until he was appointed to his post in the Connecticut State Health Department in 1923.

CONFERENCES AND DATES

- American Association for the Advancement of Science. Centennial Meeting. Washington, D. C. September 13-17.
- American Congress of Physical Medicine. Hotel Statler. Washington, D. C. September 7-11.
- American Dental Association. Chicago, Ill. Week of September 12.
- American Dietetic Association. Boston, Mass. October 18-22.
- American Hospital Association. 50th Anniversary Convention. Atlantic City, N. J. September 20-24.
- American Occupational Therapy Association. Hotel Pennsylvania, New York, N. Y. September 7-11.
- American Public Health Association—76th Annual Meeting. Boston, Mass. November 8-12.
- American Public Welfare Association. Southwestern Region. Topeka, Kan. Sept. 23-24.
- American Public Works Association. Boston, Mass. October 17-20.
- American Society of Planning Officials. New York, N. Y. October 11-13.
- American Water Works Association:
 - Michigan Section, Flint, Mich. September 22-24.
 - Minnesota Section, Winnipeg, Man., Can. September 1-2.
 - New York Section, New York, N. Y. September 14-17.
 - Rocky Mountain Section, Cheyenne, Wyo. September 16-17.
 - West Virginia Section, Clarksburg, W. Va. September 29-30.
- Civil Service Assembly of the United States and Canada. Ottawa, Canada. October 4-7.
- Florida Public Health Association. Panama City, Fla. October 7-9.
- Indiana State Medical Association. Indianapolis, Ind. September 26-29.
- International Congress on Mental Health. London, England. August 11-21.

* Fellow A.P.H.A.

† Member A.P.H.A.

American Journal of Public Health

and THE NATION'S HEALTH

Volume 38

August, 1948

Number 8

Relation of Economic Status to Tuberculosis Mortality by Age and Sex

MILTON TERRIS, M.D., M.P.H., F.A.P.H.A.

Medical Associate, Subcommittee on Medical Care, American Public Health Association

THE close relationship of economic status and tuberculosis mortality has been documented by numerous studies. In most of these, economic status has been defined in terms of broad occupational classes. For example, the tuberculosis mortality rates of adult males in England and Wales in 1921-1923 were found to be as shown in Table 1.¹

TABLE 1

Adjusted Mortality Rates, Respiratory Tuberculosis, Male Adults in Five Social Classes, England and Wales, 1921-1923

Occupational Class	Mortality Rate per 100,000
I —Upper and middle	73.2
II —Intermediate	126.3
III—Skilled Labor	146.2
IV—Intermediate	150.2
V —Unskilled labor	209.5

In the United States, Britten² analyzed tuberculosis mortality rates by occupational class in 10 states in 1930 as shown in Table 2.

Other studies defined economic status in terms of family income. For example, in Hamburg, Germany, in 1896-1900, the following data (Table 3) were obtained.³

TABLE 2

Adjusted Mortality Rates, Respiratory Tuberculosis, Males, 15-64 Years of Age, in 10 States, 1930, by Occupational Class

Occupational Class	Mortality Rate per 100,000, Respiratory Tuberculosis
Professional men	26.2
Proprietors, managers and officials	43.2
Clerks and kindred workers	65.8
Skilled workers and foremen	72.1
Semiskilled workers	102.1
Unskilled workers	184.9
All gainfully occupied	87.5
Agricultural workers	46.5

TABLE 3

Mean Annual Mortality Rates from Tuberculosis per 100,000 Persons Classified According to Family Income, Hamburg, Germany, 1896-1900

Family Income in Marks	Tuberculosis Mortality Rate per 100,000
900- 1,200	657
1,200- 2,000	559
2,000- 3,500	363
3,500- 5,000	228
5,000-10,000	183
10,000-25,000	172
25,000-50,000	221

In the United States, Chapin found that in Providence, R. I., in 1865, the adjusted mortality rate from pulmonary tuberculosis among the 10,515 income

taxpayers was 139.7, as compared with a rate of 431.0 among the 44,080 non-taxpayers.⁴

Green determined tuberculosis mortality rates in the census tracts of the Cleveland Five-City Area in 1928-1931, using equivalent monthly rentals as the measure of economic status, with results shown in Table 4.⁵

TABLE 4

Adjusted Tuberculosis Mortality Rates, White Population, Cleveland Five-City Area, 1928-1931, by Economic Area

Economic Area	Tuberculosis Mortality Rate per 100,000 (White)
1} Lowest	127
2}	
3}	78
4}	74
5}	55
6}	48
7}	45
8}	34
9}	29
10}	26
11}	27
12}	22
13} Highest	19
14}	

One of the findings of the National Health Survey made in 1935-1936 was a well defined relationship between economic status and disability from tuberculosis (Table 5).⁶

As a result of these and similar studies it has become an accepted fact that occupational class and economic status bear a definite relationship to tuberculosis mortality as well as disability. Unfortunately there has been little disposition to probe further to determine which factor or factors in economic

TABLE 5

Days of Disability per Person per Year from Tuberculosis, for Persons of All Ages, According to Economic Status

Annual Family Income or Relief Status	Days of Disability from Tuberculosis per Person per Year
Relief	0.70
Non-relief	
Under \$1,000	0.31
\$1,000-\$1,500	0.20
\$1,500-\$2,000	0.14
\$2,000-\$3,000	0.11
\$3,000 and over	0.08

status or occupational class are responsible for the relationship.

It is clear that several causes may be involved—overcrowding, bad housing, poor nutrition, overwork, increased exposure to infection, etc. It is extremely difficult to separate these factors, since the groups which have a low economic status generally tend to be unskilled laborers who have strenuous jobs and suffer from overcrowding, poor housing, and malnutrition. How then can a more refined analysis be obtained?

One method is to compare urban and rural populations which have a similar status in terms of family income. The author is not familiar with any such study. However, the fact, that Britten found the tuberculosis mortality rate to be only 46.5 among agricultural workers as compared with 87.5 among all gainfully occupied persons (Table 2) would tend to indicate that economic status *per se* is not the only determinant and that other factors related to urban living probably play a significant role.

Another method which may be used

TABLE 6

Tuberculosis Mortality Rates by Age and Sex per 1,000 Persons in Copenhagen, Denmark, According to Broad Occupational Classes, 1865-1874

Occupational Class	All Ages 20 & over Adjusted	20-24	25-34	35-44	45-54	55-64	65 and over
Males							
Professional, Salaried and Merchant Class	3.4	3.4	3.3	3.1	3.4	4.4	2.9
Working Class	6.9	4.3	4.5	6.0	8.8	13.3	10.6
Females							
Professional, Salaried and Merchant Class	2.4	2.6	2.7	2.4	2.2	2.2	1.3
Working Class	3.4	1.9	2.6	4.0	4.4	4.5	4.5

is to compare the tuberculosis mortality of males and females in various economic classes. Data in Table 6 were obtained for Copenhagen, Denmark, for the years 1865-1874.⁷

It will be noted that among adult males, the tuberculosis mortality rate is twice as high in the working class as in the professional, salaried, and merchant class. Among adult females, however, the difference is not as marked; the rate in the working class is only $1\frac{1}{2}$ times as high as in the other classes.

Green⁸ studied the age- and sex-specific tuberculosis mortality rates in Cleveland in 1928-1931 for two contrasting economic areas—the Low Area, which consisted of a population of approximately 100,000 living in census tracts having the lowest equivalent monthly rentals, and the High Area, consisting of a population of about 100,000 living in census tracts having the highest rentals. He found that in the Low Area the male rate was quite similar to the female rate up to age 25, after which the male rate was very markedly greater. In the High Area, on the other hand, the male and female rates were found to be quite similar throughout, both being much lower at all ages than was found to be the case in the Low Area.

Sydenstricker⁹ compared age-specific tuberculosis mortality rates among males and females in urban and rural areas in nine states in 1908-1912 and among insured members of wage earners' families in 1911-1916. He found that although there were some differences in the rates for adult females in the rural, urban, and insured wage earners' families (highest in the wage earners' families), these differences were fairly small. Among adult males, however, there were very striking differences, with the rural rates considerably below the urban and these in turn considerably lower than the rates among insured wage earners. He concluded that: "The rate for adult

wage earning males, especially in middle age after they have been at work a number of years, is in excess of that for any other group. The possibility that 'race' or, to put it more exactly, country of birth—*per se* was an important factor may be dismissed since females were largely of the same nationality as their husbands at the time covered by the statistics used. Yet wives, living in the same economic, social, and home environment, did not die from the disease to nearly the extent that their wage earning husbands did. . . . It is not 'conditions of life' only, but also the particular conditions constituting occupational environment, which are responsible for the greater mortality rate among male wage earners in the prime of life in cities than among women in general or among men in other pursuits."

The present study of tuberculosis mortality in the city of Buffalo gives striking confirmation of Sydenstricker's findings. Buffalo is an important industrial center, with large steel, auto, railroad, grain, aircraft and electrical industries. Its population in 1940 was 575,901, of which 81 per cent were native white, 16 per cent foreign-born white, and 3 per cent non-white, mainly Negroes.

The 1940 Census data on population and socio-economic characteristics of the 72 census tracts in Buffalo were used. The relative economic status of the population in each census tract was determined by combining four indices: median monthly rent, proportion of homes with central heating, proportion of homes with mechanical refrigeration, and median years of school completed. Statistical analyses made by the Buffalo Foundation have demonstrated that these factors are closely correlated, and that consideration of all four factors yields a more reliable measurement of average income and economic conditions than the use of a single factor.

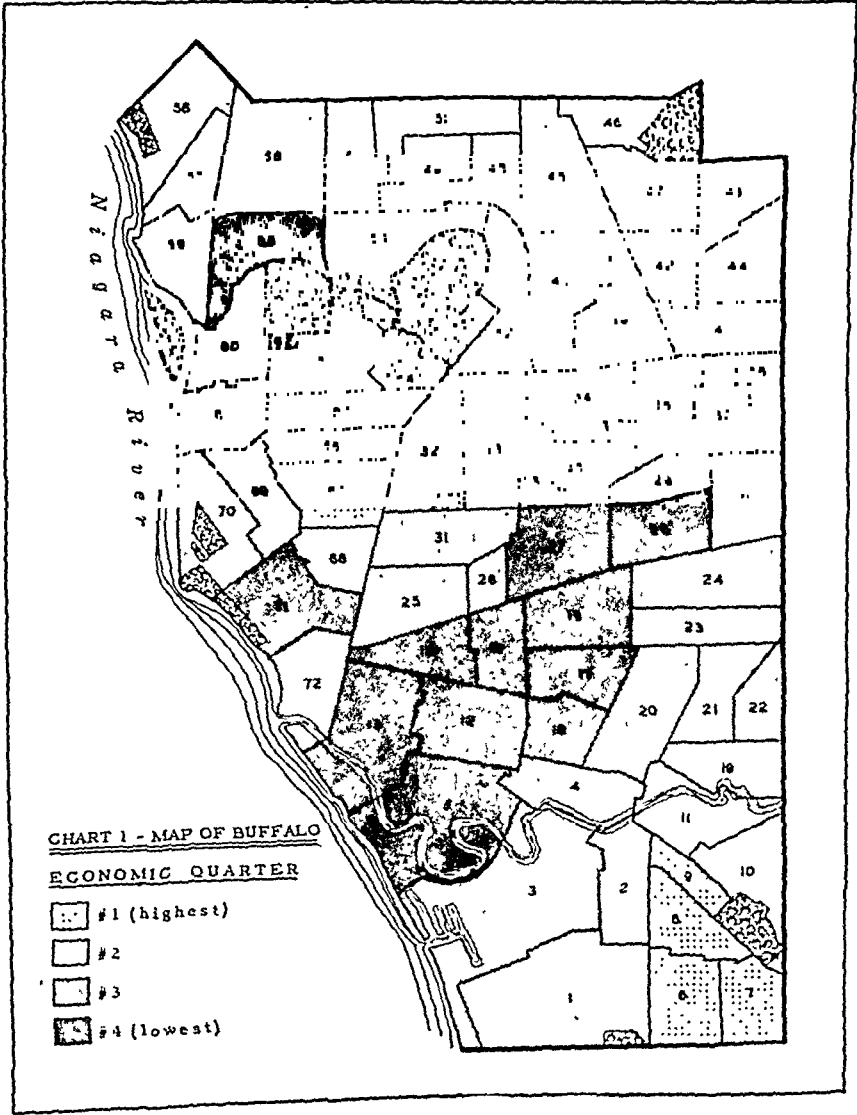
The city was grouped into four quar-

ters of approximately 145,000 population each on the basis of economic status. The classification of census tracts into the four economic quarters is shown on the map, Chart 1. Resident tuberculosis deaths occurring during the three year period 1939-1941 were used to determine annual tuberculosis death rates by age, sex, and color for each of the four quarters as well as the city as a whole.

Tuberculosis mortality by age, sex, and color for the City of Buffalo is shown in Table 7 and Chart 2. It will

be noted that there is a significantly higher male death rate after the third decade for both the white and non-white populations (the non-white population in Buffalo is almost entirely Negro). This finding is essentially consistent with the data obtained for all cities of over 100,000 population in the United States.¹⁰

Tuberculosis mortality rates by age and sex were calculated for the white population in each of the economic quarters. Similar comparisons for the non-white population could not be made



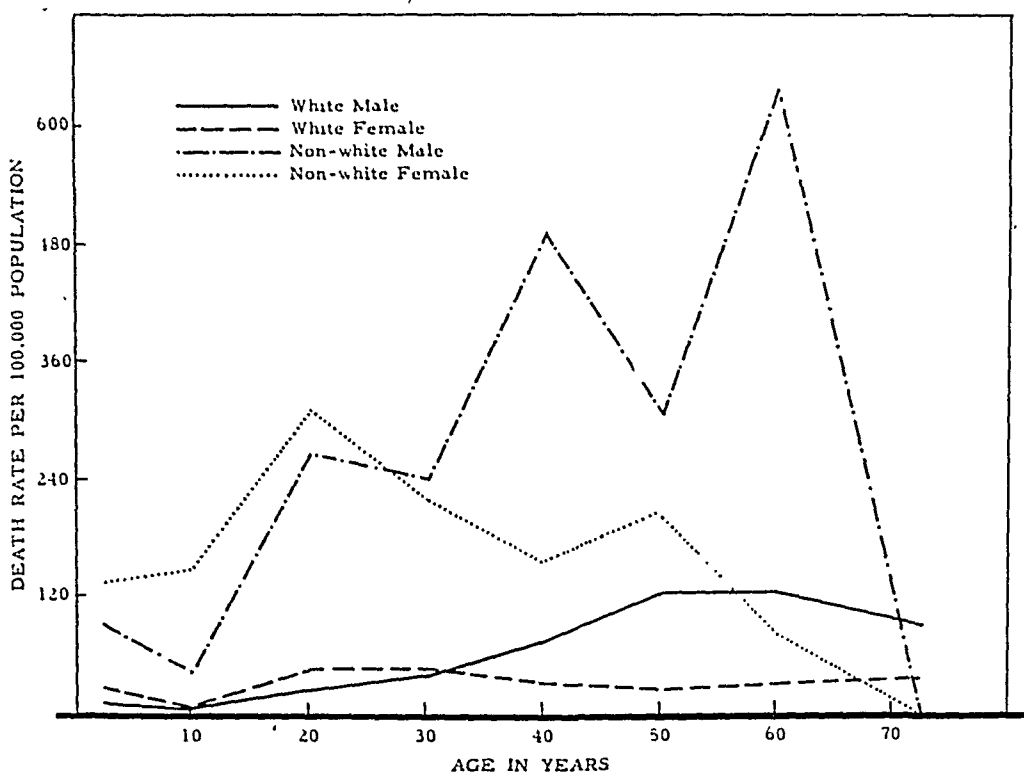


CHART 2 - Tuberculosis Mortality Rates by Age, Sex and Color - Buffalo, 1939-41

TABLE 7
Tuberculosis Mortality by Age, Sex, and Color, Buffalo, 1939-1941

Age	Male			Female		
	Popu- lation	Tbc deaths 1939-1941	Annual Tbc mortality rate per 100,000	Popu- lation	Tbc deaths 1939-1941	Annual Tbc mortality rate per 100,000
<i>White</i>						
Under 5	18,152	5	9.2	17,711	13	24.5
5-14	41,538	4	3.2	41,388	5	4.0
15-24	48,520	35	24.0	51,520	69	44.6
25-34	44,547	51	38.2	47,088	65	46.0
35-44	41,192	94	76.1	42,545	43	33.7
45-54	39,855	150	125.5	37,968	28	24.6
55-64	24,189	92	126.8	24,314	24	32.9
65 and over	16,640	46	92.1	20,451	23	37.5
Total	274,633	477	57.9	282,985	270	31.8
<i>Non-White</i>						
Under 5	719	2	92.7	754	3	132.4
5-14	1,541	2	43.3	1,590	7	146.8
15-24	1,245	10	267.7	1,501	14	310.9
25-34	1,501	11	244.3	1,803	12	221.9
35-44	2,151	32	495.9	1,907	9	157.3
45-54	1,295	12	308.9	959	6	208.6
55-64	466	9	643.8	385	1	86.6
65 and over	216	0	0	250	0	0
Total	9,134	78	284.6	9,149	52	189.4
<i>Total</i>						
Under 5	18,871	7	12.4	18,465	16	28.9
5-14	43,079	6	4.6	42,978	12	9.3
15-24	49,765	45	30.1	53,021	83	52.2
25-34	46,048	62	44.9	48,891	77	52.5
35-44	43,343	126	96.9	44,452	52	39.0
45-54	41,150	162	131.2	38,927	34	29.1
55-64	24,655	101	136.6	24,699	25	33.7
65 and over	16,856	46	91.0	20,701	23	37.0
Total	283,767	555	65.2	292,134	322	36.7

because the non-white population in the two highest quarters is negligible. The results are shown in Tables 8 and 9 and Charts 3 and 4. It is seen that before the third decade there is some difference in tuberculosis mortality by eco-

nomie status for both sexes. After the third decade, however, there is a very large difference in mortality among the males of the various economic groups, while there is only a moderate difference in mortality among females.

TABLE 8

Tuberculosis Mortality, White Male Population, by Economic Status and Age, Buffalo, 1939-1941

<i>Economic Quarter No. 1 (Highest)</i>				<i>Economic Quarter No. 2</i>			
<i>Age</i>	<i>Popu- lation</i>	<i>Tbc deaths 1939-1941</i>	<i>Annual Tbc mortality rate per 100,000</i>	<i>Age</i>	<i>Popu- lation</i>	<i>Tbc deaths 1939-1941</i>	<i>Annual Tbc mortality rate per 100,000</i>
Under 5	3,749	2	17.8	Under 5	4,334	0	0
5-14	8,879	0	0	5-14	9,949	0	0
15-24	9,643	6	20.7	15-24	11,166	4	11.9
25-34	10,156	9	29.5	25-34	11,024	15	45.4
35-44	11,179	14	41.7	35-44	10,853	14	43.0
45-54	10,305	17	55.0	45-54	9,762	25	85.4
55-64	6,201	9	48.4	55-64	5,914	21	118.4
65 and over	4,621	5	36.7	65 and over	4,134	14	112.9
Total	64,733	62	31.9	Total	67,136	93	46.2

<i>Economic Quarter No. 3</i>				<i>Economic Quarter No. 4 (Lowest)</i>			
<i>Age</i>	<i>Popu- lation</i>	<i>Tbc deaths 1939-1941</i>	<i>Annual Tbc mortality rate per 100,000</i>	<i>Age</i>	<i>Popu- lation</i>	<i>Tbc deaths 1939-1941</i>	<i>Annual Tbc mortality rate per 100,000</i>
Under 5	5,176	1	6.4	Under 5	4,893	2	13.6
5-14	11,761	0	0	5-14	10,949	4	12.2
15-24	13,791	9	21.8	15-24	13,920	16	38.3
25-34	12,310	11	29.8	25-34	11,057	16	48.2
35-44	10,526	31	98.2	35-44	8,634	35	135.1
45-54	10,184	45	147.3	45-54	9,605	63	218.6
55-64	6,443	29	150.0	55-64	5,630	33	195.4
65 and over	4,583	15	109.1	65 and over	3,302	12	121.1
Total	74,774	141	62.8	Total	67,990	181	83.7

TABLE 9

Tuberculosis Mortality, White Female Population, by Economic Status and Age, Buffalo, 1939-1941

<i>Economic Quarter No. 1 (Highest)</i>				<i>Economic Quarter No. 2</i>			
<i>Age</i>	<i>Popu- lation</i>	<i>Tbc deaths 1939-1941</i>	<i>Annual Tbc mortality rate per 100,000</i>	<i>Age</i>	<i>Popu- lation</i>	<i>Tbc deaths 1939-1941</i>	<i>Annual Tbc mortality rate per 100,000</i>
Under 5	3,734	2	17.8	Under 5	4,233	2	15.7
5-14	8,760	0	0	5-14	9,940	1	3.4
15-24	11,844	10	28.1	15-24	11,651	19	54.4
25-34	12,446	16	42.8	25-34	11,666	14	40.0
35-44	13,126	5	12.7	35-44	10,918	9	27.5
45-54	11,311	3	8.8	45-54	9,621	6	20.3
55-64	7,724	11	47.5	55-64	6,197	6	32.3
65 and over	6,829	6	29.3	65 and over	5,111	3	19.6
Total	75,774	53	23.3	Total	69,337	60	23.8

<i>Economic Quarter No. 3</i>				<i>Economic Quarter No. 4 (Lowest)</i>			
<i>Age</i>	<i>Popu- lation</i>	<i>Tbc deaths 1939-1941</i>	<i>Annual Tbc mortality rate per 100,000</i>	<i>Age</i>	<i>Popu- lation</i>	<i>Tbc deaths 1939-1941</i>	<i>Annual Tbc mortality rate per 100,000</i>
Under 5	5,083	3	19.7	Under 5	4,671	6	42.8
5-14	11,758	0	0	5-14	10,930	4	12.2
15-24	13,968	14	33.4	15-24	14,057	26	61.7
25-34	12,556	16	42.5	25-34	10,420	19	60.3
35-44	10,617	16	50.2	35-44	7,883	13	55.0
45-54	9,637	14	48.4	45-54	7,397	5	22.5
55-64	6,492	3	15.4	55-64	3,903	4	34.2
65 and over	5,613	7	41.6	65 and over	2,838	7	80.3
Total	75,724	73	32.1	Total	62,149	84	45.1

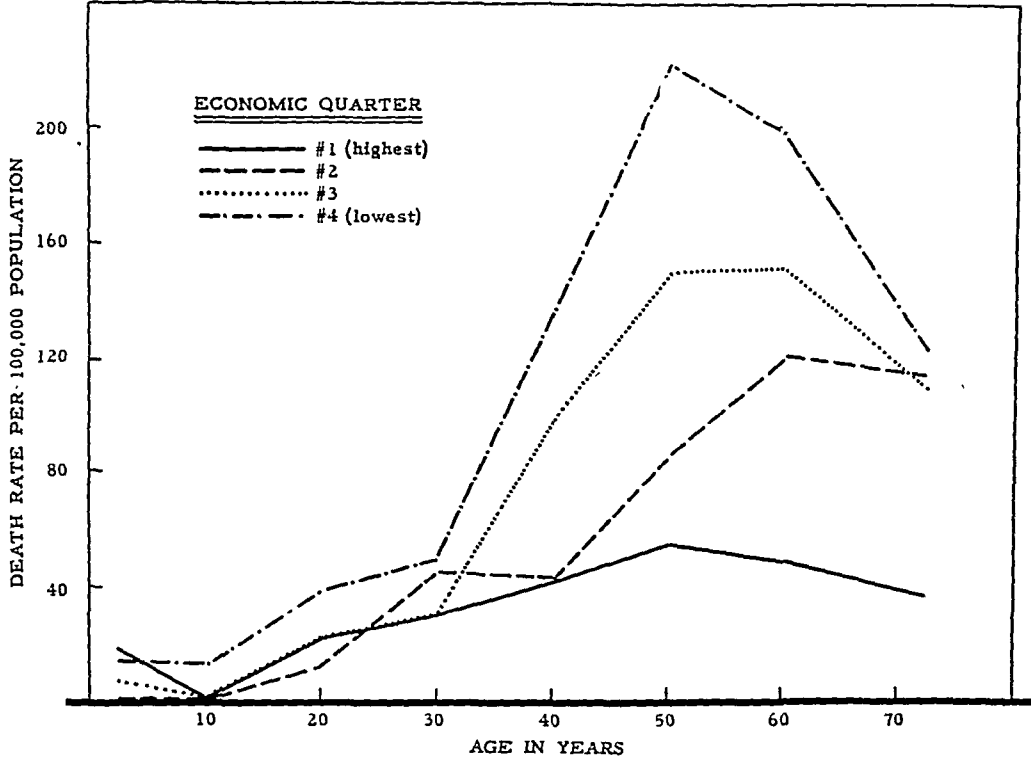


CHART 3 - Tuberculosis Mortality Rates, White Males, by Economic Quarter - Buffalo, 1939-41

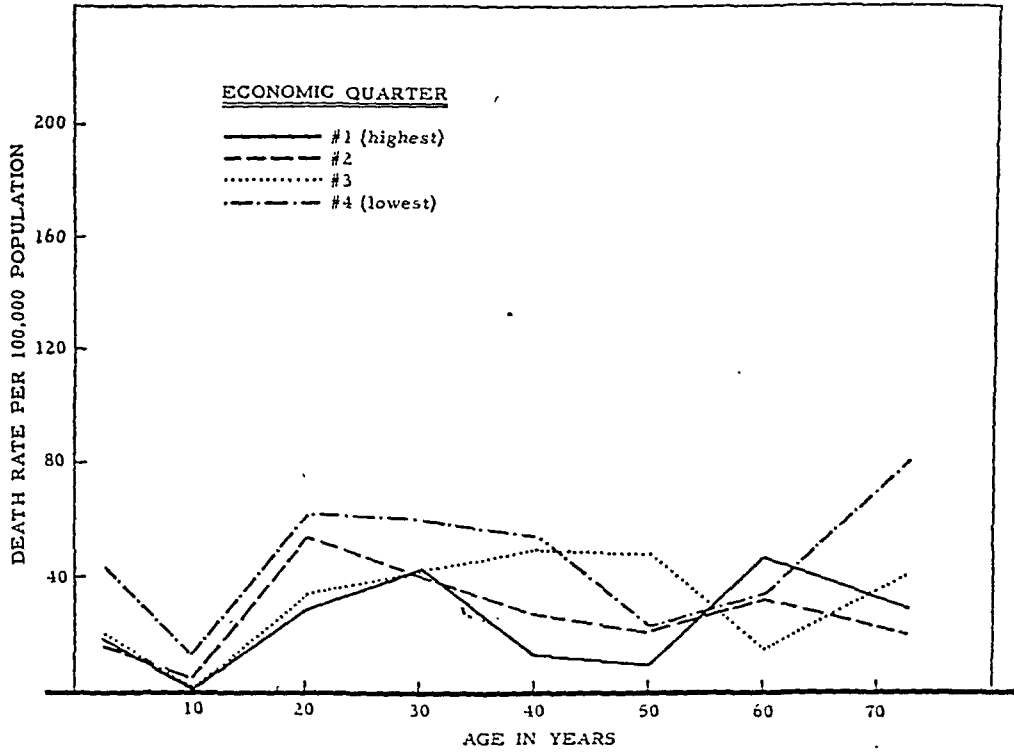


CHART 4 - Tuberculosis Mortality Rates, White Females, by Economic Quarter - Buffalo, 1939-41

TABLE 10
*Adjusted Tuberculosis Mortality Rates of White Population by Sex, Major Age Groups,
 and Economic Status, Buffalo, 1939-1941*

Sex and Economic Status	Adjusted Tuberculosis Mortality Rates		
	Under 35 years	35 years and over	Total
Males			
Economic Quarter 1 (highest)	17.3	46.7	30.3
2	17.0	80.9	45.4
3	16.3	125.9	64.9
4 (lowest)	31.1	172.4	93.8
Females			
Economic Quarter 1 (highest)	23.9	20.8	22.6
2	32.3	25.2	29.2
3	25.8	41.5	32.7
4 (lowest)	46.2	45.3	45.8

The magnitude of these differences is indicated in Table 10, which gives the tuberculosis death rates below and above age 35, adjusted to the entire population of Buffalo as the standard population. It will be noted that below age 35, the tuberculosis mortality for both males and females in the lowest economic quarter is about double that in the highest quarter. Likewise, in females age 35 and over, the mortality in the lowest economic quarter is a little more than double that in the highest quarter. But for males age 35 and over, the mortality in the lowest economic quarter is almost four times as great as in the highest quarter.

The difference in tuberculosis mortality between the highest and lowest economic quarters is statistically significant* for all groups, i.e., for males 35 years and over, females 35 and over, males below 35, and females below 35. However, only in males 35 years and over are all the differences in mortality between each economic quarter and the next highest economic quarter statistically significant. It is fair to conclude, therefore, that the differences in mortality for males 35 years and over among the different economic groups are significantly greater than for females in the same age classification.

These data indicate that the high male mortality after age 35 is not merely a matter of economic status *per se*. If it were, the females in the lower economic groups should show a similar rise in mortality after age 35. It is reasonable to assume, therefore, that other factors associated with economic status, but more or less limited to males, are responsible for the differences found in the four economic groups of males after age 35.

The most striking difference in the mode of life of adult men and women relates to occupational status. In Buffalo in 1940, 62 per cent of the 226,704 males age 14 years and over were employed, while of the 235,587 females age 14 and over, only 23 per cent were employed and 55 per cent were engaged in housework in their own homes. Also, Table 11 shows that in 1940, 57 per cent of the employed males in the highest economic quarter in Buffalo were professional workers; semi-professional workers; proprietors, managers, and officials; and clerical, sales and kindred workers. Only 18 per cent of the employed males in the lowest quarter were in these categories. On the other hand, 50 per cent of the employed males in the lowest economic quarter were classified in the 1940 census as operatives and laborers, as compared with only 17 per cent in the highest quarter.

There are several factors associated

* A difference of two or more standard deviations was considered statistically significant.

TABLE 11

*Occupational Status of Employed Males in Each of the Four Economic Quarters, Buffalo 1940 (U. S. Census) **

<i>Economic Quarter</i>	<i>Per cent of Total</i>	
	<i>Professional; Semi-Professional; Proprietors, Managers, and Officials; Clerical, Sales and Kindred Workers</i>	<i>Operatives and Laborers</i>
1 (highest)	57.3	16.9
2	32.4	31.7
3	26.3	38.6
4 (lowest)	18.4	49.5

* Includes both whites and non-whites. Data not available for whites only.

with occupation which might be considered to contribute to the differences found. It might be postulated, for example, that the higher tuberculosis mortality among adult men in the low income groups is due to their position as family breadwinners who are therefore more likely to postpone needed hospitalization than are women in the same strata. While this explanation appears reasonable, some doubt is cast on its validity by the fact that Sydenstricker discovered the phenomenon of disproportionately high tuberculosis mortality among adult wage earning males in 1911-1916, when the sanatorium movement was in its infancy and hospitalization for tuberculosis could not therefore be expected to play a significant role in reducing mortality.

It is conceivable that silicosis may play some part in the differences found. While industry in Buffalo is for the most part apparently not of the character associated with silicosis, there is no definite information at this time concerning the extent of the hazard and the actual incidence of silicosis in the area.

It is also possible that there are larger differences in extra-familial exposure to tuberculosis among males in the four economic groups than among females. This factor may play a definite role but is somewhat difficult to evaluate.

A major consideration which may help explain the findings relates to the adverse effects of overexertion on patients with tuberculosis. Physical overstrain

is characteristic of the tasks of the unskilled laborers who make up 50 per cent of the employed males in the lowest economic quarter of Buffalo and only 17 per cent of employed males in the highest quarter. The importance of overexertion in the prognosis of tuberculosis has long been recognized; it forms the basis for our therapeutic approach to the disease; and in recent years has influenced greatly our thinking with respect to rehabilitation. It has become very clear that a recovered tuberculosis patient cannot be returned to an occupation requiring strenuous physical exertion without running serious risks of early breakdown and recurrence. The result has been an emphasis on retraining patients for occupations requiring less physical exertion and on the development of sheltered workshops. It would appear logical therefore to suggest that physical overstrain plays an important role in the disproportionately high tuberculosis mortality among adult males in the lower income groups.

It must be recognized however that this brief discussion of possible explanations for the high tuberculosis mortality of low-income adult males is on a speculative level. The conditions of the study did not permit isolation of the individual factors in order to determine their relative influence.

SUMMARY AND CONCLUSIONS

1. Numerous studies have shown the

close correlation of occupational class and economic status with tuberculosis mortality and disability.

2. Analysis of tuberculosis mortality by age, sex, and economic status in Buffalo, 1939-1941, indicates that the inverse correlation of economic status with tuberculosis mortality is greater for adult males than for adult females.

3. It is concluded therefore that economic status *per se* is not the only factor involved, but that conditions of occupation probably have an important effect. Various aspects of occupational environment are discussed, and it is suggested that the factor of physical overstrain plays a significant role.

4. It is recommended that similar studies be conducted in other cities to test the general validity of the findings, and that further studies be instituted to isolate the various factors, if possible,

in order to determine their relative influence on tuberculosis mortality.

REFERENCES

1. Sydenstricker, E. *Health and Environment*. New York: McGraw-Hill, 1933, p. 96.
2. Britten, R. H. Mortality Rates by Occupational Class in the United States. *Pub. Health Rep.* 49, Sept. 21, 1934, p. 1101, ff.
3. Collins, S. D. Economic Status and Health. *Pub. Health Bull.* 165, U. S. Public Health Service, Washington, 1926, p. 40.
4. *Papers of Charles V. Chapin, M.D.* New York: The Commonwealth Fund, 1934, p. 222.
5. Green, H. W. *Tuberculosis and Economic Strata, Cleveland's Five-City Area, 1928-1931*, Anti-Tuberculosis League of Cleveland, 1932.
6. Disability from Specific Causes in Relation to Economic Status. National Health Survey, Preliminary Reports, Sickness and Medical Care Series, *Bull.* 9, U. S. Public Health Service, Washington, 1933, p. 7.
7. Collins, *op. cit.*, p. 36.
8. Green, *op. cit.*, p. 9 ff.
9. Sydenstricker, *op. cit.*, p. 145.
10. Yerushalmy, J., and Silverman, C. Tuberculosis Mortality in Communities of Different Size. *Am. Rev. Tuberc.* 51:413 (May), 1945.

NOTE: The author is indebted to Dr. Archibald S. Dean, Dr. Edward X. Mikol, and Dr. Charlotte Silverman for their helpful advice and suggestions.

Best Sellers in the Book Service for July

An Introduction to Public Health. Mustard, 2nd ed., 1945.....	\$3.50
Communicable Disease Control. Anderson, 2nd ed., 1948.....	5.00
Control of Communicable Disease, 6th ed., 1946.....	.35
Diagnostic Procedures in Virus and Rickettsial Diseases. Francis, 1948.....	4.00
Motivation in Health Education. Mead.....	1.00
Preventive Medicine and Public Health. Smillie, 1946.....	6.00
Sexual Behavior in the Human Male. Kinsey, 1948.....	6.50
Standard Methods of Water and Sewage. 9th ed., 1946.....	4.00
Textbook of Bacteriology. Zinsser, 9th ed., 1948.....	10.00
35 Year Index of American Journal of Public Health, 1911-1945. 1948.....	7.00

Order from the Book Service

AMERICAN PUBLIC HEALTH ASSOCIATION

1790 Broadway

New York 19, N. Y.

Rheumatic Heart Disease and Crowding

A Survey of Rural and Urban Connecticut School Children

ROBERT W. QUINN, M.D.*

WITH THE ASSISTANCE OF

JOHN H. WATKINS, PH.D., AND JULIA P. QUINN, M.S.S.

*Section of Preventive Medicine, Yale University School of Medicine,
New Haven, Conn.*

ATTEMPTS have been made for over 50 years to relate the prevalence of rheumatic fever and rheumatic heart disease to climate and special types of living conditions. From an epidemiological standpoint these two environmental influences are closely associated, in that temperature, rainfall, and altitude, or so-called macro-climate,[†] are important factors in influencing the extent to which people spend their time indoors, and these in turn influence crowding and spread of droplet infection. On the other hand, the living conditions in which we are interested here refer to the immediate surroundings of the individual, whether urban or rural, the environment within his home including dampness, crowding, food, and clothing.

The previous studies which have attempted to relate urban living conditions with the prevalence of rheumatic fever are many and variable. They include those of Perry and Roberts in Bristol,

England,² the British Medical Association in England,³ Hedley in Philadelphia,⁴ Clark in Dublin, Ireland,⁵ Maddox in New South Wales, Australia,⁶ and many others. Some of these studies have been summarized in a review on the general subject of the Epidemiology of Rheumatic Fever which appeared in 1943.⁷ The conclusions to be drawn from the summary of the literature at that time, which covered a series of observations made over a period of perhaps 60 years, were, that along with other factors, environmental or living conditions do play a part in determining the prevalence of rheumatic fever. Thus, evidence has been cited which supports the view that the prevalence of rheumatic fever is higher in low income areas than in areas occupied by higher income groups and in urban than rural areas. It has also been thought that damp living quarters seem to furnish opportunity for the spread of the disease, but this observation has not been corroborated by all who have attempted to evaluate its importance. Dietary deficiencies likewise have been considered by some as a predisposing factor in this disease. Since 1943 there have been a few new observations on this subject, notably those of the Wedums.⁸ Their study again emphasized the importance of low income and crowding in the genesis of rheumatic fever. In general then,

* Milbank Memorial Fund Fellow, 1946-1947.

Aided by a grant from the Life Insurance Medical Research Fund.

† The terms macro-climate and micro-climate have been used to designate "epidemiological climates" by Poynton,¹ and have been attributed by him to Danilevsky of Moscow. According to their interpretations macro-climate is climate in the ordinary meteorological sense—temperature, rainfall, and altitude, whereas micro-climate is the sum of the intimate sociological and domiciliary conditions wherein a given individual finds himself or herself.

it has been thought that crowded urban living conditions do represent the best setting in which rheumatic fever and streptococcosis may flourish.* In accepting this view, however, it would seem that actually none of the studies reported so far have proved conclusively the importance of crowding within an urban environment.

In the present study an attempt has been made to meet this objection and to carry out observations which would be acceptable from a biostatistical point of view. The purpose has been to select and examine comparable rural and urban populations from a single small area of the United States and to determine as accurately as possible the rates for rheumatic heart disease in each population. The primary assumption was that within this small area (the State of Connecticut), the variations of climate and altitude are not large enough to be significant, and so an answer to the first question can be properly sought; namely, can one demonstrate significant differences in the prevalence of rheumatic heart disease between these two groups of children, one rural and the other urban, exposed to the same macroclimate but different micro-climates. Other questions to be answered are: what is the effect of living conditions within high and low rental areas in cities, and what effect does crowding in the home have on the prevalence of rheumatic heart disease. And finally,

what is the familial incidence of rheumatic fever and rheumatic heart disease in this geographical area?

METHODS

Previous surveys on the prevalence of rheumatic heart disease in school children have employed methods which were comparable to those used in this study. They include those of Paul, *et al.*,¹⁰ Paul and Dixon,¹¹ Paul and Deutsch,¹² the Wedums,⁸ Sampson, *et al.*,¹³ and Quinn.¹⁴

A. *Geographical area or locale*—The survey was confined to the geographical limits of the State of Connecticut.

B. *Selection of age group to be examined*—Children of both sexes in the 7th and 8th grades of Connecticut Public Schools only were included in the study. Their ages range from 11 through 15, with the average around 13. This seemed to be an optimal age group for this study because the children already had passed the age at which rheumatic fever usually is acquired (7–10 years) and there had been an interval period during which they might develop recognizable rheumatic heart disease.

C. *Methods for selecting schools*—The original plan was to select and examine 1,000 rural and 1,000 urban school children. Eventually a somewhat larger group was selected. The representative sample of rural children was chosen from widely scattered areas throughout the state. Urban children were selected from the cities of Ansonia, Bridgeport, Hartford, and Waterbury. An effort was made to select adequate samples from the low, medium, and high rental areas of these cities. (For a complete description of these methods see the appendix.)

D. *Organization*—As soon as the individual schools had been selected, letters explaining the survey and asking permission to carry out the study were sent to the school superintendent, the school health officer (or city health de-

* In this study it is recognized from the outset that the concept of rheumatic fever as a separate and specific clinical entity is no longer tenable, for such a close relationship has been established between rheumatic fever and infections of the upper respiratory tract due to the hemolytic streptococcus, that it is now obvious that the epidemiology and pathogenesis of both diseases are closely related. The general relationships between streptococcal infections of the upper respiratory tract and rheumatic fever will not be considered in this study. It will be assumed nevertheless, that rheumatic fever is one of the manifestations of streptococcosis,⁹ and that indefinite as the diagnosis of rheumatic fever may be, it can be discussed as a clinical entity. Rheumatic heart disease, however, is a rather distinct clinical manifestation of the disease called rheumatic fever, and its prevalence can be measured.

partment in some schools without school physicians), the school nurse and principal. These letters were followed by a visit from the survey physician and social worker to explain further the purpose of the survey and make arrangements for the examination place and date.

Permission blanks for the patient's signature were given to the school nurse for distribution. No child was examined without the permission of the parents. Coöperation between the nurses, teachers, principals, superintendents, and physicians proved to be excellent.

E. *Examinations*—At the appointed time examinations were carried out in the most suitable place. In some country schools, a section of the room was screened off and desks were pushed together to serve as an examining table. Whenever possible, the school nurse aided in the examination. When there was no school nurse, the social worker (J.P.Q.) performed the nurse's duties. Parents were invited to attend the examinations but did so in a small (less than 5) per cent of the examinations.

Medical and social histories were taken by the social worker (J.P.Q.) and the medical history was taken in more detail by the physician in all cases of cardiac suspects, and in those who gave a history of previous rheumatic fever, chorea, or any illness resembling rheumatic fever. After the history taking, the child was examined. Screens were used to insure privacy, and gowns were furnished for the girls. The examination was confined to the cardiovascular system. All examinations were carried out by the same physician. (R.Q.)

F. *Determination of statistical significance*—(Methods of selection of schools and statistical analyses were supervised by J.H.W.) The chi-square test¹⁵ was used throughout, to determine the statistical significance of the observed rates for rheumatic heart dis-

ease, potential heart disease, etc. The value of P, the probability corresponding to the computed chi-square was determined from a graph devised by the Department of Pharmacology, Yale University. Values of chi-square corresponding to a probability of 0.05 or less were considered as indicating significant deviations from expectation.

G. *Reporting of cases*—All cases of rheumatic heart disease, possible heart disease, congenital heart disease, and possible congenital heart disease, as well as children with a past history of rheumatic fever were reported to the Division of Crippled Children of the Department of Health of the State of Connecticut. About half of the cases of rheumatic heart disease had not been recognized previously. In this manner the study served as a valuable case finding measure.

CRITERIA

A. *Diagnostic Criteria*—The criteria which were used to establish a diagnosis of rheumatic heart disease, unexplained murmurs, rheumatic fever, possible heart disease, and congenital heart disease are described below. These diagnoses were based on single clinical observations almost entirely, in that supplementary roentgenographic and electrocardiographic examinations were not done. An attempt was made to estimate the heart size of each child by measuring the point of maximum impulse and the relative cardiac dullness.

Mitral insufficiency—This diagnosis was made in the presence of a relatively high-pitched, moderately loud to very loud, systolic, apical murmur beginning early in systole immediately after the first heart sound and transmitted to the left axilla.

Mitral stenosis was considered to be present when a low-pitched, rumbling, soft, to moderately loud, diastolic apical murmur with or without presystolic accentuation was heard. The second

sound in the pulmonic area was accentuated.

Aortic insufficiency was indicated by a rather soft, high-pitched, blowing, diastolic murmur heard best along the left sternal border or over the sternum in the 3rd and 4th left interspaces. This murmur was heard best with the patient's breath held in expiration and the patient bent forward while in the sitting position. Increased pulse pressure, a collapsing (Corrigan) pulse, capillary pulsation, and pistol shot sounds over the femoral arteries were not always present, but helped to establish the diagnosis when they were present.

Unexplained or so-called functional murmurs were nearly always systolic in time. They were soft to moderately loud, heard most frequently at the base of the precordium in the pulmonic area, next most frequently medial to the apex, and least frequently along the left sternal border. The murmurs were well localized and only slightly accentuated by exercise or change of posture.

History of rheumatic fever—Children who gave a reasonably clear past history of rheumatic fever or chorea were classified under the heading of "History of Rheumatic Fever." It was not often possible to corroborate the accuracy of these histories by interviewing the child's parents or physician and therefore the degree of accuracy of this classification is probably not high.

Family history of rheumatic fever—A positive family history of rheumatic fever was recorded when there was a reasonably good story of rheumatic fever, chorea, or rheumatic heart disease in any of the child's parents, siblings, aunts, uncles, or cousins.

Congenital heart disease—It is often impossible to establish a correct anatomical diagnosis in congenital heart disease on the basis of physical findings alone; however, when the physical signs of congenital heart disease were clear-cut, the diagnosis was made.

Possible heart disease—Certain cases have been classified as either possible congenital heart disease or possible rheumatic heart disease, depending on the physical findings.

B. Criteria for crowding within homes—The degree of crowding was determined on the basis of number of persons per room within each child's home. Crowding was designated as existing in urban homes when there was less than one room per person; and in rural homes when the number of rooms was two less than the number of occupants. The decision to make this differentiation between crowding in rural and urban homes was reached after interviewing the children, school nurses, and teachers, as well as personal observation of many of the rural homes. It was evident that a family of nine living in a large eight room farm house was not crowded. Actually crowding is difficult to estimate and it is evident that both rural and urban children are exposed to crowding in varying degrees in their homes and sleeping quarters as well as elsewhere. Crowding in rural homes was probably more frequent than the figures indicate since it was observed that many rural families closed off part of their homes during winter months and lived in the few heated rooms: this practice makes for crowding regardless of the number of rooms in the home. It was also observed that the rural child is exposed to crowding when he rides in school buses or attends a one-room school house which is poorly ventilated in winter months. Many rural children attended consolidated schools which were similar to urban schools in ventilation and number of students per room. The urban child regardless of the rental area in which he lives is exposed to crowding in the schools, theaters, public conveyances, and school buses.

Race—All the children were either white or Negro except in a single instance of a Chinese child. No attempt

was made to classify them according to nationality groups.

RESULTS

The survey was begun in the first week of October, 1946, and completed during the second week of June, 1947. The survey team (R.Q. and J.P.Q.) travelled approximately 10,000 miles. Thirty-one hundred and forty-one children in the 7th and 8th grades were interviewed and examined—of this number 1,092 were rural school children, 138 semi-rural, and 1,911 urban.

General Rates—A general compilation of data relating to the three groups of children (rural, semi-rural, and urban) appears in Table 1. From this table it appears that the rheumatic heart disease rates are 1.6, 1.4, and 2.5 per cent respectively, and it would seem that the prevalence of both rheumatic heart disease (2.5 per cent) and possible rheumatic heart disease (4.3 per cent) is higher in the urban than the rural group of children, but when the chi-square test was applied, these differences were not statistically significant.

Urban Rates—An attempt was made to analyze further the results of the examinations of the urban children from the cities of Bridgeport, Hartford, Waterbury, and Ansonia. In the first three cities the rheumatic heart disease rates (average of 3 cities 2.13 per cent) did

not differ significantly; but a significantly higher rate was found in Ansonia (5.02 per cent). These data, shown in Table 2 will be discussed later. For

TABLE 2

Number and Per cent of Children with Rheumatic Heart Disease Living in Ansonia, Compared with Children Living in Hartford, Bridgeport, and Waterbury

City	+ R.H.D.		No R.H.D.	Total
	Observed No.	Rate		
Ansonia	9	5.02%	170	179
Hartford, Bridgeport, + Waterbury	38	2.13%	1,694	1,732
Total 4 Cities	47	2.45%	1,864	1,911

chi-square = 5.43

P = 0.021 significant

this analysis the urban children were classified into three groups, namely, those living in low, medium, and high rental areas (Table 3). The rheumatic heart disease rates in these rental areas were 2.5, 2.7, and 1.4 per cent respectively, but the differences were not statistically significant. In reference to this table, it should be pointed out that the degree of crowding increased markedly from the high rental areas to the low rental sections. The observed incidence of rheumatic heart disease and possible rheumatic heart disease and family history of rheumatic heart disease tends to be higher in the low rental

TABLE 4

Observed Number and Per cent of Rheumatic Children Living in Crowded and Non-crowded Urban and Rural Homes

Location of Home	+ R.F. or R.H.D.		No R.F. or R.H.D.	Total	Chi-Square
	Obs'd. No.	Per cent			
Urban					
Crowding	36	5.90	574	610	3.75
No Crowding	51	3.92	1,250	1,301	
Total	87	4.55	1,824	1,911	
Rural					
Crowding	8	6.25	120	128	2.50
No Crowding	33	3.42	931	964	
Total	41	3.75	1,051	1,092	

chi-square = 6.25
P = 0.044
significant

areas, as opposed to the high rental group, but here again when these differences are analyzed statistically, the variations are not significant.

Crowding—In Table 4 is shown the effect of crowding on the number and per cent of rheumatic children. The number of rheumatic children living in crowded homes, regardless of the rural or urban location of the home, was significantly higher than the number in non-crowded homes.

The percentage of children with unexplained murmurs (approximately 30 per cent) was similar among the rural, semi-rural, and urban groups of children.

The relatively small number of 18 children with congenital heart disease is in keeping with general pediatric experience—rheumatic heart disease being by far the most common type of heart disease in children above the age of 5 years.

TABLE 5

Anatomical Diagnoses in 67 Cases of Rheumatic Heart Disease (R.H.D.)

<i>Diagnosis</i>	<i>Male</i>	<i>Female</i>	<i>Total</i>
Mitral Insufficiency			
Observed number	33	20	53
Per cent of Total Number with R.H.D.	(49.3)	(29.9)	(79.1)
Aortic Insufficiency			
Observed number	2	3	5
Per cent of Total Number with R.H.D.	(3.0)	(4.5)	(7.5)
Mitral Insufficiency and A Stenosis			
Observed number	3	2	5
Per cent of Total Number with R.H.D.	(4.5)	(3.0)	(7.5)
Mitral and Aortic Insufficiency			
Observed number	3	..	3
Per cent of Total Number with R.H.D.	(4.5)	..	(4.5)
Mitral Stenosis and Aortic Insufficiency			
Observed number	1	..	1
Per cent of Total Number with R.H.D.	(1.5)	..	(1.5)
Total			
Observed number	42	25	67
Per cent of Total Number with R.H.D.	(62.7)	(37.3)	(100)

Among the 147 children with a positive family history of rheumatic fever, 12.9 per cent had a personal history of rheumatic fever or had evidence of rheumatic heart disease, as compared with 3.8 per cent among children with a negative familial history of rheumatic fever or rheumatic heart disease. This highly significant difference has been demonstrated by others many times.

The anatomical diagnoses of the cases of rheumatic heart disease are recorded in Table 5. Mitral insufficiency was by far the most common form of rheumatic heart disease. The difference between the per cent of males and females with rheumatic heart disease was not statistically significant.

DISCUSSION

The results of this study would indicate that rheumatic fever and rheumatic heart disease are common and widespread among Connecticut school children. One and six-tenths per cent represents a close approximation to the true rheumatic heart disease rate for rural Connecticut School Children in the 7th and 8th grades within the confidence limits of 0.89 and 2.39. All that can be said of the urban rheumatic heart disease rate of 2.5 per cent is that it is the rate for a sample of children taken from the four cities of Ansonia, Bridgeport, Hartford, and Waterbury. The failure to find significant differences between the rheumatic heart disease rates

for rural (1.6 per cent) and urban children (2.5 per cent), between the rates for children living in the low (2.5 per cent), medium (2.7 per cent), or high (1.4 per cent) urban rental areas, or even between the rates for rural children (1.6 per cent) and urban low rental area children (2.5 per cent) would suggest that the epidemiological factors which control the prevalence of rheumatic fever are today (in 1946-1947) common to both rural and urban Connecticut as well as to different rental areas in the four cities studied. These findings in general do not support the usual concept that the prevalence of rheumatic fever is highest in congested, low income urban areas. However, it should be pointed out that a larger number of observations might have made the observed differences statistically significant.

As shown in Table 2, the rheumatic heart disease rate for Ansonia, one of the cities chosen for study (5.02 per cent), was considerably higher than the observed rates for the other three cities (2.13 per cent). A similar high rate for Ansonia was found in a previous survey in 1940.¹² The reasons for this difference are not clear. It cannot be attributed to a higher familial incidence of rheumatic fever or a higher degree of crowding among the children examined, or a higher rheumatic fever rate in the Ansonia group of children, because the observed incidence of family history of rheumatic fever, crowding, and past history of rheumatic fever in the Ansonia group were not significantly different from the rates observed in the three larger cities.

Although this study was not designed to investigate all possible epidemiological factors in rheumatic fever and rheumatic heart disease in Connecticut, certain observations on the effect of crowding on these rates were made, and here, in contrast to the fact that differences in rheumatic heart disease rates between

urban versus rural environments, and between high and low rental areas are not significant, the effect of crowding within the home does appear to be significant. The data in Table 4 indicate that the number of rheumatic children (children with rheumatic heart disease or a history of rheumatic fever) living in crowded homes is significantly higher than the number of rheumatic children living in non-crowded homes, regardless of the rural or urban locations of the home. These observations suggest that for rheumatic children the risk of contracting rheumatic fever was just as great in a crowded rural home as in a crowded urban home. On the other hand, crowding in the home was over three times as common in urban as in rural and semi-rural homes; in low rental area urban homes, crowding was twice as frequent as in medium rental area homes, and six times as common as in high rental area homes; yet there was no significant difference in the rheumatic heart disease rates for children living in any of these areas.

How can these differences be interpreted? The data do support the idea that crowding within the home is related to an increased prevalence of rheumatic heart disease, and that environmental influences are important in determining its presence. These findings are in keeping with those of Perry and Roberts.² Whether environmental, social, and economic conditions have changed, or for other reasons, these data do not support the statement based on data collected some 30 years ago that rheumatic fever is 30 times as common in industrial as in rural towns.¹⁰ Today, outside the home, the micro-climate in which a child lives is apparently much the same for all children, regardless of the rural or urban area in which they live. In this observation lies a possible explanation of the previously mentioned differences.

SUMMARY AND CONCLUSIONS

1. The results of a rheumatic heart disease survey of a sample of rural, semi-rural, and urban Connecticut school children have been presented in which analyses were made for rates in urban versus rural areas, urban low rental areas versus high rental areas, and crowding versus absence of crowding.

2. The rheumatic heart disease rate for the sample of rural children examined was 1.6 per cent, for semi-rural children 1.4 per cent, and for the sample

of urban children living in the Connecticut cities of Ansonia, Bridgeport, Hartford, and Waterbury, it was 2.45 per cent. The differences between the rural, semi-rural, and urban rates are not statistically significant.

3. The rheumatic heart disease rate for children in one city—Ansonia—of 5.02 per cent was significantly higher than the rural rate or combined rate found in Bridgeport, Hartford, and Waterbury. The reasons for these differences are not known, but they are in

TABLE 6

Rural Counties, Towns, Number of Schools Included in the Survey, and Number of Children Examined

County	Town	No. Schools	No. Examined
Hartford	Burlington	3	43
	Hartford	2	19
	Granby	4	69
	East Granby	2	21
			<hr/> 157
Litchfield	Woodbury	1	50
	Harwington	3	42
	Washington	2	47
	Morris	1	22
	Roxbury	1	14
			<hr/> 175
New Fairfield	Brockfield	1	36
	New Fairfield	1	33
			<hr/> 69
New Haven	Southbury	1	52
	Oxford	3	34
			<hr/> 86
Middlesex	Westbrook	1	30
	Middlefield	1	47
			<hr/> 77
New London	North Stonington	1	30
	Ledyard	1	19
	Bozrah	1	16
	Lisbon	1	35
	Lebanon	1	57
			<hr/> 157
Windham	Ashford	1	22
	Chaplin	1	17
	Woodstock	1	78
			<hr/> 117
Tolland	Somers	1	59
	Ellington	3	59
	Andover	1	24
	Columbia	2	25
	Coventry	3	87
			<hr/> 254
Total		<hr/> 45	<hr/> 1,092

keeping with previously expressed ideas that this disease does flourish more in certain localized places than in others.

4. The rheumatic heart disease rate for urban children living in low rental areas was 2.5 per cent, in medium rental areas 2.7 per cent, and in high rental areas it was 1.4 per cent. These differences were not statistically significant and, furthermore, there was no significant difference between the rheumatic heart disease rate for low rental area urban children and the similar rate for rural children.

5. One feature which did stand out was the effect of crowding within the home which was apparently an important factor influencing the prevalence of rheumatic heart disease; the rate in crowded homes being almost twice that in non-crowded homes.

6. The other findings of the survey failed to show significant differences, with the exception of familial history of rheumatic fever or rheumatic heart disease which was significantly higher among rheumatic children.

APPENDIX

1. Selection of sample of rural children—

In estimating the size of the sample needed to make the study statistically valid, the following conclusions were drawn:

a. If 1,000 rural children were examined and the incidence of rheumatic heart disease was somewhere about 1.3 per cent (the rate from a previous rheumatic heart disease survey in rural Connecticut school children), then the true value in the population would be between 0.6 and 2.0 at the confidence level of 0.05.

b. For the true population value to be within 10 per cent of 1.3 per cent, 29,000 observations would be needed at the same confidence level.

c. For the true population value to be within 100 per cent of 1.3 per cent, i.e., 0 to 2.6, 290 observations would be needed at the same confidence level.

Because of time and personnel limitations, it was decided to limit the sample of rural children to about 1,000. Actually, 1,092 rural children were examined, and 18 were found to have rheumatic heart disease (1.64 per

cent). The confidence limits were calculated as 0.89 and 2.39 by the usual method.¹⁵

2. In order to secure a representative cross-section of the rural population, stratification by geographical areas throughout the state by counties was done. The towns and schools selected, and the number examined in each school are shown in Table 6.

Accordingly selection of 81 minor divisions within the 8 Connecticut counties was made on the basis of "rurality" judged from the U. S. Census figures for 1940.¹⁷ In the towns selected over 25 per cent of the population were engaged in farming, and many more families were living in the country although not actually engaged in farming. No towns with over 0.18 persons per acre were selected.

3. Selection of a representative cross-section of the rural population within each county—

a. Determination of the number to be drawn from each county:

(1) Rural towns were classified by counties.

(2) The rural school population in each county was determined from data furnished by the State Board of Education.

(3) These numbers of children were expressed in percentages of the total rural population of the state.

(4) The total sample size (1,000) was then multiplied by those percentages to give the sample needed from each county.

b. Cluster sampling within each county was then carried out:

(1) The number of rural schools in each county was obtained.

(2) The 7th and 8th grade population in these schools was secured from local school superintendents.

(3) To obtain the average number of 7th and 8th grade pupils in each school in the county b(2) was divided by b(1).

(4) To determine the number of schools necessary to select, the sample size a(4) was divided by b(3).

(5) Selection of specific schools was done by random sampling, e.g., if 9 schools were necessary out of 34 schools—these schools were selected by use of random numbers.

c. Selection of sample of urban children.

Three of Connecticut's largest cities—Hartford, Waterbury, and Bridgeport—plus one smaller city, Ansonia, were chosen. An attempt was made to select schools within these cities which were representative of low, medium, and high rental areas. An arbitrary

division was made on the basis of average monthly rentals of \$0-\$29 for the low rental areas, \$30-\$69 for the medium group, and \$70 and over for the high rental group. This division into three rental areas was used as a rough guide to relative family income, housing, food and clothing budget, etc. Average monthly rentals were determined from Housing Analytical Maps.¹⁸ In addition, following examination, each child was located in the correct rental area by his address. This was accomplished through the combined use of the Housing Analytical Map and the city street guide and map. This was not possible for Ansonia where a housing map or city street guide was not available. In this city children were placed in the correct rental area by data furnished by the school nurse supplemented by personal observation of each child's home by the social worker.

REFERENCES

1. Poynton, F. J. A Note on the Social Aspects of Rheumatism. *M. J. Australia*, 1:555, 1938.
2. Perry, C. B., and Roberts, J. A. F. *Supplement Brit. M. J.* 2:154 (Aug. 28), 1937.
3. Savage, W. G. Incidence of Rheumatic Heart Disease in Childhood (1927-1930) in Gloucestershire, Somerset, and Wilts. *Supplement Brit. M. J.* 37 (July 18), 1931.
4. Hedley, O. F. Rheumatic Heart Disease in Philadelphia Hospitals. *Pub. Health Rep.* 55:1845 (Oct. 11), 1940.
5. Clarke, P. J. H. Clinical and Public Health Aspects of Juvenile Rheumatism in Dublin. *Irish J. M. Sc.*, 1940, p. 97.
6. Maddox, K. Metropolitan and Rural Incidence and Distribution of Acute Rheumatism and Rheumatic Heart Disease in New South Wales. *M. J. Australia* 1, 1937.
7. Paul, J. R. *The Epidemiology of Rheumatic Fever and Some of its Public Health Aspects*. 2nd. ed. Metropolitan Life Insurance Co., 1943.
8. Wedum, A. G., and Wedum, B. G. Rheumatic Fever in Cincinnati in Relation to Rentals, Crowding, Density of Population, and Negroes. *A.J.P.H.* 34:1065 (Oct.), 1944.
9. Boisvert, P. L., Darrow, D. C., Powers, G. F., and Trask, J. D. Streptococcosis in Children—A Nosographic and Statistical Study. *Am. J. Dis. Child.*, 64:516 (Sept.), 1942.
10. Paul, J. R., Harrison, E. R., Salinger, R., and DeForest, G. K. The Social Incidence of Rheumatic Heart Disease in New Haven School Children. *Am. J. M. Sci.* 188:301, 1934.
11. Paul, J. R. and Dixon, G. L. Climate and Rheumatic Heart Disease. *J.A.M.A.* 108:2096, 1937.
12. Paul, J. R., and Deutsch, J. V. *Rheumatic Fever in Connecticut. A General Survey*. Conn. State Dept. of Health, Hartford, Conn., 1941.
13. Sampson, J. J., Hahman, P. T., Halverson, W. L., and Shearer, M. C. Incidence of Heart Disease and Rheumatic Fever in School Children in Three Climatically Different California Communities. *Am. Heart J.* 29:178, 1945.
14. Quinn, R. W. The Incidence of Rheumatic Fever and Rheumatic Heart Disease in School Children in Dublin, Georgia, with Some Epidemiological and Sociological Observations. *Am. Heart J.* 32:234 (Aug.), 1946.
15. Snedecor, G. S. *Statistical Methods*. Iowa State College Press, Ames, Iowa, 1946.
16. Glover, J. A. Milroy Lectures on the Incidence of Rheumatic Disease, I. "Incidence of Rheumatism." *Lancet* I: 499, 1930.
17. *Sixteenth Census of the United States 1940. Population, Vol. II, Characteristics of the Population. Part 1.* U. S. Dept. of Commerce, Bureau of Census.
18. Housing Analytical Maps (Hartford, Conn., Bridgeport, Conn., and Waterbury, Conn.—separate maps for each city). Block statistics—Prepared under the supervision of Dr. Leon E. Truesdell, Chief Statistician for Population, Bureau of the Census. Prepared and duplicated by New York City W.P.A. War Services.

"The challenge of today's crisis is the most commanding which Western society has ever faced. We have always known that knowledge was a perilous possession, because it could equally well work in the wrong direction; but the knowledge that has been placed in the hands of this age is so supremely capable of misuse—and misuse could so easily reduce the hopes and monuments of men to drifting dust—that the impact of the challenge finds us confused, uncertain and fearful.

"Like all frightened people every-

where and in all ages, our first reaction is physical force, and our instinctive faith is given to military power. Let us grant at once that in this unprecedented crisis a measure of physical force is essential. We do not live in a utopia, and it would be suicidal to act as if we did. Equally suicidal, however, is the assumption that the crisis can be met solely on the level of force, or that mechanisms, power and dollars constitute the essential elements of the solution."—Raymond B. Fosdick, *Rockefeller Foundation—A Review for 1947*.

The Rheumatic Fever Community Program

Its Value in the Epidemiological Study of Rheumatic Fever

SUMMARY OF THE SYMPOSIUM * PREPARED BY THE MODERATOR

DAVID D. RUTSTEIN, M.D., F.A.P.H.A.

AT THE Annual Meeting of the American Public Health Association in Cleveland, Ohio, November 13, 1946, a symposium on the organization of community rheumatic fever programs was conducted.† At that time it was pointed out that such a program would bring many benefits to a community. These include: (1) facilities for the precise diagnosis of rheumatic fever, which are now sadly lacking throughout the country, the disease being as frequently overdiagnosed as it is underdiagnosed¹; (2) facilities for the proper care of patients suffering from rheumatic fever, including hospital beds for the care of acute patients, providing isolation from other patients suffering from hemolytic streptococcal infections, and convalescent care for those with subacute disease; (3) sulfonamide programs for the prevention of recurrent attacks of acute rheumatic fever; (4) a program for the prevention of subacute bacterial endocarditis following tooth extraction or operation on the upper respiratory tract; (5) vocational training of young

patients suffering from rheumatic heart disease so that such patients may become useful citizens instead of public charges.

It was also pointed out at that time that these objectives could be attained by careful integration of community facilities, implemented by a rheumatic registry.² The practical problems to be faced in the organization of such programs were stressed, but it was indicated that these are not insurmountable.

The present (Atlantic City) session was organized to carry forward the concept of the community rheumatic fever program and to indicate its value as an epidemiological tool. This session correlated the interests of representatives of the Sections on Epidemiology, Maternal and Child Health, School Health and Vital Statistics, and was planned in coöperation with the American Council on Rheumatic Fever of the American Heart Association.

Precise epidemiological data concerning rheumatic fever are difficult to obtain, for reasons which will become evi-

* The titles of the papers presented before the American Public Health Association at the Seventy-fifth Annual Meeting are as follows:

The Rheumatic Fever Community Program — Charles A. R. Connor, M.D.

Public Health Nursing in Rheumatic Fever — Mary E. Parker, R.N.

Medical Social Follow-Up — Florence I. Mosher

Rheumatic Fever and the School Child — George M. Wheatley, M.D.

Principles of the Epidemiology of Chronic Disease — Alexander D. Langmuir, M.D.

† Participants in this symposium were Marjorie T. Bellows, A. L. van Horn, M.D., Ruth E. Lynch, and David D. Rutstein, M.D.

dent as this symposium unfolds. The first essential of an epidemiological study is the identification of individuals suffering from the disease. Dr. Charles A. R. Connor indicated that precise diagnosis of acute rheumatic fever is extremely difficult because heart murmurs of no significance occur in normal people and many of those suffering from the disease have an atypical course. Moreover, the exact etiology of the disease is unknown and there is no specific diagnostic test. Diagnosis is usually dependent on the physician's impression of a group of nonspecific symptoms and signs. The best available criteria for diagnosis are the empirical ones established by T. Duckett Jones.³ He distinguished between major and minor symptoms and indicated that a diagnosis of acute rheumatic fever may be made with relative certainty in the presence of two major findings or one major and two or more minor symptoms.

Precise diagnosis is difficult to obtain on a community-wide basis without the diagnostic facilities available in a community program. The existence of a community program will, therefore, make it possible for the epidemiologist to obtain reliable information concerning the existence of disease in the community and will make it possible for him to secure that information needed for the study of rheumatic fever.

Another essential for epidemiologic study, provided by the community program, is adequate follow-up of those suffering from this disease or those in whom a definite diagnosis has not been established. In a community where a rheumatic registry has been established, this can be provided by the coöperative efforts of the public health nurse and the medical-social worker.

Too often nurses and medical-social workers have concerned themselves with the question of invasion of the rights of one profession by the other, rather than the coöperative activity of the two

professions. This is particularly important in the community rheumatic fever program, because in certain parts of the United States services are provided by medical-social workers which in other areas are provided by public health nurses. In particular, urban services are more likely to be provided by medical-social workers and rural services by public health nurses.

In the New York State program, it was possible to establish a coöperative working relationship between the public health nurse and the medical-social worker. This experience may well provide the basis for coöperative working relationships elsewhere. The plan was worked out in a relatively rural area where a generalized public health nurse system existed and where the role of the medical-social worker was that of consultant, adviser, and educator. Those particularly interested in this problem may read the details of this relationship in the summaries of the papers presented by Mary E. Parker and Florence I. Mosher in Appendix I.

Dr. George M. Wheatley indicated that the school medical service is important in the community program because rheumatic fever causes more deaths than any other disease in children of school age, first attacks usually occurring in this age group, and because it is the most useful screening agency in case finding.

To aid school health authorities in developing a more rational approach in the control of disease, it was proposed that: (1) the school medical examination be improved to aid in more accurate recognition and supervision of rheumatic children; (2) more emphasis be placed on referral by teachers and nurses of pupils believed to be below-par for medical review; (3) less emphasis be placed on restricting the physical activity of rheumatic children, and more attention given to daily observations of pupils for signs or conditions sug-

gestive of rheumatic disease; (4) there be available to school health services and the practitioners diagnostic and consultation services; (5) these services be developed in coöperation with, and by utilization of, existing medical and public health resources in the community.

Dr. Alexander D. Langmuir outlined the principles of the epidemiology of chronic disease as they apply to rheumatic fever. He indicated that the principles of epidemiology were first established through studies of recognized clinical cases of acute epidemic disease and that such principles have been applied to chronic diseases, particularly tuberculosis. He stressed the importance of not disregarding the application of such general principles to the solution of new problems. For example, problems which have been satisfactorily solved in tuberculosis programs have been approached, as far as rheumatic fever is concerned, as if they were entirely new problems. This lack of awareness has handicapped the development of rheumatic fever programs throughout this country.

Dr. Langmuir further discussed the application of the epidemiologic method as exemplified by the studies of John Snow on cholera, and indicated that Dr. Snow, a clinical investigator, had the wisdom to support his clinical observations by the use of epidemiologic techniques which firmly established the principles which govern the transmission of this infectious disease. The added difficulties in the study of chronic disease were then pointed out, with particular

reference to: (1) the need for long-time follow-up; (2) the difficulty in the determination of incidence rates; (3) the use of discovery rates, prevalence ratios, person-years analyses and modified life table procedures; and (4) the problem of the index case. In spite of difficulties in diagnosis and evaluation of vital statistics, it was indicated that a pattern has been slowly emerging which will provide the basis for the explanation of the epidemiology of this disease, and that this has been furthered by the study of epidemics of rheumatic fever in closed population groups. It was emphasized that there was also a need for intensive studies in communities where a rheumatic register (see Appendix II) provides an accurate count and a continuity of observation on all cases, occurring and recurring through the years, in populations that are well defined and measurable.

In the discussion which followed, Miss Jean Downes emphasized the need for the qualitative as well as the quantitative study of chronic disease; Dr. Thomas D. Dublin pointed out that while the community rheumatic fever program would make epidemiologic studies possible, good epidemiologic studies are prerequisite for the development of sound community programs; Dr. Richard Hodges indicated the need for control studies in broad, unselected population groups; and Dr. Samuel M. Wichik emphasized the value of a school health program in providing continuous medical observation of those afflicted with rheumatic fever or rheumatic heart disease.

APPENDIX I

Public Health Nursing in Rheumatic Fever

MARY E. PARKER, R.N.

*Assistant Director, Division of Public Health Nursing, New York State
Department of Health, Albany, N. Y.*

Public health nurses have always given care to patients with rheumatic fever, but adequate and complete service is very difficult, and well-nigh impossible unless essential information such as a definite diagnosis and specific recommendation is readily available to them.

In 1942, a diagnostic and consultation cardiac clinic for patients under 21 years of age was established in a rural area in Upstate New York. In connection with this, a follow-up system to insure adequate nursing service was developed.

The cardiac clinic serves three counties, all of which have well established generalized public health nursing services and school nursing services. The generalized public health nursing service in each county is responsible for nursing follow-up. In addition to assisting at the diagnostic and consultation clinic, the public health nurses are responsible for working with the school nurses, social agencies and others in the community concerned with the care of the cardiac child. In fact, they act as liaison between the local physician, the school nurses, the social agencies, the families, and the cardiac clinic.

In preparation for taking on the follow-up of these patients, all public health nurses in the area, including the school nurses, were given a series of six lectures on rheumatic fever. At that time, a convalescent cardiac unit was conducted in one of the state-owned hospitals, and the nurses were given an opportunity to observe the management of rheumatic fever patients, including medical and nursing care, education, occupational therapy, recreation and social service. Opportunity for further learning is furnished at the cardiac clinic.

At the clinic, the supervising public health nurse in the county in which the clinic is located is responsible for the management of the clinic and for the supervision of the public health nurses, the secretary, and the volunteers. An attempt is made to rotate the public health nurses assisting at clinic so that all will have an opportunity to learn more about the management of the child with rheumatic fever and rheumatic heart disease.

The school nurses are encouraged to attend clinic and frequently do so when children known to them are being examined.

All patients must be referred by a local physician. If a public health nurse finds a patient with symptoms suspicious of rheumatic fever, she must refer the patient to his own physician. Only if he requests consultation can the nurse make an appointment at clinic.

When a patient is seen at clinic, a report of the findings and recommendations is sent to the referring physician. The referring physician is advised that the local public health nurse will communicate with him and will give him any assistance she can in the follow-up of the patient. If a definite diagnosis of rheumatic fever is made, the referring physician may request the clinic to provide further consultation in regard to treatment. This is done with the understanding that he will provide interim care. In almost all instances where a definite diagnosis is made, this service is requested and the nurse reports to the clinic physician as well as to the referring physician.

Home visits are made by the public health nurse after she has conferred with the family physician.

The public health nurse is responsible for helping the family to establish a desirable environment for the child who has rheumatic disease. The relationship between streptococcal infections and rheumatic fever must be kept in mind constantly in helping to make any plan for care. What the nurse teaches the family and what help she gives will depend upon whether the child has active rheumatic fever, is convalescing from an attack of rheumatic fever, or has completely recovered to the extent that he can live a normal life. In any particular case, the assistance the nurse gives will depend largely upon the specific recommendations made by the physician.

A report of the items recommended by the clinic physician may help to give some idea of the nurses' job in follow-up. The records of 80 patients with a definite diagnosis of rheumatic disease were examined. Records

of patients with questionable heart disease and congenital heart disease were not included (although the public health nurses gave service to children with congenital heart disease).

In 23 different recommendations occurring a total of 169 times on 80 patients, 28 per cent were concerned with activity of the ambulatory patient; 26 per cent with diet; 10 per cent with bed rest (one-half for active rheumatic fever); 5 per cent with dental care; 4 per cent with avoidance of U.R.I.; 9 per cent with investigation of other conditions; 2 per cent with psychiatric examination; 2 per cent with foster home and convalescent care; 2 per cent with home teaching and school transportation; and 12 per cent miscellaneous items.

A great deal of emphasis is placed upon the more dramatic aspects of care—the care needed during an acute attack of rheumatic fever. Yet, in this particular group of children, it appears that the bulk of the public health nurse's work is helping to provide service which is a part of good child hygiene. This is the kind of care that these patients need most of the time. Only occasionally are special care and special service needed. It is estimated that in this group only about 5 per cent of the children need special care, such as hospital or convalescent care, at any one time. The importance of providing adequate services needed during an acute episode of the disease cannot be over-emphasized, but I think we need to give more thought to improving the nursing services these children need while they are well.

In addition to carrying out specific recommendations on individual patients, the public health nurses have the same functions as they do in any other public health program—namely, case finding, assistance in obtaining medical care, providing nursing care and assistance to the family in obtaining any other services necessary to the rehabilitation of the patient. The public health nurse is not expected to be able to provide all services—in fact, she is not equipped to—but she is expected to be aware of the need for them and to help the family obtain them from the appropriate community agency by cooperative activity with the medical-social worker. These services include education, vocational guidance, rehabilitation and social services—all of which are provided by agencies other than the health department.

In connection with social services, a plan was developed to provide consultation to the public health nurses by a medical-social worker

employed by the State Department of Health. When a public health nurse found a social problem, she referred it to the consultant medical-social worker for advice. Sometimes a conference was all that was indicated; at other times, it was necessary to arrange a meeting with the local social agency to outline a plan for the family; and occasionally it was necessary for the medical-social worker to visit the home with the public health nurse before a decision could be reached. This plan is recorded in the past tense because for the last two years consultation service has not been available. During the time that it was, 9 per cent of the cases carried by the public health nurses were cases that presented serious social problems on which the nurses needed assistance. This figure does not include situations in which the problem was merely one of securing help from an agency to supplement an inadequate diet or to provide funds for hospital or convalescent care. It also fails to indicate the assistance given to nurses by the medical-social worker in staff education programs and in staff conferences. So popular was this service that the scope of consultation expanded to include problems of a social nature encountered by the public health nurses in all of the patients under their supervision regardless of the diagnosis.

If follow-up is to work effectively, it is necessary to keep everyone informed about what is happening to the patient at all times. A system of reporting has been set up whereby the clinic physician has a complete report of the patient's progress between clinic visits, and the nurse is kept informed of the physical findings and the recommendations. Only one record form is used for this and is shuttled back and forth between the clinic and the public health nurse. The referring physician receives a report each time a patient under his care is examined at clinic and he is also given a report of the visits by the public health nurse.

Any follow-up system, if it is to result in adequate service to the patient, must provide for a method of coordinating the work of the agencies giving services needed by the rheumatic fever patient. Included in this are hospitals, convalescent homes, clinics, private physicians, public health agencies, social agencies, educational and rehabilitation services.

Unless there be a coordinated plan for care, the public health nurses will have difficulty in carrying out their responsibilities in a rheumatic fever program.

Medical Social Follow-Up

FLORENCE I. MOSHER

*Medical Social Consultant, Association for the Aid of Crippled Children,
New York, N. Y.*

With the broadening of public health programs and the development of medical care programs on national, state, and local levels, the scope of medical-social service has widened. The fundamental responsibility of meeting social needs remains the same, but the application of principles and techniques is related to medical care for a large number of patients. In many of these programs, a medical-social worker functions as a consultant and does not duplicate the services of social workers in other social agencies, of hospital social workers or public health nurses.⁴ She assists the administrative personnel in program planning to insure consideration of social factors pertinent to the provision of medical care; gives consultation services to the staff on individual and group problems that have social implications; promotes the development of coöperative working relationships with community agencies in the fields of welfare, education, rehabilitation, recreation, hospital social service and convalescent care, so that their services may be utilized to the utmost in meeting needs related to illness, medical care, and positive health for the community.

There are frequent references in medical literature to the similarity of the problems and the management of tuberculosis and rheumatic fever. Community organization programs for tuberculosis have been suggested as guides for the development of similar programs for rheumatic fever.⁵ About one year ago, the U. S. Public Health Service sent out a publication entitled "Medical Social Service in Tuberculosis Control"⁶ which discusses the functions of the medical-social worker in that program. There is a striking similarity between the described activities in that pamphlet and the pattern of medical-social service developed a few years ago as a part of the program of the Cardiac Bureau in the New York State Department of Health. A cardiac service for the care of children with rheumatic fever was established at the New York State Reconstruction Home and has been described in the paper given by Miss Parker. The basic philosophy of medical-social service programs can be applied to a rheumatic fever community program, as outlined by David D. Rutstein⁷ in a paper read at a symposium on

"Rheumatic Fever," and by the Public Affairs Pamphlet⁸ on rheumatic fever.

The medical-social worker functioned as a consultant and gave direct case work services when referrals were made by the public health nurse or doctor and there were no community resources available to give such services. She was responsible for compiling data about the community agencies which provide social services for that area. In instances of duplication of agency programs, she assisted in promoting the realignment of their services. The medical-social consultant helped with the development of coöperative working agreements with agencies. Through her liaison activities, she strengthened the integration of agency services toward the maintenance of a well rounded program. She was able to indicate need of new resources as she became aware of unmet community needs as well as to help improve existing facilities.

In the diagnostic clinic, the medical-social worker acted as a consultant to other staff members. She assumed direct case work responsibility when requested by physician and public health nurse and when facilities were not available in the community. One of her major functions was the uncovering, evaluating, and assisting in the adjustment of emotional fears, economic stresses, and social problems that prevent acceptance of diagnosis and recommended treatment. Whenever several members of the medical team were concerned with a complicated social situation on the same case, there was a conference and agreement upon the responsibility each would carry. When a health problem was predominant, the public health nurse assumed the leadership. When there were both health and social factors, the case was carried by the public health nurse with consultation from the medical-social worker. If the social factors were predominant, case work services were requested from the proper community agency. Joint conferences of public health nurse, medical-social worker, and agency representative insured good planning and services for the patient and his family.

In the rheumatic fever community program, the medical-social worker assisted in the development of standards to be used for deter-

mination of the ability of parents to participate in financial arrangements for medical care which would permit the maintenance of a reasonable standard of living and help retain a stable family unit. Interpretation of the illness and the medical recommendations to welfare departments helped them to recognize the need for providing medical care for rheumatic fever patients without penalizing the family who can manage to meet their current expenses. Because of the chronicity of the disease and with long-time bed rest the only effective treatment, it was imperative that the family maintain good living conditions and emotional balance.

Since the acute rheumatic fever patient may be hospitalized, there was close coöperation with the hospital medical-social worker. In order to have good continuity of care, there was interchange of medical and social data between agencies providing services for the patient and his family. While he was in the hospital, unfavorable home conditions were adjusted if possible.

When the rheumatic fever patient was ready to leave the hospital, the physician, public health nursing consultant, medical-social consultant, and hospital personnel worked out a plan of convalescent care that was determined by the total situation. If the patient's home were unsatisfactory due to substandard housing or emotional factors, his placement in a

cardiac unit or a foster home was decided on the basis of his needs. Educational, recreational, and vocational services were also important at this time.

When the patient returned home, the public health nurse gave follow-up service with the medical-social consultant giving consultation service when needed. It was necessary, from time to time, for the nurse and medical-social worker to have joint conferences with welfare or other agencies for better understanding of the total family situation and to reach an agreement regarding services the respective agencies were to provide for the patient and his family with emphasis on alleviation of factors that cause recurrence of the disease.

Although the opportunity was not provided in this program, a medical-social worker can function effectively in social research relating to community health and medical care programs. In a rheumatic fever community program, she could have ample opportunity to collect data regarding the effects of inadequate housing, income, diet, and psychologic factors. Further data could be obtained regarding the greater number of recurrences occurring when a child convalesces in his own home. Studies might disprove this statement if all needed services were available and a well rounded program could be provided for the patient and his family while he remained at home.

APPENDIX II

The Registry in the Community Rheumatic Fever Program

MARJORIE T. BELLOWS, F.A.P.H.A.

Statistician, American Heart Association, New York, N. Y.

The primary function of a register is to implement with specific mechanical procedures the program of service to rheumatic patients. There are, however, certain prerequisites of a program which are particularly essential to the development of a register. First, there must be agreement by the medical profession and all agencies to centralize responsibility for integration of the program. This discussion is based on the assumption that there is a central agency from which procedures governing the entire program can emanate and where the register which controls such procedures can be located. A second essential condition is that there be accepted standards and criteria for adequate service. Such criteria have

been set up for cardiac clinics, but there should be similar guides for appraising the quality and adequacy of all services and facilities. There should also be minimum standards for the frequency and kind of care and follow-up required by each type of patient to be included in the program.

The obvious first procedural step in instituting a program is to survey all community resources in order to appraise existing facilities as to volume and quality and to determine which groups of the population are receiving care and the effectiveness with which they are served. Such an appraisal of resources makes it possible to discover where existing services are inadequate and where overlapping and

duplication occur. On the basis of this information, it will be possible to outline a program which will utilize fully both existing facilities and whatever supplemental service can be made available.

The next step in organizing a program is to set up continuing checks to see that specific objectives are being carried out. This means, first, that there be available a perpetual inventory of facilities and, second, that there be automatic checks to see that every patient is getting the service intended. A resource file is suggested as a possible mechanism for maintaining current information regarding facilities and services. A case registry is the device which has been found in other chronic disease programs to be essential for case management. Both may originate in a community survey and both can be maintained by a system of routine reporting and regular follow-up.

RESOURCE FILE

The resource file is essentially a device for showing the volume of facilities available to carry out the objectives of the program. In smaller communities where treatment, care, and follow-up agencies are few in number, it might not assume quite as much formality as is implied in its name, but, in all communities, there should be an organized method for obtaining answers to very important questions which relate to program planning and case referral. Certain facts which should be easily obtainable from the resource file can be listed as follows:

1. The capacity of existing facilities and their quality as measured by accepted standards.

2. The extent to which these facilities are being utilized (for example, the number of patients being served annually by each agency). Ideally, the central integrating agency might attempt to keep current information as to the numbers and locations of vacancies for such facilities as beds for acute care. It might prove difficult, however, in large metropolitan areas to keep such information current.

3. The economic selectivity of existing facilities—in other words, the resource file should supply data showing how much service is available to patients who are able to pay for it and how much to patients regardless of their financial status.

Such an analysis of resources will be derived, in the first place, from a survey. It can be maintained by a combination of periodic reports to the integrating agency and follow-up procedures in the field.

The initial survey will require careful plan-

ning to see that all agencies which are concerned in any way with rheumatic patients are included. As in all surveys, there must be prepared forms specifying exactly what information is desired. Such forms should be sent out at approximately the same time and followed up to make certain that the survey is complete. Maintenance of the file requires reporting forms, regulations for reporting, and follow-up. Special summary sheets or tabulation forms should be devised so that information may be tabulated regularly and summaries compiled whenever they are required. This describes, in general terms, what should be done, but field experimentation should result in detailed forms and directions or manuals of procedure for setting up and maintaining a resource file.

CASE REGISTER

The case register is a file of summary cards—one for each individual who requires service under the rheumatic fever program. It is a cross-index, on a case basis, of all services in the resource file, in that it shows for every patient, the persons or agencies who are giving service. It also shows for each patient his current diagnostic, therapeutic, and functional classification; where he is located; his occupational or school status; and who is responsible for his care. These are minimum requirements and, depending on the program, other items may also be required.

The functions which a case register can serve are as follows:

1. It is an index of all known cases. Newly reported cases can be checked in this file as a first step in verification of diagnoses and to find out whether or not they have had previous treatment and, if so, where and from whom.

2. It makes available in one place, to any agency concerned, a means of locating all existing detailed information on a specific case.

3. It can show where duplications of service are occurring and eliminate overlapping of service.

4. It provides, at a focal point, enough information for an individual case to reveal deficiencies in care or supervision.

5. It can serve as a mechanical device for directing follow-up activities. Cards can be flagged to show automatically which cases need some sort of follow-up and by whom.

6. It will provide statistical data which will aid in developing and planning the overall program and help in evaluating the effectiveness of the program.

As to information to be included on the

individual register card and how it may be obtained, this depends, to a large extent, upon the program itself. For purposes of this discussion, it will be assumed (1) that the program includes some system of case reporting into the register which will provide a source of information as to the location of new cases; (2) that there are criteria established for acceptable diagnoses and provision for verification of those that are not acceptable; (3) that every case will be followed up immediately after first report by field personnel; (4) that there is some system of interim reporting on admission to and discharge from service by all agencies concerned in order to keep case information current; (5) that there is routine follow-up of cases who have not been reported on for certain periods of time as an additional procedure to maintain currency of information. Indeed, unless these five conditions are met, the wisdom of setting up a community register might be seriously questioned.

The initial report will supply basic identifying data such as name of patient, name of parents or guardian, address, age, sex, color, marital status, and present location, together with the diagnosis at time of first report, the reporting agency, and date of report. This is the kind of information ordinarily included on forms for reportable diseases and represents about the maximum that can be required or relied upon from an initial report.

Previous history of rheumatic fever (with dates), occupational or school status, and agencies at present giving care should be obtained through some form of follow-up such as a nursing home visit or letter to the physician.

Follow-up data showing, with dates, most recent diagnosis, present location of patient, agency at present responsible for medical supervision, other agencies giving advice, and current occupational and school status, should be obtained from interim reports and can be recorded on the register card in table form chronologically as reports come in. In the absence of such interim reports, provision should be made for some kind of periodic check with the agency responsible for supervision to keep information on each case reasonably current.

The register may be set up initially either by surveying all agencies who may have responsibility for patients and abstracting case records, or by building it gradually from routine case reports. Since in the latter case it is difficult to know when or if the register is complete unless a check survey is made, it seems as if a case survey made at the same time as the resources survey is preferable. Whenever a case survey is done, there should

be provision for follow-up of all cases where complete information is not obtained.

As to maintenance of the register, systematic reporting will do much to keep information current and will cut to a minimum the amount of follow-up required. The following types of reports are suggested as basic:

1. Reporting of all newly diagnosed cases by physicians, clinics, and hospitals.
2. Reports of changes in diagnosis by physicians, clinics, and hospitals.
3. Admission and discharge reports from all institutions and agencies.
4. Report of all deaths from rheumatic fever and from heart disease within a certain age group by the vital statistics agency.
5. Reports from school health services of children suspected of having rheumatic fever or rheumatic heart disease and those admitted to special classes. In addition, there should be reports of children changed from special to regular classes.
6. Reports from follow-up agencies, such as medical-social workers and nurses.

For best control of the program all reports of new cases should be reviewed by a physician in order to classify the diagnosis, and to make whatever initial contact with reporting physicians may be necessary. At certain intervals, every case summary should be reviewed by a physician to determine whether or not routine procedures are operating effectively. A decision should be made after every additional report on a case as to when it next requires follow-up and by whom, and, at this time, the card should be marked with a signal in some way to show when the next follow-up report is due and from whom it is due. Procedures should be established for notifying, automatically, the agencies concerned that some action is required. Forms to specify what new information is desired and what action is to be taken can be developed. There should be, also, regulations as to what type of information is to be forwarded to other agencies routinely, and report forms to facilitate transfer of information from the registry to other agencies should be drawn up.

It might be wise, at this point, to emphasize that definite limiting conditions should be placed on admission to and discharge from the register in order to prevent it from becoming unwieldy and inefficient. There must be established policies or rules specifying what cases are to be included in the current register and when they are to be discharged as non-current and for what reasons. From a realistic standpoint, the current register can

include only those cases who are being followed up at regular specified intervals, and about whom information is being kept current. The program itself and the amount of service that can be given will determine which cases are followed up and are, therefore, to be included in the current file and when they are to be discharged from follow-up and from the active register. Mere faith that patients who ideally should be followed up will somehow be seen or heard from, and trust that dead wood will eventually drift out of the register, are certain means of acquiring a large unmanageable file of meaningless records. There is no magic by which the register can be more inclusive than the follow-up program itself.

There are a number of mechanical systems on the market that are easily adapted to registers of the sort described. Visible files are certainly the most efficient where there are less than 2,000 cases, since the visible edge can be used for indexing, signalling, and for coding statistical items which will need to be counted frequently. For larger files, punch card systems can be adapted to do all that visible files will do on a smaller scale.

By way of summary, it should be emphasized that the filing and reporting systems outlined have not been field tested, nor can they be considered final recommendations in any sense. They are not, however, in any way unique to rheumatic fever programs. Any chronic disease program requires very similar mechanisms and excellent ones have been worked out, notably by persons working in the tuberculosis field.^{9, 10} It might be wise to remember that no mere mechanics will be suc-

cessful in developing a sense of community responsibility for cases of rheumatic fever and rheumatic heart disease, nor will they shape an effective rheumatic fever program. They can only provide a mechanical basis for, and implement a program which has been accepted by professional and lay members of the community and one which has clearly defined objectives, specifically stated standards for care and follow-up, and adequate personnel to see that these standards are met.

REFERENCES

1. Rutstein, David D., and Parker, Mary E. Unpublished observations.
2. Rutstein, David D. Need for a Public Health Program in Rheumatic Fever and Rheumatic Heart Disease. *A.J.P.H.*, 36:461-467 (May), 1946.
3. Jones, T. Duckett. Diagnosis of Rheumatic Fever. *J.A.M.A.*, 126:481-484 (Oct. 21), 1944.
4. Hall, Beatrice. The Role of Medical Social Service in the Public Health Program. *The Child*, 9:127-130 (Feb.), 1945.
5. Armstrong, D. B., and Wheatley, G. M. Community Organization for the Control of Rheumatic Fever. *New York State J. Med.*, 45:169-173 (Jan. 15), 1945.
6. Federal Security Agency, Washington, D. C. Medical Social Service in Tuberculosis Control. U. S. Public Health Service, *Misc. Pub. No. 37*, 1946.
7. Rutstein, David D. The Role of the Cardiac Clinic in the Rheumatic Fever Program. *J.A.M.A.*, 126:484-486 (Oct. 21), 1944.
8. Yahraes, H. Rheumatic Fever, Childhood's Greatest Enemy. *Public Affairs Pamphlet No. 126*.
9. Mikol, Edward X. *A Manual of Methods for Organizing and Maintaining a Central Tuberculosis Case Register*. National Tuberculosis Association, New York, 1943.
10. Federal Security Agency, Washington, D. C. *State Central Case Records and Local Case Registers for Tuberculosis*. U. S. Public Health Service, Tuberculosis Control Division, 1947.

"In spite of all evidence to the contrary the things that divide the world are trivial as compared with the things that unite it. The mutualities of hu-

man beings everywhere far exceed their divergencies."—Raymond B. Fosdick, *Rockefeller Foundation—A Review for 1947*.

A Medical-Social Worker's Approach to the Problem of Poliomyelitis*

ETHEL COHEN

Director, Social Service Department, Beth Israel Hospital, Boston, Mass.

A SOCIAL component exists in every illness in so far as the illness disturbs the usual normal activities of the patient. The extent of this interference may range all the way from a minor inconvenience to a major breakdown in an entire way of life. Illness thus influences the patient's environment, his relationships, and his feelings of adequacy as a human being. People differ from each other constitutionally and psychologically. Diseases affect human organisms variously. The development, progress, and final outcome of many illnesses are influenced by factors outside the disease process itself. Reactions to a given illness in different individuals will be determined by their diverse constitutions and personality structures, and by their economic and social circumstances. The interplay of all these elements produces the individual illness situation for each person. Therefore, the care of the whole patient, rather than treatment of the disease only, becomes the aim of all the professional workers involved.

These principles are very well known, but unfortunately in times of crisis or pressure their application in practice is often unnecessarily sacrificed. All the professional workers are members of a team of which the physician is the chief. While each worker has a specific function based on a particular skill for

which he has been trained, all have some degree of social responsibility. The medical-social worker, because of her particular training and skill, has the major social function. It is generally recognized that this worker helps individual patients deal with the social and environmental elements in the health problem, and assists him to make the most effective use of medical care and related health services. She is also concerned with administrative policy as it affects the patient. Too often hospitals and other medical agencies unintentionally create problems for patients through failure to consider social factors in program planning and policy making. In organizations where the medical-social worker has been part of the team while administrative policies were being created, many of these difficulties have been anticipated and avoided.

Poliomyelitis presents special problems arising from its natural history, and from certain unsolved clinical aspects. People have a unique dread of this disease. Its cause is unknown. Its onset is sudden and dramatic; the outcome unpredictable. Its effects are often swift and irreversible. The greatly publicized controversies about methods of treatment have often aroused doubts and loss of confidence in the particular treatment prescribed. During epidemics, panic is widespread. Families of patients are naturally anxious. Superstitious fear on the part of the general public intensifies prob-

* Paper presented at Georgia Warm Springs Foundation, September 16, 1947, at the clinical conference in commemoration of its 20th anniversary.

lems of caring for patients and their families. These emotional and environmental factors are inseparable from the problems of care and treatment. If adequate social consideration is unavailable, eventually these severe emotional experiences may be expressed in various ways to the detriment of the patient. The separation of patient and family during the isolation period, without reasonably adequate information about the patient's condition, causes parents to become agitated and even hysterical. They may insist on removing the patient from the hospital against advice during the acute phase. Others may wish to postpone indefinitely the patient's discharge. This may be due to rejection of an unwanted child, or to inability to face the new difficult situation, or to fear that the patient's care will be overburdensome.

The following illustration¹ was reported by a U. S. Children's Bureau consultant on visit to a state during an epidemic:

The worst epidemic of poliomyelitis in years had hit the state that August. From farms and little towns parents brought their sick children in jalopies, trucks, and wagons along the hot, dusty roads to the city for treatment. The hospital wards were overflowing, and physicians, nurses, and attendants worked night and day to care for the polio victims. Rooming houses and auto courts, afraid of the disease, refused to accept the parents, many of whom camped in their cars and waited day after day for word of their children. Families were frantic. Some parents secured ladders so they could climb up to the hospital windows and look in. In one family, the mother and three children had been stricken—the grandmother stayed outside the isolation hospital keeping vigil. In another family five members had been stricken. The weary and anxious father kept his post outside the hospital day and night.

Doctors were too busy to talk to anxious parents, regarded as a nuisance by the overworked hospital staff. All non-polio patients, that could be moved, were to be sent home, but no response had been received from several parents. . . . The medical-social worker

assisted in the discharge of these patients, bearing in mind that no child should be discharged to unsatisfactory home conditions which would hinder his recovery. . . .

Problems of family relationships were recognized as the main concern of the medical-social worker, who talked with each parent to ease his anxiety and to learn about his ability to care for the child at home. Some parents would cease their futile waiting and return home if assured of regular reports about the child's condition; other parents who needed to remain close to their children were helped to secure proper living accommodations through the State Welfare Department, Salvation Army, and service clubs.

. . . Community agencies, when given leadership, rallied to give the parents shelter. Many parents returned home. One father confided that he had lost a leg in a childhood accident and feared that his son, of whom he had been so proud, would be a hopeless cripple. He returned gratefully to his duties on the farm when assured that the child's involvement was slight and that he would be kept informed of the boy's condition.

A father, whose wife had a serious heart condition, had been frantic because the family could not give his little girl the attention recommended when she would return home. His relief was tremendous when told that convalescent care in a foster home would be arranged. . . .

These circumstances in one undeveloped rural community are familiar to all workers outside of large metropolitan areas. However, they are not unusual even in cities. Experiences of the same type, though of different quality, in a highly organized teaching hospital were reported in published accounts² of the 1943 Connecticut epidemic.

Social services for patients and their families are needed at the time of an epidemic. One of the problems frequently is to assure plans for beds required for the acutely sick polio patients. Major problems for social service are the anxiety of parents, their readiness to incur expenses impossible for them to meet in order to get care for their child; fear in their communities and the refusal to have any contact

with the families in which poliomyelitis has developed; lack of attention to the emotional needs of children receiving care in a hospital ward where personnel are greatly overworked; failure to establish a means of direct communication between doctors and parents; adequacy of the home for care, if the child is not sent to a hospital; and also the development of undue strains on family relationships.

Community plans for children with infantile paralysis should be well developed in advance so that responsibility for standards and adequacy of *all* phases of care is established and carried by a responsible agency, preferably a health department or other official agency working coöperatively with the health department. This is advised because various parts of service are frequently provided by different agencies. As a consequence gaps or overlapping services result without ultimate responsibility carried by any one agency. The coördination and integration of all the medical and auxiliary community social services are urgently needed to insure best care for the patient and the most advantageous and economical use of resources.

Viewing the country as a whole, there exists an infinite variety of community organization and medical settings, with equal diversity in numbers and types of professional workers. To enumerate a few, among them are clinics of public programs, both permanent and itinerant, public hospitals on state, county, and municipal levels; voluntary hospitals, some of them affiliated with medical schools, proprietary hospitals, convalescent, nursing, and chronic homes. Inasmuch as all the necessary personnel are not present as a rule in any of these institutions, one can only suggest principles to guide, rather than recommend specifically the relationship of the medical-social worker and her professional coworkers. The medical-

social worker may be in a hospital giving direct service to patients and families; or a consultant to other members of the medical team or to non-medical community agencies. In either setting, knowledge of the social aspects, shared by the medical-social worker with her professional coworkers, increases their capacity to carry out their own responsibilities. The medical-social worker in turn has much to learn from her coworkers. In fact, the insight she gains from a knowledge of the others' activities often gives her greater understanding for her own work in a given situation.

When the acute phase of polio passes into the convalescent stage, many different problems arise for the patients left with paralysis. The need for continuous care of many weeks, months, and often years is a challenge to patient and family. The normal place for a patient is in his own home. Adequacy of a home is determined by considerations of distance from treatment center, physical facilities, economic security, health, intelligence, and emotional attitudes of the family. The feelings of the parents toward the child and his sense of security may influence the duration and extent of his incapacity. Parents must have the willingness, intelligence, and freedom from other family and personal complications to coöperate in home treatment, persist in exercise, encourage the patient to activity, self-help when crippled, and adjust to cumbersome braces. The sight of a crippled child or adult often arouses strong negative feelings in relatives, as well as in other associates or strangers. Some crippled children are extremely sensitive to their appearance and its effect on others. We have all seen the patient who feels himself conspicuous and handicapped by a slight foot drop, while another patient with a completely flail leg may make a normal adjustment.

The community has the responsibility for providing substitute arrangements, when the home is unsuitable for the patient's care. Few if any communities seem to have enough of the proper kind of convalescent homes, particularly for the adolescent and young adult. Convalescent institutions or foster homes become for many patients their only real home for long periods of time. Therefore, these facilities should provide a friendly, warm psychological atmosphere, good physical care, opportunities for development through education and recreation. The serious weakening of some family ties can occur quite easily. Frequent visiting hours for relatives, in addition to correspondence, are necessary to keep alive the bond between them and the patient. Otherwise children feel they are not loved or wanted at home. Many institutions consider relatives' visits annoyances and interrupting to their routine. With more imagination in administrative planning, the needs of the patient in this respect can be safeguarded without undue sacrifice by the management of the institution.

For children in some communities care must be provided in foster homes through the help of child welfare agencies. The necessity to plan resources for the chronic patient with complete and permanent disability is too well known to require further elaboration here, but is of sufficient importance to warrant this brief comment.

During the convalescent period, patients and relatives are confronted by new anxieties. They need careful interpretation of what convalescence will involve, a description of the place to which patients are being sent, and some estimate of the duration of their stay. As one worker put it, otherwise some patients get very "queer" ideas. Some, severely crippled, think they will walk at the end of three months, and can return to their former work. Others, dur-

ing long-time convalescence, feel isolated, and believe their relatives have rejected and abandoned them. Antagonism and severe emotional upheaval often result when unprepared patients learn the truth finally about their permanent crippling and disability. As soon as medically feasible, contact with the State Rehabilitation Agency may bring adolescent and adult patients new interests and hope of work and self-support for the future.

My personal observations in crippled children's clinics of several states left an enduring impression of the fortitude, physical strength, and patience needed by parents and patient alike. The sacrifice in normal personal social life for many parents is enormous. However, some lack the required intelligence and skill to deal with the discouragement and rebellion of the crippled child.

All professional personnel, doctors, nurses, physical therapists, teachers and occupational therapists sometimes encounter resistance in various degrees in their efforts to help patients. Most well trained personnel in all fields now have some instruction in the principles of human behavior, and something of the social aspects of illness. This insight is indeed helpful, but is not a substitute for the services available from a trained medical-social worker whose functions are social study, services to patient, and integrated work with all the other professional coworkers.

To get maximum benefit from treatment, the patient must be treated as a whole. The best way to achieve this is by regular frequent conferences of all involved in his care, each contributing from his special field and jointly deciding what role each will play. A procedure which has yielded excellent results in medical teaching hospitals and rural clinics alike is the joint group review and evaluation of a patient's problem. The results of such conferences become more than the sum of all

the individual contributions, for the give and take among the various workers often produces a new idea which no one person might have conceived by himself.

At times all of the specialized personnel participate simultaneously. At other times, the role of certain workers predominates and the others are less active. This requires a high degree of coöperation and understanding of each other's function, as well as clarity concerning each individual's own function. All have some social responsibility; none may relinquish a share of such responsibility, but to the medical-social worker should come the problems requiring social treatment, knowledge of community resources, not only of their existence, but of their specific services. As a social worker, she should know what can be expected of these resources; how to select the most appropriate from among those available, or how to improvise resources where no adequate professional agency exists.

The relationship between the medical-social worker and other professional coworkers may be exemplified, as follows: During certain stages of the illness, the physical therapist may be seeing the patient more frequently than any other member of the team. She has the opportunity to observe the patient's behavior which may be symptomatic of personal problems. She can best serve

the patient and family, not by advising them how to deal with the apparent social problem but by sharing her observations with the medical-social worker, whose special training enables her to deal with the social difficulties. Discussion of the problem, when a patient first begins to lose interest in learning his exercises, may prevent the crisis in which he refuses to continue treatment altogether. Conversely, if a medical-social worker observes a patient exercising incorrectly, she has the responsibility to act. This would not be by instruction to the patient, but by relating her observations to the physical therapist within whose province this problem belongs. If all members of the team would correlate their services in this way, some difficulties in process of development might be overcome before they crystallize.

Each worker, by appropriate use of other services, frees himself for maximum service in his own specialized field. Such professional practice should result in the best care of the individual patient, and the most productive and economical use of the community's investment in its health and social agencies.

REFERENCES

1. From a personal communication from the Medical Social Unit, Health Division, Children's Bureau, Federal Security Agency, Aug., 1947.
2. Grant, Alice A. Medical Social Work in an Epidemic of Poliomyelitis, *J. Pediat.*, 24, 6: 691-723 (June), 1944. Copellman, Fay S. Follow-up of One Hundred Children with Poliomyelitis, *The Family*, Dec., 1944.

The Economic Status of Public Health Nurses, 1946-1947*

DOROTHY E. WIESNER AND LILY MARY DAVID

*National Organization for Public Health Nursing; and Wage Analysis Branch,
Bureau of Labor Statistics, Washington, D. C.*

THE average public health field nurse earned \$2,290 a year while supervisors received \$3,040 and directors of public health nursing services averaged \$3,292 annually in 1946-1947. These salaries were paid for an average work week of 40 hours. These hours included some overtime, reported by substantial groups of nurses; in a majority of cases they received compensation, generally in the form of time off, for this work beyond regularly scheduled hours. About 3 out of 10 public health nurses were subject to call for some time in addition to their hours on duty.

Out of their salaries, public health nurses spent an average of \$83 during 1946 on professional expenses. About 1 in 7 incurred professional expenditures of more than \$200 annually.

Almost all public health nurses receive paid vacations and sick leave after a year's employment. Typically, vaca-

tions are for 2 to 4 weeks. Only a minority of public health nurses benefit from retirement pension plans, however, and only 1 in 6 is provided with hospitalization, medical care, or periodic physical examinations at the expense of the employing agency.

The major complaints of public health nurses were economic, including problems of provision for retirement and employment security, rates of pay, methods of awarding promotions and pay increases, and opportunities for promotion.

SALARIES, APRIL, 1947

Salaries in public health nursing are influenced by many factors. Some of these variations which can be easily observed are: position on staff, type of employing agency, part of country, and size of staff.

Generalized field nurses—The median salary among more than 7,000 field nurses was \$2,290 per year. The range

* This article is based on two studies—the economic study of the nursing profession conducted by the Bureau of Labor Statistics of the United States Department of Labor early in 1947, and the 1947 Yearly Review of the National Organization for Public Health Nursing. The former study was conducted by a mail questionnaire filled out by about 1,350 public health nurses. These represent about half the public health nurses who received questionnaires and over 6 per cent of all 21,000 nurses active in this field in the United States. Replies were received from every state and from nurses employed in both governmental and non-governmental agencies.

Almost 650 public health nursing agencies returned Yearly Review schedules to the N.O.P.H.N.; 1,200 schedules were mailed. The Yearly Review contains sets of questions about which N.O.P.H.N. needs answers, salary data being one of the most important. The columns for salary data are arranged so that information is available by position on staff, by annual

basic salary, and by cost-of-living adjustments. The salary figures used in these paragraphs include cost-of-living adjustments. Data are given for the following kinds of agencies: public health nursing services in 36 state health departments; 112 county health departments; 87 municipal health departments; 122 boards of education; 255 nonofficial agencies; and 29 combination agencies. Salaries for sixty-five kinds of full-time jobs were tabulated. Among nurses, some of these were directors, educational directors, generalized supervisors, specialized supervisors, generalized field nurses, specialized field nurses, trainees, practical nurses and others, the total number being 10,351. Among non-nurse professional workers connected with public health nursing staffs were nutritionists, social workers, statisticians, non-nurse physical therapists, and others; such workers numbered 209. Clerical employees in these agencies numbered 1,414. All salary information was for the year ended April 1, 1947. Average salaries used in this article are medians.

of such salaries was from \$1,200 to \$3,790. The median salary for field nurses was highest among those employed by city health departments, \$2,527; next came those in boards of education, \$2,481; third, \$2,265 in county health departments; fourth, \$2,243 in combination agencies; fifth, \$2,178 in state health departments; and lowest, \$2,161 in nonofficial agencies such as visiting nurse associations.

The 9 divisions of the United States, as outlined by the U. S. Bureau of the Census, were used for this salary study. Agencies in the Pacific Coast states paid their generalized field nurses better than did those in other parts of the country. Agencies in the South Atlantic states paid lowest salaries. The greatest differences between high and low salaries appeared among the state health department nurses, the median for generalized field nurses on the Pacific Coast being \$3,050 and for those in the East South Central states, \$1,837. Board of education salaries also varied widely, averaging \$2,783 in the Pacific Coast states and \$1,872 in the South Atlantic states. Salaries in nonofficial and combination agencies varied less by part of the country than did those in other kinds of agencies.

For the most part, generalized field nurses in large agencies were better paid than were those in small ones. However, in nonofficial agencies the worker in the one-nurse agency was better paid than those employed in most of the medium sized agencies. This is to be expected, since such a nurse should have more experience as she has little direct supervision. She also needs ability to work with her board and with the community.

Generalized supervisors—The range for supervisors' salaries in 1947 was from \$1,920 to \$4,620. The median salary was \$3,040. Salaries of generalized supervisors exceeded those of generalized

field nurses by the following percentages, as measured by the medians secured from the figures for the various kinds of agencies—in municipal health departments, 32 per cent; in county health departments, 27 per cent; in boards of education, 20 per cent; in state health departments, 39 per cent; in nonofficial agencies, 35 per cent; and in combination agencies, 22 per cent.

Directors of public health nursing services—The range of directors' salaries was from \$1,900 to \$9,500. The median salary was \$3,292.¹ The number of nurses employed in the service affects the directors' salaries more than does any other single factor, the salary increasing as the size of the service increases. Directors' salaries were higher in nonofficial agencies than in other types of services. Agencies employing 15 nurses and more were used to show comparisons of directors' salaries with supervisors' salaries. Directors' salaries exceeded those of supervisors by the following per cents in the various kinds of agencies: in municipal health departments, 12 per cent; in county health departments, 21 per cent; in state health departments, 32 per cent; and in nonofficial agencies, 48 per cent. Median salaries for each position were used for these comparisons.

Non-nurse professional workers—Among 69 nutritionists, the median salary was \$2,890; among 29 social workers, \$3,060; among 26 statisticians, \$3,043; and among 20 physical therapists, \$2,486.²

Full-time clerical workers—The range of annual salaries paid to 1,414 clerical workers reported on the Yearly Review schedules was from \$780 to \$4,500. The median salary was \$1,816. These figures also included any cost-of-living adjustments paid during the 12 months ended April 1, 1947. The median sal-

ary for generalized field nurses was \$2,290, which is 26 per cent above the median salary for clerks. About one-half of all the clerical workers received from \$1,550 to \$2,100.

Table 1 shows the kinds of clerical jobs listed on the schedule sent to the agencies, the number of each kind for whom salary data were given, and the median salaries for these groups.

TABLE 1

<i>Position</i>	<i>Number for whom salary data were received</i>	<i>Median annual salary</i>
Total clerical workers	1,414	\$1,816
Bookkeeper	55	\$2,047
Clerk	520	\$1,692
Registrar	27	\$1,950
Secretary	197	\$1,933
Stenographer	188	\$1,860
Switchboard operator	16	\$1,692
Typist	134	\$1,676
Various kinds of work ^a	190	\$1,750
All others ^b	87	\$2,111

^a Bookkeeper and secretary; clerk and stenographer; etc.

^b Statistical clerks; office manager; file clerk; insurance clerk; supply room clerk; receptionist etc.

Clerks working in Pacific Coast states received higher salaries than those in other sections of the country, their median salary being \$2,082. Clerks in the west south central states received low salaries, \$1,407 being the median. In all the southern states, clerical salaries were low, and also in New England. In the latter area, among 148 clerks, only 5 received \$2,160 or more, and 44 received less than \$1,440. Salaries of nurses varied rather similarly as to geographical areas, being highest in the Pacific states. In New England, however, only salaries in nonofficial agencies were markedly low.

Clerical salaries were higher in agencies employing 25 nurses and more than in the smaller agencies. Among 756 clerks in these larger agencies, the median salary was \$1,887; among 368 clerks in agencies employing less than 10 nurses, the median salary was \$1,645. Only 5 of the 23 full-time clerks in

one-nurse agencies were paid more than \$1,560 a year.³

HOURS OF WORK, OCTOBER, 1946

Weekly hours of public health nurses are shorter than those of most members of the nursing profession, and are generally on a level with the peacetime hours of most workers in the United States. However, like those in hospital work, some public health nurses are required to be on call beyond their regular time of duty.

Late in 1946 the typical public health nurse worked on a schedule of 8 hours a day and 40 hours a week or less; such schedules were reported by 7 out of 10 respondents. Schedules of less than 8 hours daily and 40 hours weekly, however, were frequent, being reported by half the school nurses and one-third of the other public health nurses. As Table 2 indicates, schedules of more than 44 hours were rare:

TABLE 2

<i>Work Schedule</i>	<i>Per cent of Nurses</i>
Less than 8 hours a day and 40 a week	36
8 hours a day and 40 a week	34
8 hours a day and 44 a week	21
8 hours a day and 48 a week	2
Schedules not reported	7

Actual hours of the public health nurse averaged 40 a week during October, 1946.⁴ Comparison of actual and scheduled hours indicates that a significant proportion of the nurses worked some overtime.⁵ Thus, although schedules in excess of 44 hours a week were uncommon, about 1 in 10 nurses worked 45 to 49 hours and another 1 in 20 was actually on duty over 50 hours a week. Of those who worked overtime, about 3 out of 5 received some compensation for this work, generally in the form of time off rather than additional cash pay.

A complete picture of working time is not provided by hours on duty alone, since about 3 out of 10 public health nurses reported that they were required

to be on call for some time in addition to their regular hours on duty during October, 1946. Typically they were subject to call for less than 20 hours during the month studied and actually were called to duty for less than 10 of these hours.⁶ Thus, time on call amounted to about 10 hours a month beyond time on duty for those nurses required to be on call. A few, presumably those who were the only nurses in small communities, reported more than 100 hours a month on call.

The Pacific Coast and the Middle Atlantic and Mountain states showed the shortest hours of work. The longest hours were found in the west central states, in which the average public health nurse was on duty about 43 hours a week in October, 1946. Hours on duty varied less among different types of public health agencies than did salaries. The longest hours were reported by county official nurses and the shortest by those working for federal and municipal governments; many of the latter are school nurses, who work less than 40 hours a week. The requirement of time on call was most common in non-official agencies.

PROFESSIONAL EXPENSES

During 1946 the average public health nurse spent \$83—about \$7 a month—for professional expenses. These

included purchase of professional equipment, membership in professional organizations, laundry, cleaning and purchase of uniforms, state registration fees, payments to nurses' placement registries, and expenses of transportation during working hours, not reimbursed by the employing agency. These average expenses were equal to those for all other fields of nursing considered together, although a comparatively high proportion of public health nurses (more than 1 in 7) reported annual expenses of \$200 or more. Presumably this group includes nurses who were required to maintain a car or pay for other transportation on the job out of their salaries. Expenses were somewhat higher for municipal and county official employees than for other public health nurses.

VACATION AND SICK LEAVE PLANS

Almost all nurses in the public health field receive paid vacations and sick leave after a year's service. Vacations in almost every case are at least 2 weeks long. The number reporting vacations of 2 weeks is equal to the number receiving 4 weeks or longer; 4 out of 5 nurses report these two periods. The longest vacations are provided federal government employees, who receive 26 working days of such leave annually, but most nurses working for nonofficial

TABLE 3

Annual Paid Vacations of Public Health Nurses with One Year's Service, by Employer

<i>Length of Annual Paid Vacation</i>	<i>All Agencies *</i>	<i>State Government</i>	<i>County Government</i>	<i>Municipal Government</i>	<i>Nonofficial</i>
All replies to question	1,008	165	168	271	288
Number	100.0	100.0	100.0	100.0	100.0
Per cent					
Per cent with paid vacations	97.2	97.0	99.4	95.6	97.9
One week	2.5	1.2	3.6	2.2	2.4
Two weeks	39.5	52.8	63.0	45.7	13.9
Three weeks	8.4	16.4	9.5	6.3	6.3
Four weeks or one month	33.9	13.9	13.1	24.0	65.9
Over one month	6.6	2.4	5.4	10.0	5.9
Other period	6.3	10.3	4.8	7.4	3.5
Per cent with no paid vacation	2.8	3.0	0.6	4.4	2.1

* Includes data for nurses who did not indicate their employer and for employees of the federal government, who receive 5 weeks (26 working days) of vacation annually.

agencies also reported vacations of at least 4 weeks. Employees of state and local governments (county and municipal) typically receive 2 weeks of vacation annually (Table 3).

Over half of the public health nurses receive 2 weeks of sick leave annually and one-tenth are allowed 1 week. The amount of leave allowed other nurses varies from less than 1 week to 3 weeks or more after a year's service. Sick leave is less frequent and the period allowed is shorter on the Pacific Coast than in the country as a whole. Most liberal sick leave provisions are reported by federal employees, who are permitted 15 work days of such leave each year.

RETIREMENT, INSURANCE AND MEDICAL CARE

Although provisions for retirement pensions are more common in public health than in all other nursing fields except industrial nursing, about three-fifths of the public health nurses are not covered by retirement pensions contributed to by their employers. Lack of provision for retirement and employment security was the leading source of complaint among public health nurses. Among the nurses covered by a retirement plan were all federal government employees and about half the nurses working for nonofficial and municipal agencies. However, only two-fifths of the state and less than 1 in 3 county nurses benefited from provisions for retirement pensions.

About 7 per cent of the nurses reported accident and health insurance and 8 per cent reported life insurance paid for at least in part by their employers. Such insurance was reported by relatively more employees of nonofficial organizations than of other types of public health agencies.

Provision of hospitalization and medical care paid for wholly or in part by their employers is less common for

public health than for other nurses; only 1 out of 6 members of this field reported such arrangements. Among those who receive any benefits of this sort, periodic physical examinations are most common, reported by 1 nurse out of 8. Nonofficial agencies provide such medical benefits more frequently than official agencies; 1 in 3 nurses working for these private organizations reported hospitalization, medical care or physical examinations or a combination of such benefits.

ATTITUDES

Public health nurses expressed less dissatisfaction with their work than nurse educators, private duty or institutional nurses, and were about as satisfied as industrial and office nurses. Their dissatisfaction was largely concentrated on 4 economic aspects of their work—lack of provision for retirement and security against unemployment, rate of pay, provisions for promotions and pay increases, and opportunities for promotions. These were also the leading sources of dissatisfaction in other fields of nursing. About 1 out of 3 public health nurses expressed dissatisfaction with each of these provisions, and they were more dissatisfied with their pay than were nurses in any other field except institutional work. One in 5 also criticised methods of settling grievances and making suggestions for changes in procedures (Table 4). Among the other aspects of their work considered individually, less than 1 out of 5 public health nurses expressed dissatisfaction; in most cases the proportion of dissatisfied replies did not exceed 1 in 10.

Federal employees were generally more satisfied; and those employed by county and municipal governments were less satisfied than other public health nurses. In summary, agency field nurses expressed the most dissatisfaction and school nurses the least.

TABLE 4

Opinions of Public Health Nurses Regarding Their Work

Item	Per cent of Nurses Expressing		
	Dissatisfaction	Satisfaction	No Opinion *
Retirement and employment security	37.5%	43.6%	18.9%
Methods of determining promotions and pay increases	33.1	39.6	27.3
Hourly rate of pay	31.6	35.2	33.2
Opportunities for promotion	28.2	37.1	34.7
Procedures for settling grievances and suggesting changes in procedures	19.8	51.5	28.7
Nonprofessional help	16.7	29.9	53.4
Quality of supervision	15.2	55.5	29.3
Educational opportunities	14.6	61.8	23.6
Timing of duties	13.4	47.5	39.1
Paid vacation provisions	11.2	72.1	16.7
Professional and social contacts and status	11.0	70.3	18.7
Proportion of time on professional duties	10.9	48.8	40.3
Number and arduousness of duties	10.2	44.9	44.9
Locker and restroom facilities	8.4	11.9	79.7
Length of work day and week	8.3	73.7	18.0
Opportunities to exercise professional judgment	8.2	73.9	17.9
The job as a whole	6.4	81.5	12.1
Pride or gratification in service to ill and community	6.2	71.4	22.4
Amount of time on call	2.8	23.4	73.8
Fees paid registry for jobs	2.2	3.5	94.3
Advance notice of hours schedule	2.0	34.3	63.7
Split shifts	1.4	2.2	96.4
Requirement of night-shift work	1.2	3.5	95.3

Total number of replies — 1,249

* Includes those to whom the item did not apply as well as those expressing no opinion.

SHORTAGE OF NURSING CARE

How do the salaries and other working conditions in public health and other fields of nursing affect the failure of the supply of nursing care to keep pace with increased demands? Available information indicates that these factors affect the supply of nursing care primarily because they do not attract potential student nurses. At present many such students apparently believe that office or factory work offers in comparison more attractive salaries and working conditions than those afforded by the nursing profession, especially when allowance is made for the fact that these other fields do not require the extensive training needed

by professional nurses. Reference to available data suggests that in terms of economic reward nursing may compare unfavorably with some other important categories of employment open to women. This points to an obvious remedy for the shortage of nurses.

REFERENCES

1. For further comparisons see *Pub. Health Nurs.*, Oct., 1947, p. 525.
2. For further comparisons see *Pub. Health Nurs.*, Feb., 1948, p. 94.
3. For further comparisons see *Pub. Health Nurs.*, Mar., 1948, p. 151.
4. Averages used here are medians (the values below and above which exactly half of the replies fell).
5. Actual and scheduled hours differ because of absenteeism and compensatory time off, on the one hand, and overtime, on the other.
6. These hours on duty are included but hours on call are excluded from the actual hours on duty discussed in preceding paragraphs.

Personnel Administration in Public Health*

ALBERT H. ARONSON

*Chief, State Technical Advisory Service, Federal Security Agency,
Washington, D. C.†*

PERSONNEL administration may be defined as the application of formal management techniques to the human relations problems of an organization. Obviously, the necessity for formalized techniques is open to question in any field. Are such techniques the result of sound experience and scientific validation, or are they the ritualistic procedures and mystifying jargon of the professional red-taper? Do they simplify or complicate the performance of the primary job for which the organization is established?

We cannot dodge the human problems in any agency. Personnel activities go on whether we have formalized techniques or not. Any organization, even the smallest, has problems of hiring staff, setting their pay rates, training and supervising them, establishing their hours and working conditions, making judgments as to their performance, discharging or promoting them. Whether an agency needs personnel administration in a formal sense varies with its size and character. It is important that the decision as to the use of personnel procedures and techniques be made after consideration of the experience of other organizations,

rather than in ignorance of such experience. The experience of both public and business organizations should be examined and the successes and failures considered by any public health department before it decides on the kind of personnel set-up adapted to its needs.

While the basic problems of staff management are the same in government and in industry, one additional consideration, not present in private industry, enters into the determination in a public agency as to whether to apply personnel administration as distinguished from personal administration. Even in the same activity, there is some difference between administration in an organization that is the private property of those who direct it, and a public agency, owned by the citizenry at large. An implication of political democracy is the right of people to scrutinize administrative processes. This affects such administrative processes as selection. For example, the public in a democracy regards it as a right of a citizen to be considered for a career in public employment on the basis of objective evaluation of his qualifications rather than on the basis of his personal appeal to the administrator. In other words, in addition to utilizing the contribution of personnel administration to more effective management of the organization, which is the primary consideration, a public agency must give incidental consideration to doing this in

* Presented before the Merit System Unit of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 7, 1947.

† The opinions expressed in this statement are those of the writer, and do not necessarily represent the views of the Federal Security Agency.

a way which recognizes citizen concern in a merit system as a nonpartisan and democratic instrument of government.

Whenever we consider the question of formalized administration, we have to consider an aspect of what might be called the polarity between rule and discretion. This is true of formalized personnel procedures as it is true in other areas. If one operates under rules, certain difficulties appear. A system based on binding regulations may be rigid and may tend to become legalistic. On the other hand, without any regulations, action may be unpredictable and administration chaotic. Uncontrolled discretion may be exercised wisely and consistently, or arbitrarily and even venally. There is no easy answer to the dilemma. It is difficult, but not impossible, to have a system that is objective and understandable, yet with sufficient flexibility in administration to meet new problems as they arise. Certainly, the emphasis should be upon realistic and resilient administration rather than upon regulations as such. As I have said on another occasion, the emphasis in a merit system should be on merit rather than on system. However, unless definite personnel rules are promulgated, adequate machinery established, and proper procedures installed, the merit principle may not be put into effect. The necessity for rules and understandable procedures is more important in those aspects of the merit system that deal with public competition for jobs. But effective dealings with employees in an agency also require a clear understanding on their part of the conditions governing employment.

We have to be careful that we do not include, in formal regulations, provisions which fail to contribute to the efficient functioning of the specific agency and which are not necessary from the overall standpoint of a public agency in a democracy. We must find

means of attaining some degree of objectivity in procedures without sacrificing essential flexibility of administration. Experience in the field of personnel administration will help us by holding up horrible examples as well as instances of real contribution to smooth operation.

Personnel administration has grown up as an incident of large scale administration, first in industry and then in government. Contributions to its method come from two major sources: industrial engineering and psychology. When the economic system depended for industrial production largely upon the artisan, with perhaps an apprentice or two, there was little need for personnel administration as such. With the industrial revolution and the development of large scale industry, management had to become more conscious of its problems in planning, organizing, and coordinating its activities. The human relations aspects of the work situation could no longer be handled in the same way as when the master craftsman and his apprentice worked side by side. Problems of selection, supervision, training, and labor relations emerged. The high paid vice-president in charge of personnel is an illustration of the value that big business sets on increased production through improved human engineering. The management techniques developed by the industrial engineer are illustrated in the personnel field by such developments as job analyses and systems of job classification, by salary surveys and pay scales set on recognized bases. Many of these techniques are applicable in public agencies.

There is another source from which techniques used in modern personnel administration stem—the research of the psychologist, particularly the psychometricians. Human nature is almost countlessly permuted in its variability from person to person. Acceptance of the con-

cept of the range and quantifiability of individual differences is relatively new. The methods of defining and measuring these differences are still newer. Scientific research has established the fact that individual differences can often be measured by methods that do not seem valid on their face. This is comparable to measuring body temperature by something that at first glance seems wholly unrelated—a column of mercury in a glass tube.

Even though we all cherish, to some extent, the notion that we are good judges of people, the utilization of scientific techniques in selection has been so well demonstrated, both in industry and in government, that its value is not seriously questioned even by those who oppose its use on the grounds of feasibility in a given situation. It should be noted that there is a tendency to underestimate rather than to overestimate the differences in the capacity of individuals engaged in a given operation. We sometimes tend to speak of education and experience as though all persons exposed to the same education and experience were of relatively equal competence. In practice, we do not actually accept this, but sometimes we draw up qualifications statements that seem to imply it. Experience has indicated the very real contribution to selection that the application of modern scientific techniques can make in the field of public health.

In considering the utilization of personnel administration in a large organization, we must recognize that the head of such an organization cannot possibly specialize in these problems. His primary task is the application of content in his own professional field; and in a field such as public health, where the boundaries are constantly expanding, keeping abreast of professional developments is itself a most difficult task. It has been said that doctors make poor administrators. I do not believe that

this is necessarily so; there are numerous instances of outstanding professional administrators. However, concentration on professional content may tend to make one ignore or minimize the administrative aspects of his job. Moreover, in the professions there is an individualistic tradition which fosters perfectionism. In medicine the doctor usually starts out as an individual practitioner. It is difficult for someone brought up in that tradition to delegate important responsibility.

The administrator in a professional field must give important attention to administrative management, as well as to professional content. As part of this concern with administration, he must find some way of divesting himself of details in personnel as well as in other administrative areas. Nevertheless, every administrator must concern himself with the handling of men in his organization. He should, therefore, set basic personnel policies but avail himself of technical assistance in their development and application. This implies having a personnel officer, though not necessarily a full-time one. A word of caution might be added here: there is no particular virtue in setting up a job of personnel officer if it is not filled by someone of real competence. The selective process is critical; one cannot identify merely by training or experience those who have a real contribution to make. The public health field has no monopoly on incompetence. There are persons in the personnel field, as well as in other fields, who are lacking either in technical knowledge or intelligence or in the personal attributes necessary in a human relations job. Those dealing with personnel problems require not only a high intelligence and knowledge of the field, but also sensitivity to the reactions of others, freedom from bias, and flexibility in individual and social situations.

Assuming that a public health department obtains a qualified personnel

officer, just what will he do? I will not attempt to detail all the activities of the personnel office but will deal with some illustratively.

An essential to efficient management is analysis of each job to be done and its definition in terms understandable to the worker and useful for other personnel processes such as selection and training. The classification of jobs on the basis of their duties and responsibilities simplifies many phases of administration. The process has important administrative implications in avoiding overlapping or gaps in responsibility. However, job classification must not become an end in itself or become shrouded in specialized terminology. Participation of the administrative officials of the agency and of the employees of the agency is necessary in classification even if it is done by a civil service agency or outside consultants. Similarly, the collection and analysis of data as a basis for establishing pay plans should be approached in a simple and straightforward fashion. A pay plan must not only be based upon some equitable principle, such as paying like rates for like jobs, but must provide for recognition of superior individual performance. This is done through a plan for periodic salary advancement based upon considerations of seniority and efficiency.

Employee training is sometimes neglected in an agency which is too small to have a full-time training officer. Since training is essentially part of effective supervision, every agency can and should have a training program. The role of the personnel or training officer is essentially that of stimulating and facilitating the development of a coordinated program rather than the giving of training courses. However, certain types of induction training, involving the introduction of the employee to the organization and giving him basic information about its structure and

regulations, may be the direct responsibility of the personnel officer. Various types of technical training on the job should be given by the best available specialists. The program as a whole should be planned to permit employees who come in on the lower rungs of a career ladder to rise as they become fitted to assume greater responsibilities. Liaison with educational institutions and the development of a policy for educational leave are related activities. The preparation of employee handbooks is another common function of the personnel office.

The personnel office should also be concerned with services to employees in relation to their individual problems, an activity sometimes called counselling. In any organization there is a wide range of individual problems from that of housing of employees in a community new to them to more intimate personal problems. Employees may have financial or domestic troubles affecting their work which they would be loath to discuss with their supervisors but on which they would welcome sympathetic and understanding help outside the line of supervision. Other personnel activities include employee relations, both with unions or other organized groups, and in connection with individual grievances. The establishment of a suggestion system has been found worth while in some organizations.

The process of evaluating employee performance is an inescapable one. One talks in the personnel field about service ratings as a formal method of recording periodic judgments. We must not let jargon obscure the fact that we are recording opinion. The administrator must decide whether it is better to do this systematically or informally as the need arises for a judgment. There is evidence to support the view that a system of service ratings, based upon standards of job performance, will improve the process of judgment and

supervision, but it is important to note that these performance standards must be developed within the organization. If a service rating form and procedures are transplanted from one state to another, without considering whether they are needed and wanted by supervisors and staff, the result may be red tape and the hampering rather than the simplifying of administration.

Problems of employee placement, separation, and promotion may be facilitated by the personnel office. The functions of such an office include working with the civil service or merit system agency in relation to examinations. Such liaison should help in achieving a planned examination program and in speeding up the examination process. The personnel office may also give assistance in recruiting and utilization of professional consultants by the civil service agency.

I do not propose to discuss the subject of civil service at any length, but it should be noted that the civil service field furnishes an admirable example of our American tendency to regard problems as solved when laws are passed. There have been several waves of civil service reform, bringing with them statutory establishment of formal systems. Some of these are well administered; some are poorly administered. The existence of a civil service system is no guarantee that it is better than a spoils system. Inevitably the best civil service system brings with it a certain amount of rigidity. How much of this is necessary is debatable, and how much is a reasonable price for freedom from worse alternatives is also debatable. It has been said that the only thing worse than civil service is no civil service. I do not believe that we have to accept a rigid system that does not in point of fact produce results commensurate with the time and effort involved. In order to achieve such results, it is essential that persons engaged

in various professional fields such as public health play a continuing and energetic role in the administration of the system. They must understand it; they must criticize it.

It is well to remember that it is the operation of the system that we must evaluate and not merely its framework. The best examination is of no value if it is so long drawn out that competent candidates are lost in the process. The most elaborate administration of a compensation plan is valueless if the basic pay rates are such that competent persons cannot be recruited and retained. The implications of this for the public health field are clear. Professional personnel must be utilized at various places in the merit system process—in recruitment, consultation on examinations, and evaluation of results. Within agencies, supervisory staff and professional personnel must be concerned with personnel practices, including the development of performance standards as a basis for rating employees, the establishment of realistic qualifications that will broaden the recruitment base and permit the selection of the best available persons, and the establishment of working conditions that will promote efficiency and job satisfaction.

It must be recognized that the techniques of personnel administration, even though of proved value, are no substitute for administrative leadership. The head of any organization must have interest in staff problems, courage, and perspective, as well as professional competence. Personnel administration may aid the good administrator, but it cannot take his place.

It has often been said that formal merit systems prevent the discharge of employees. This is true in some cases, but, basically, discharging anyone is an unpleasant job. All of us know of educational institutions and business organizations where deadwood is tolerated because of inertia or the unwillingness

of executives to take needed action and stand up under pressure. If a personnel system is so tied up with red tape that it is impossible to discharge the incompetent, there is something wrong with the system. We should not accept something that is called a merit system and stop there. There are systems that impede good administration, and there are some that are definitely aids to good administration. Within any jurisdiction, one must critically examine the functioning of the system and vigorously support its sound features, and just as vigorously support necessary change.

In a scientific field, open-mindedness is clearly a condition of progress. Yet it is a curious thing that, outside their own fields, scientists may permit their unexamined prejudices to govern their actions. The attitude of administrators in the public health field toward personnel administration should be open-minded but not naive. One who looks to personnel administration as a panacea for administrative ills is doomed to disappointment. Unquestioned acceptance is as bad as defeatist cynicism. Properly applied, the techniques of personnel administration can contribute to the solution of management problems but will not prevent those problems from recurring. Improperly applied, the same techniques can be a source of continuing frustration to the administrator.

In a governmental organization, we do not have a criterion of profit to determine success or failure. Nevertheless, evaluation of accomplishment is imperative. The criterion of public service is the substitute for the criterion of profit. I sometimes think that we do not recognize that there is as much of a difference in efficiency between the best administration and the poorest administration of a governmental or-

ganization as there is between a firm that makes a handsome profit and one that goes bankrupt because of inefficiency. There are public agencies that should file petitions of bankruptcy, and there are others that are entitled to stand upon their records. We tend to blanket them all together as bureaucracy. Before the public and legislatures can make a valid differentiation, administrators themselves must be prepared to recognize the differences and evaluate the causes.

I do not mean to imply that a total program should be evaluated on the basis of its personnel administration. An agency may have a poor personnel program and a good health program, or it may have a good personnel program and a poor health program. Nevertheless, if one examines the proportion of the budget of any health department that is spent for personal services, the critical importance of personnel administration will be apparent. It will be agreed that the human element looms large and that the job satisfaction and the efficiency with which the individuals are performing their work are important factors in the success or failure of the program.

At the same time that we keep in view the primary goals of the organization and assure adequate attention to professional content, we must include within our perspective the techniques of administrative management. Personnel administration, of course, will not solve the human relations problems of any organization, but it should promote more effective management and hence promote the accomplishment of the primary goals of the organization. Effective personnel administration has a modest but nevertheless significant contribution to make in attaining the goal of effective public service.

Factors of Sewage Pollution of Oyster Beds in Galveston Bay*

ROBERT I. WISE, PH.D., JOE B. WINSTON, B.S., AND
GEORGE CULLI, JR.

Director of Bacteriology and Serology Laboratories, John Sealy Hospital, School of Medicine, University of Texas, Galveston, Tex.; Sanitary Engineer, Sigler, Clark & Winston, Consulting Engineers, Weslaco, Tex., Formerly Associate Professor, Department of Preventive Medicine and Public Health, School of Medicine, University of Texas, Galveston, Tex.; Supervisor of Shellfish Sanitation, Division of Engineering, The Texas State Health Department, Austin, Tex.

IN February, 1944, an outbreak of food poisoning occurred in Galveston as the apparent result of eating raw oysters at a fraternity banquet. No samples were available for laboratory examination; however, the exact meal was easily determined in that several guests and members who were ill ate all other meals at their homes. Epidemiological evidence showed conclusively that raw oysters were the cause of the outbreak, and all other foods served were eliminated. These facts have been reported by Wise, Winston, and Nau¹ in an earlier publication. A thorough bacteriological study of oyster beds in Galveston Bay, where the oysters had been collected, was instigated to determine the sanitary conditions of the oyster beds and to study various factors which might influence sanitary quality.

It has long been known that oysters may carry pathogenic bacteria. Many cases of typhoid fever and gastrointestinal disturbances have been attributed to oysters and other shellfish. In 1818,

several decades before the discovery of microorganisms as the cause of infectious diseases, Pasquier² concluded that cases of gastrointestinal illness resulted from the eating of raw oysters collected in sewage polluted waters. Johnston-Travis³ in 1895 attributed cases of typhoid fever and enteritis in Naples and Rome to oysters which had been dredged from clean waters and kept for a period of days or months in water near a sewage drain. In Brighton, England, the cases of enteric fever ascribed yearly to oysters by News-holme⁴ were 21 in 1894, 19 in 1895, 31 in 1896, 30 in 1897, 41 in 1898, 52 in 1899, 17 in 1900, 9 in 1901, and 21 in 1902.

An epidemic of typhoid fever occurred at Wesleyan University in Middletown, Conn., in 1894, and was reported by Conn.⁵ Thirty cases were involved, and 4 deaths occurred. All had eaten at a fraternity supper where raw oysters had been served. In an excellent epidemiological investigation it was found that the oysters had been obtained from a fisherman who kept them in a river near his sewer outlet. The fisherman's wife had died of typhoid fever and his daughter was ill with the same disease.

* This study was made at the Medical Branch of the University of Texas when Robert I. Wise was Assistant Professor in the Department of Bacteriology and Joe B. Winston was Associate Professor in the Department of Preventive Medicine and Public Health.

Broadbent⁶ in 1895 reported 11 cases of typhoid fever caused by eating oysters. Thresh and Wood⁷ in 1902 reported cases of typhoid fever and gastroenteritis caused by oysters bought from one dealer. Evidence collected by Marvel⁸ in 1902 pointed to oysters as the source of many cases of typhoid fever in Atlantic City. The oysters were being "fattened" in water polluted by sewage from the city.⁹

An outbreak of 50 cases of typhoid fever was described by Brooks¹⁰ in 1916. These cases occurred in 6 municipalities in New York State, in 3 of which there had been no cases in over 10 months and in one none in 5 months. There was apparently no possible common source of infection other than oysters purchased from various dealers.

Extensive outbreaks of typhoid fever occurred in Chicago and New York at the same time in 1925. Reports were made by Bundesen¹¹ and Harris.¹² In Chicago 129 cases involving 16 deaths occurred in 52 days. All foods except oysters were excluded as the probable cause. The oyster plant which had supplied the oysters was located on Long Island and found to be in excellent sanitary condition. Oysters had been received from beds where two fishermen were employed. These men had typhoid fever, and each day during the incubation period of their illness, they had worked over the oyster beds and, having no toilet facilities on the boat, their discharges were dumped overboard on to the oyster beds. A large sewer line was also found to be emptying approximately 100,000,000 gal. of sewage into a nearby area. In the New York epidemic there were 914 cases of typhoid fever, of which 506 gave a definite history of eating oysters as the only likely source of infection. The water supply, milk, ice cream, ice, and vegetables were eliminated as a source of infection.

Extensive bacteriological studies of

oyster beds have been made along the Atlantic Coast of the United States. Narragansett Bay was studied by Fuller¹³ in 1902 at which time the City of Providence, R. I., was discharging daily about 14,000,000 gal. of sewage into the bay. Studies showed that water and all oysters within 2 miles from the sewer opening showed coliform organisms; 30 per cent of oysters and 60 per cent of water samples 5 miles from the sewer showed coliform organisms.

Johnston¹⁴ studied the effect of the tide on evidences of sewage pollution in water above oyster beds. He found the number of coliform organisms to decrease during flood tide and increase significantly during ebb tide. These results demonstrate the variation in results one may obtain by making only one test or paying little attention to conditions which may influence the laboratory results.

Several investigators have observed a definite relation between the temperature of water and coliform content of the oysters. Gorham,¹⁵ Joseph,¹⁶ and Gage and Gorham¹⁷ demonstrated that in waters along the northern Atlantic Coast of the United States the bacterial content of oysters in polluted water at low temperatures is abnormally low. As soon as the temperature of the water began to increase, the coliform content of the oysters increased to a high count which was held throughout the summer and decreased in the fall. This phenomenon was attributed to the slowing down of physiological activity of the oysters as a result of decreasing temperature. Observations on the physiology of oysters at various temperatures were made by Galtsoff.¹⁸ The rate of flow of water produced by the gills of the oysters is controlled by the temperature. No current is produced at 5°C. and below, and the oyster remains closed and in a state of hibernation. Bacteria are eliminated. The

water flow in the oyster begins as the temperature reaches 8°C. The optimum temperature for maximum water flow was reported by Galtsoff to be between 25° and 30°C., at which temperature the maximum rate of flow was 3.9 liters per hour. Cumming,¹⁹ studying the sanitary conditions of shellfish in the lower Potomac River, found that January and February were the months when the coliform content of water at the mouth of the river was highest and the coliform content of the oysters from the same locality was lowest.

THE PRESENT INVESTIGATION

It was the purpose of this investigation to (1) learn some of the important facts concerning sewage pollution of oyster beds and the water over the beds, (2) to follow the changes in pollution by frequent sampling over a period of time, (3) to study the effect of external factors on sanitary conditions, and (4) to determine whether or not conclusions based on similar studies made along the North Atlantic Coast of the United States are applicable for conditions in the Gulf Coast area.

Hopkins²⁰ has pointed out differences in oyster culture in waters of the Gulf Coast and those of the North Atlantic Coast even though the oysters are of the same species (*Ostrea virginica*). Oyster reefs on the Gulf Coast are usually found in shallow water no more than 2 to 8 feet below low water level, whereas, in northern waters, oyster beds may be under much deeper water. The shallow bays of the Gulf Coast are more readily affected by rains and changes in temperature. The spawning season of oysters in southern waters is long as compared to a short season in northern waters. It is known that in northern waters low temperatures are reached and the oysters enter a state of hibernation. Water temperatures reported necessary for hibernation

and cessation of water flow and feeding in the oyster in northern waters are rarely reached in Gulf Coast waters. According to Gunter²¹ oysters of the Gulf Coast do not hibernate, but feed and grow mainly during the winter and are fattest in the late winter and early spring.

Galveston Bay and its oyster reefs have been described by Galtsoff.²² The bay extends 24 miles from its entrance at Galveston Island to Morgan's Point at the mouth of San Jacinto Bay. It has an average depth of 7 feet. Its branches are East Bay, which is separated from Galveston Bay by an oyster reef (Hanna Reef), Trinity Bay on the north, and West Bay on the south. Red Fish Bar is a chain of oyster reefs extending from Edwards Point to Smith Point, and divides Galveston Bay into southern and northern parts. Three major watersheds discharge fresh water into Galveston Bay. The Buffalo Bayou watershed collects water from the Houston area and serves as the Houston ship channel. Buffalo Bayou watershed is 75 miles long and is 1,065 sq. mi. in drainage area. It enters Galveston Bay through San Jacinto Bay at Morgan's Point. San Jacinto River watershed serves a drainage area 3,018 sq. mi. in area and heads 140 mi. from its entrance to Galveston Bay at San Jacinto Bay. Trinity River serves a large area, 17,600 sq. mi. in drainage area, and heads 360 mi. from its mouth at the northern part of Galveston Bay.

Three oyster reefs in Galveston Bay are used for commercial harvesting. The locations of Hanna Reef and Red Fish Bar are mentioned above. Half-Moon Reef was the third reef studied in this investigation and is located approximately 1 mi. east of Texas City and north of the Texas City dike.

Untreated and partially treated sewage enters Galveston Bay from several sources. Houston, during the year of

this investigation, was discharging untreated and partially treated sewage into Buffalo Bayou. Texas City discharged daily approximately 500,000 gal. of domestic sewage directly into Galveston Bay south of the dike, and the city of Galveston discharged approximately 12,000,000 gal. of sewage daily into the harbor north of the city between Galveston and Pelican Islands. Smaller communities around the bay and located on Buffalo Bayou and Trinity River contributed to the pollution.

METHOD OF STUDY

Five water samples were collected from each reef every month from March, 1944, through January, 1945, with the exception of the months of April, May, and June, 1944. Oyster samples were collected from each reef every month from July, 1944, to January, 1945.

Both the total coliform content and the *Escherichia coli* content were determined on all water and oyster samples using the procedures of *Standard Methods for the Examination of Water and Sewage*²³ to determine the most probable number per 100 ml. of sample by inoculating 5 portions in each of 3 dilutions in geometric series in tubes of lactose broth, streaking to E.M.B. agar and transferring typical coliform colonies to lactose broth and citrate agar. The oysters were prepared and studied according to *Recommended*

Procedures for Bacteriological Examination of Shellfish and Shellfish Waters.²⁴ Koser's citrate broth was used to differentiate *E. coli* from other coliform organisms.

Measurements for salinity and turbidity were made on each sample of water. Water and air temperatures were recorded at the time of collection.

RESULTS

The coliform content of the water (Table 1, Figure 1) was found to be greatest in late winter and early spring. The two reefs, Red Fish and Half Moon, which are close to sources of pollution, showed a decrease during summer months. The coliform content of water over Red Fish and Half Moon Reefs decreased from 947 and 852 respectively in March, to less than 10 for Red Fish and less than 30 for Half Moon in July. These lower values were held through the summer and fall. In January the coliform content increased to 482 for Red Fish and 378 for Half Moon. Hanna Reef which is not near the ship channels and less subject to currents which would accumulate sewage, showed least evidence of pollution; the highest coliform content found was 11 in March.

The coliform content of the oysters (Table 2, Figure 1) in general follow the same course as that of the water. The coliform contents of oysters in July were Red Fish 49, Half Moon 100, and Hanna 49. Red Fish and Hanna

TABLE 1

Coliform Content of Water Samples
Most Probable Number per 100 ml.

		Mar.	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Red Fish Reef	Av.	947	1	6	1	0	1	3	482
	Max.	1,600	5	33	2	0	2	8	1,600
	Min.	350	0	0	0	0	0	0	70
Half Moon Reef	Av.	852	23	0	25	26	0	3	378
	Max.	1,600	49	0	79	33	0	3	540
	Min.	170	2	0	2	2	0	2	180
Hanna Reef	Av.	11	1	0	1	1	0	1	0
	Max.	17	2	0	2	2	0	2	0
	Min.	4.5	0	0	0	0	0	0	0

FIGURE 1—Mean Coliform Contents of Oysters and Water over the Oyster Beds from March, 1944, to January, 1945

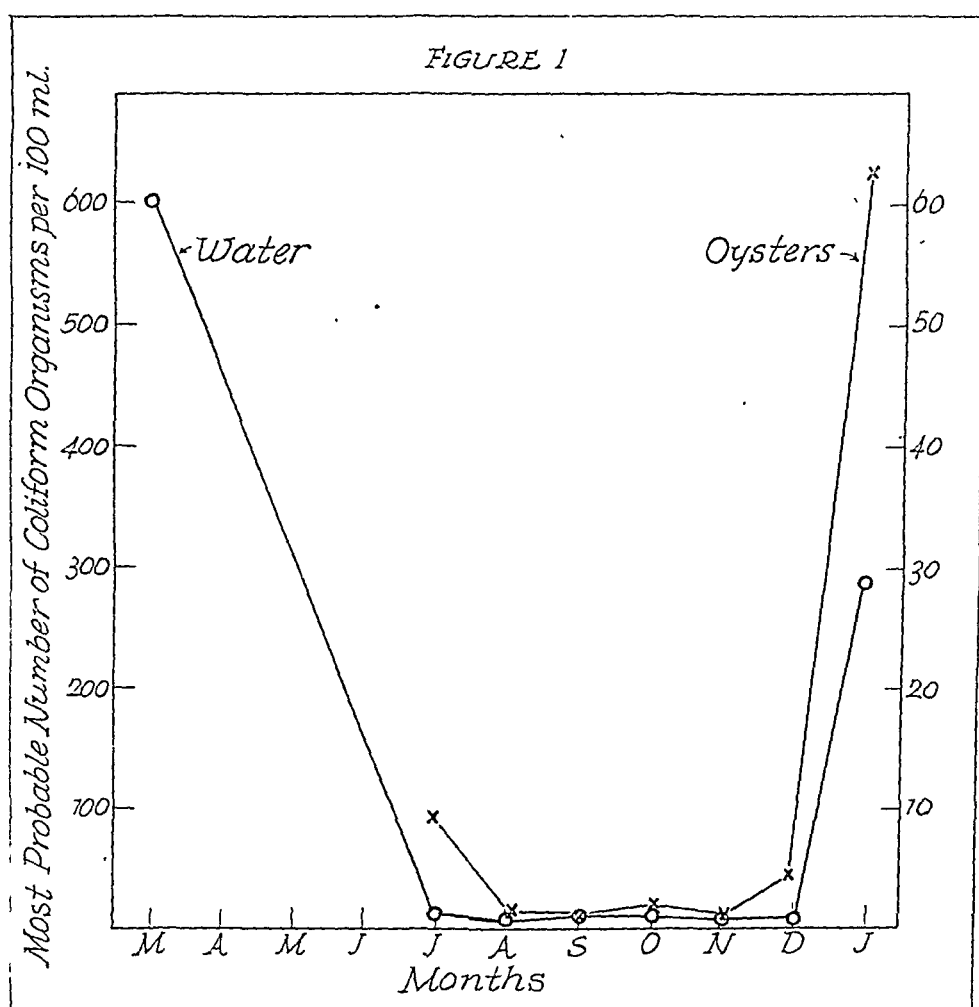


TABLE 2

Coliform Content of Oysters
Most Probable Number per 100 ml.

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Red Fish	49	2	2	0	6.8	4.5	1,600
Half Moon	170	17	22	45	13	110	240
Hanna	49	0	2	0	2	6.8	23

showed decreases to numbers less than 10. Half Moon fluctuated between 13 and 45 from August to November. Half Moon showed an increase to 110 in December and 240 in January. Red Fish showed the highest coliform content observed in January when an increase to more than 1,600 occurred.

The oysters show greater numbers of

coliform organisms per 100 ml. than does the water, as is shown in Figure 1. Little information is gained by calculating the ratios of coliform contents of the water to those for the oysters. Ratios vary from 0.008 to 2.7 and do not correlate with temperature, season, or any other factor studied.

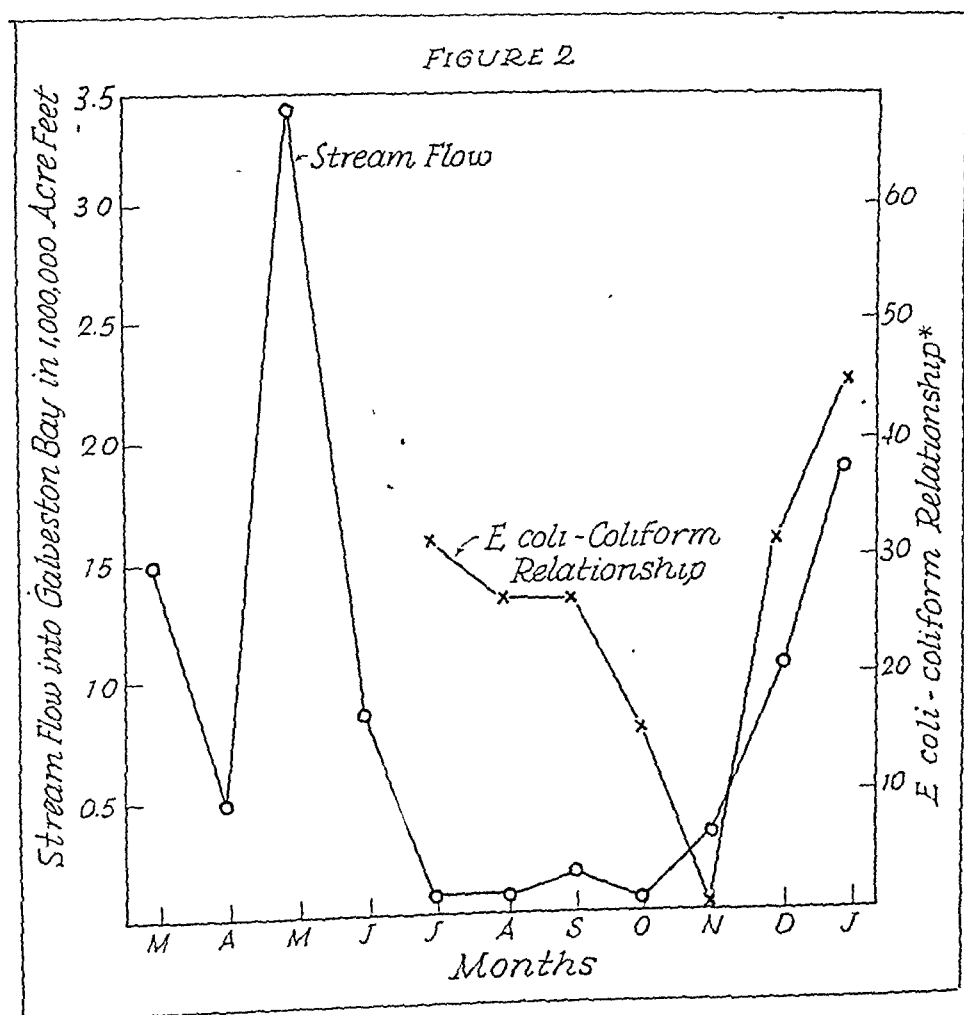
The turbidity of the water was found

to be high (400-550 p.p.m.) in late winter and fell to approximately 50 p.p.m. in July, a value held until December. In January turbidity increased to 110-215 p.p.m. All reefs showed approximately the same fluctuations in turbidity during the year.

Salinity of the water was low during the winter months and higher during summer and fall. Half Moon Reef being nearest the Gulf showed naturally

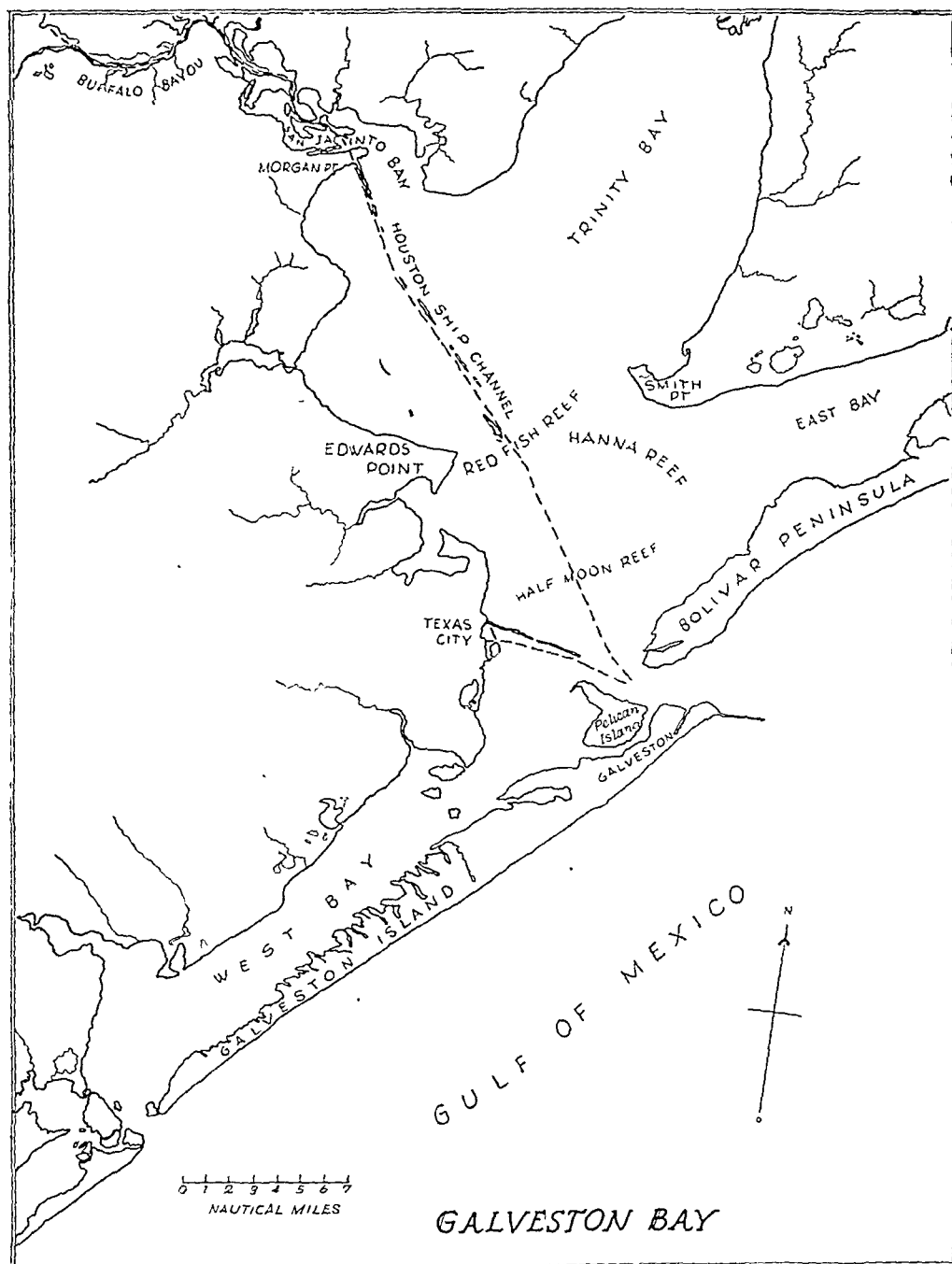
the greatest salinity and Red Fish Reef the lowest, since it is nearest the mouth of Buffalo Bayou and Trinity River. Since Half Moon Reef showed greater evidence of pollution than Red Fish Reef, it can be concluded that cities discharging domestic sewage near the Gulf end of the bay contribute to the pollution of the oysters in the bay, in that sewage is carried into the bay by tidal currents; otherwise Red Fish Reef

FIGURE 2—Relationship of *E. coli* to Total Coliform Water Samples over Oyster Beds in Galveston Bay in Comparison with Total Stream Flow into Galveston Bay during the Same Season



* This relationship is represented by the formula $100-100 \left(\frac{\text{MPN } E. coli}{\text{MPN coliform}} \right)$. Only water samples containing more than 2 coliform organisms per 100 ml. were used in the calculation.

FIGURE 3



would show greater evidence of pollution than Half Moon Reef since all the fresh water entering Galveston Bay from the Trinity River and Buffalo Bayou watersheds crosses Red Fish Reef.

It was observed that during the period of this investigation the temperature of the water never reached the point necessary for hibernation of the oysters and cessation of water flow through the oysters. In the 20 year

period (1922-1942) the lowest mean temperature value for any month was 7.9°C., which occurred in January, 1940. The minimum temperature fell below 5°C., the temperature reported by Galtsoff as necessary for cessation of water flow, during the years 1924 (4°C.) 1940, (1.5°C.), and 1942 (4.5°C.). It can be concluded that oysters in the Gulf Coast area rarely reach the low temperature at which water flow ceases and bacterial flora is decreased as reported by investigators who have made similar studies in North Atlantic waters.

A comparison of Figures 1 and 2 shows that the coliform contents of the water and oysters during the year vary directly with the stream flow into Galveston Bay. They vary inversely with the temperature of the air and water. It is natural that salinity varied inversely and turbidity varied directly with degree of pollution, since these factors are dependent on stream flow.

It is evident that a high coliform count in the water and oysters occurred concurrently with an increased flow of fresh water into the bay during the winter and spring seasons. The coliform content of the oysters increased as the temperature of the water decreased, and was highest during the latter part of the "oyster season." These findings are in contrast to the reports of Gorham^{15, 17} and Joseph,¹⁶ who reported higher coliform counts during the summer and lower counts during the winter.

Figure 2 shows the relationship of *E. coli* to the total coliform content of the water samples. The ratios of the mean values of *E. coli* to the total coliform content of the samples have been calculated as percentages and subtracted from 100 per cent in order to invert the curve for better comparison with variation in stream flow. It can be observed that as the stream flow was at a minimum during the summer

and fall season, the percentage of *E. coli* among the total coliform group increased. As stream flow into the bay increased in December and January the percentage of *E. coli* decreased.

It is possible that these results may be explained by differences in dilution of sewage by drainage water during various seasons. In winter and spring there is more rainfall and greater dilution of sewage with a decrease in *E. coli* per unit volume of water. In the summer and fall seasons there is less rainfall over the drainage area and the decreased dilution of sewage results in an increased percentage of *E. coli* in the total coliform group per unit volume of water.

SUMMARY

The changes in coliform content of oysters and water above the oyster reefs in Galveston Bay, Tex., were found to decrease in the spring, remain at low level from July to December, and increase to high values during January. This is in contrast to reports made by investigators who have made similar studies along the North Atlantic Coast and report a decrease in coliform organisms as the temperature of the water falls.

On the Gulf Coast the temperature of the water rarely decreases to a point necessary to cause hibernation of the oyster and cessation of water flow, thus the oysters do not show a decrease in coliform content when harvested from polluted waters during the usual winter temperatures, as has been reported for oysters of the North Atlantic Coast.

Oysters usually showed greater pollution than the water, however, ratios of coliform contents of water to oysters did not correlate with other factors studied and were of no informative value.

The total volume of water entering the bay each month correlated with the degree of pollution. Salinity varied in-

versely with the volume of water entering the area and inversely with the coliform content. Turbidity of the water varied directly with the water volume and directly with the coliform content.

The percentage of *E. coli* to total coliform flora in the water over the oyster beds increased from July to November as stream flow was minimal. The percentage decreased markedly in December and January as stream flow into Galveston Bay increased.

REFERENCES

1. Wise, R. I., Winston, J. B., and Nau, C. A. An Outbreak of Food Poisoning Resulting from Eating Contaminated Raw Oysters. *Texas Reports on Biology and Medicine*, 2:251-258, 1944.
2. Pasquier, J. P. A. Essai Medical sur les Huitres. Collection des Theses soutenues a la Faculte de Medicine de Paris. *Tome Huitieme*. No. 231, VIII, Paris, 1818, 49 pp. (From Galtsoff, Ref. 18.)
3. Johnston-Travis, H. J. The Possible Conveyance of Certain Water-Borne Diseases Especially Typhoid Fever, by Oysters and other Molluscs. The Relationship of Oysters to Typhoid Fever and Gastro-Enteritis. *Brit. M. J.* 559-560 (Mar.), 1895.
4. Newsholme, A. The Spread of Enteric Fever and other Forms of Illness by Sewage Polluted Shellfish. *Brit. M. J.* 295-297 (Aug.), 1903.
5. Conn, J. W. The "Oyster Epidemic" of Typhoid Fever at Wesleyan University. *Med. Rec.* 46:743-746, 1894.
6. Broadbent, W. A Note on the Transmission of the Infection of Typhoid Fever. *Brit. M. J.* Jan., 1895, p. 61.
7. Thresh, J. C., and Wood, F. L. Report on an Outbreak of Typhoid Fever and other Illness Due to Oysters. *Lancet* Dec., 1902, pp. 1567-1570.
8. Marvel, P. On the Occurrence of Typhoid Fever in Atlantic City. New Jersey Board of Health *Ann. Rep.*, 26:80-81, 1902.
9. Atlantic City Academy of Medicine. Report on Typhoid Fever at Atlantic City. *Philadelphia M. J.*, 10:634-635, 1902.
10. Brooks, P. B. An Outbreak of Typhoid Attributed to Infected Oysters. *J.A.M.A.*, 66:1445-1447, 1916.
11. Bundesen, H. N. Typhoid Epidemic in Chicago Apparently Due to Oysters. *J.A.M.A.*, 84:641-650, 1925.
12. Harris, I. H. Typhoid Fever. Features of Public Health Interest of the Recent Outbreak of Typhoid Fever. New York City Department of Health, *Month. Bull.*, 15:18-63, 1925.
13. Fuller, C. A. Oysters and Sewage in Narragansett Bay. *Science*, 15:363-364, 1902.
14. Johnstone, J. Routine Methods of Shellfish Examination With Reference to Sewage Pollution. *J. Hyg.*, 9:412-440, 1909.
15. Gorham, F. P. Seasonal Variation in the Bacterial Content of Oysters. *A.J.P.H.*, 2:24-27, 1912.
16. Joseph, M. Bacteriological Findings in Baltimore Oysters. *Johns Hopkins Bull.*, 25:128-131, 1914.
17. Gage, S. D., and Gorham, F. P. Self-Purification of Oysters During Hibernation. *A.J.P.H.*, 15:1057-1061, 1925.
18. Galtsoff, P. S. Experimental Study of the Function of the Oyster Gills and its Bearing on the Problems of Oyster Culture and Sanitary Control of the Oyster Industry. *Bull. Bureau of Fisheries*, 64: Doc. No. 1035, 1928.
19. Cumming, H. S. Investigation of the Pollution and Sanitary Conditions of the Potomac Watershed with Special Reference to Self-Purification and Sanitary Condition of Shellfish in the Lower Potomac River. U. S. Public Health Service, Hygienic Laboratory *Bull. No. 104*, 1916, 239 pp.
20. Hopkins, A. E. Factors Influencing the Spawning and Setting of Oysters in Galveston Bay, Texas. *Bull. Bureau of Fisheries*, 47, 3:57-83, 1931.
21. Gunter, G. Seasonal Conditions of Texas Oysters. *Proc. & Trans. Texas Acad. Sci.*, 25:89-93, 1942.
22. Galtsoff, P. S. Survey of Oyster Bottoms, in Texas. Bureau of Fisheries, *Investigational Report*, 1, 6:25-27, 1931.
23. American Public Health Association. *Standard Methods for the Examination of Water and Sewage*, 5th ed., New York, 1936.
24. American Public Health Association. Recommended Methods and Procedures for Bacteriological Examination of Shellfish and Shellfish Waters. *A.J.P.H.*, 33:582-591, 1943.

NOTE: Acknowledgement is made to the Texas Game, Fish, and Oyster Commission for their help in collection of all specimens, and to William D. Parish of the U. S. Army Engineers, and P. J. Naughton of the U. S. Weather Bureau for assistance in collection of meteorological data.

Modified Self-Selection Method of Feeding Preschool Children in the Home*

MARGARET F. GUTELIUS, M.D.

Dysentery Control Project, Pharr, Tex.

THERE are two problems in nutrition which confront the housewife and mother: (1) The adaptation to the home of the modern knowledge of nutritional requirements, and (2) the proper handling of children so that they will take adequate diets. Psychologists have pointed the way to avoiding feeding difficulties, but the practical application of their principles in the home has not been extensively studied or reported upon except for infants.

One basic approach to these problems is the use of free choice in all that pertains to eating. Richter¹ has demonstrated in animals with a specific deficiency the marked ability to select the food factor needed. Davis^{2, 3} has shown that both infants and children in hospitals maintain excellent health and develop no feeding problems when allowed to choose their own meals. These experiments involved offering a wide variety of foodstuffs, the use primarily of natural foods, and the avoidance of any psychological barriers to the enjoyment of meals.

A similar freedom in eating is recommended by many pediatricians for the home.⁴ For infants this method has received wide attention and acceptance.⁵⁻⁷ Babies on a self-demand schedule grow normally and quickly form regular hab-

its. A choice of formulas need not be offered since infants show no marked preferences.⁸ This regime offers few difficulties for the parents.

Free choice for preschool children at home has not received the same study and presents certain problems.

1. The preparation of meals at irregular hours or of a wide variety of foods for each meal is seldom possible.

2. The extensive use of highly demineralized and devitaminized foods, especially sugar and white flour products, probably limits the freedom of choice which one can safely allow. In some homes it may even be impossible for self-selection to result in an adequate diet. Moreover, even when the home diet is good, children are over-stimulated to take the above foods because in our civilization they are for sale on every street corner.

3. It is more difficult for a parent than for a supervisor in an institutional experiment to avoid concern over what and how a child eats.

4. Finally, the example set by parents at meals is important.

The experiences reported here took place in a home where both parents are physicians. The two girls are at present 6 and 4 years old. The elder, F., was about 18 months of age when the free-choice method of feeding was undertaken. As an infant she had not been kept to a rigid schedule or forced to eat. On the other hand, desire to eat had not been given prime importance in planning her schedule. Furthermore, this parent worried considerably over food intake. Games and tricks were tried to encourage her to eat, but without success. She seemed to be con-

* Presented before the Maternal and Child Health Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 6, 1947.

suming very little and was taking an hour for a meal when the change in parental attitude began. Despite the fact that both parents accepted the logic of the new regime to which they had given some study, there was a certain amount of emotional difficulty in changing to a policy of *laissez faire*.

The younger child, S., was allowed from birth to choose the time for her feedings, the quantity, and later the type of food she desired. She always had a good appetite. By 15 months of age she was feeding herself without help. She was able to use a spoon correctly and took a large part of her liquids from a cup.

MODIFIED SELF-SELECTION METHOD

When F. was 18 months of age the following method of feeding was begun and has continued to date. S. was put on the same regime when she reached 15 months. At the time of starting, both children were eating without help from an adult.

Three meals a day are prepared at regular hours unless the children ask to eat early and it is convenient for them to do so. They are usually fed by themselves in the kitchen before the parents eat. The table is set attractively. Only small portions of each food are put on their plates. The mother remains with them giving her attention to other work, but ready to help them if they ask for it.

The children are allowed almost complete freedom in what they eat and how they eat it. They may ask for food not on the table or take nothing at all. When they ask for something which is not convenient to prepare or which is not in the house, they are promised the food at the earliest possible date. They are allowed any quantity of the foods available (with the exceptions noted below), any variety, and all the time they want for eating. They may eat with their fingers, drink from a bowl, sing. They may play while eating, play with the food, or take

it outdoors to eat. They do for themselves as much as they wish.

The adult present makes no comments and shows no concern over the foods chosen or the quantity eaten. Accidents are cleaned up calmly and the child often helps. The children are advised not to take or ask for more food then they feel they can eat. Table manners are not mentioned until the child shows an interest in the matter.

In addition to three meals daily there are always available certain ready-to-eat and non-messy foods that the child can get at any time of day. Also the parent, if not busy, gets any easily prepared food when the child asks for it.

There are some rules for behavior and these are enforced: (1) Only certain places are used for eating. (2) Food is not to be thrown about or wantonly made unfit to eat. (3) The children are not to annoy their parents when the latter are eating.

The meals consist of simple foods easily prepared. For breakfast, eggs in various styles, any of some dozen cereals, and several fruits are offered. Lunch and supper are much alike. Besides numerous fruits and vegetables (usually raw), there is a choice of at least two meats. As a rule only one meat requires cooking, the other being served cold from a previously used roast, ham, or fowl. Milk and bread are offered for each meal, and another concentrated carbohydrate besides the bread. A limited amount of one of the foods commonly called "dessert" is set out with the rest of the meal or when requested. Dishes requiring long preparation are rarely used. The usual meal is prepared and consumed in 20-40 minutes. Exceptions occur when oven-cooked foods are served or a food jag appears. In the latter case repeated orders have to be filled.

In the early months a fairly wide variety of choices was served, but after the children learned to talk well, it be-

TABLE 1

*Typical meals from various days showing the foods offered and the amounts eaten by each child.
The foods offered include only those actually set out or suggested by adult*

<i>Breakfast</i>	<i>Foods Offered</i>	<i>S. Age 2</i>	<i>Foods Eaten</i>	<i>F. Age 3½</i>
Milk	6 oz.		0	
Eggs	½ omelet		1¼, soft boiled	
Cereals, dry	0		¾ shredded wheat in egg	
Bread, whole wheat with oleo	¾ slice toasted		¾ slice, toasted	
Oranges	2 sliced		¾ peeled	
Apples	0		0	
Prunes, dry	0		0	
<i>Lunch</i>	<i>S.</i>		<i>F.</i>	
Milk	4 oz.		9 oz.	
Chicken (cold)	2 slices white		3 second joints	
Hamburger	2 small		0	
Bread with oleo	1 slice		0	
Sweet Potato, baked	½ small		1 small	
Carrots, raw	½ medium		0	
Peas, raw	0		1 teaspoon	
Bananas	½		1	
Pears	0		0	
Candy, homemade, small	0		1	
			½ shredded wheat with evaporated milk and brown sugar (requested)	
<i>Supper</i>	<i>S.</i>		<i>F.</i>	
Milk	4 oz.		0	
Lamb chops	0		1 small	
Liver, left over	Bite		0	
Brown rice	0		3 bowls with evaporated milk and brown sugar	
Waffle, whole wheat, cold	1 with cream and brown sugar		0	
String beans, cooked	0		3 whole	
Artichoke, cooked, cold	10 leaves		0	
Grapes	12		0	
Orange juice	1 oz.		0	
Cookie, homemade, small	0		¼	

TABLE 2

Complete Eating Schedule for a Day

	<i>S. Age 3½</i>
<i>Breakfast</i>	Milk, 9 oz.
7:20-7:40 A.M. at kitchen table	Whole wheat bread, 1 slice with butter and apple butter
	Orange juice, 9 oz. (unsweetened, canned)
9:00 A.M. in kitchen	Apple, asked to have it cut
9:30 A.M. in kitchen	Milk, 6 oz., helped self
11:00 A.M. taken outdoors	Peanuts, 2 handfuls, helped self
11:30 A.M. taken outdoors	Carrots, 2 raw, helped self
<i>Lunch</i>	
12:00-12:15 P.M. at kitchen table	Milk, 4 oz.
	Bacon, 3 strips
	Whole wheat bread, 1 slice with butter and apple butter
	1 small homemade candy
3:P.M. in kitchen	6 oz. orange juice, helped self
4:00 P.M. in back yard	Potato chips, 3 cups, helped self
5:30 P.M. in back yard	Cucumber, ¼, helped self
<i>Supper</i>	
6:00-6:25 P.M. at kitchen table	Milk, 10 oz.
	Steak, 1" x 1" x 1"
	Salmon, 2 tablespoons (canned, opened for cat)
	Celery, ½ stalk
	Okra, 2 whole, raw
	Ice Cream, homemade, 2 tablespoons
8.00 P.M.	Apple juice, 6 oz. helped self

came possible to display less and to ask what they wanted from the foods available. They are not pressed for a decision and some variety on the table is found to stimulate their interest.

The foods offered the children are for the most part natural products, and an effort is made to help them like this type of diet by having such foods easily available at all times. For example, various kinds of fresh fruit are always in a bowl on their table. Some raw vegetables are kept in the refrigerator where they can be reached when wanted. These may include carrots, celery, cabbage, cucumbers, lettuce, string beans, green peppers, turnips, cauliflower, okra, and peas. Only artichokes, beets and corn are routinely cooked. The provision of a wide variety is easy under these conditions and there is the added advantage of preserving minerals and vitamins.

The devitalized foods, especially sweets and articles made of white flour, are avoided as much as possible. Whole grain products including brown rice are used almost entirely. Muffins, pancakes,

gravies, etc., are made with whole wheat flour. Honey and syrups are always on hand. These, along with brown sugar, are used in cooking and on unsweetened cereals. Fancy baked goods and desserts are rarely bought or made. The same is true for jams, jellies, and soft drinks. A favorite hot weather drink is "sweetnin' water" which is cane syrup in water.

Only occasionally has it been found necessary to restrict the quantity chosen by the children from products containing white flour. On the other hand, sweets except for honey and syrups, have always been limited to a very definite amount. None are allowed between meals. At lunch and supper there is usually a choice of one cookie, a small piece of candy or ice cream, all of which are homemade. This restriction on sweets is the only curb imposed on free choice other than that made by the type of food habitually bought for the home.

The above regime offers the children the opportunity to take a good diet. The parents are fortunately able to set a good example. They enjoy all foods

TABLE 3
Complete Eating Schedule for One Day

F. Age 6

Breakfast

7:30-7:45 A.M. at kitchen table

Powdered milk, 1 bowl with water (equal to 1 pint whole milk)
Egg, $\frac{1}{2}$, scrambled
Cereal, cooked Ralston, 3 bowls with cream and brown sugar
Bread, whole wheat, 1 slice, with butter
Grapefruit, $\frac{1}{2}$

(Nothing between breakfast and lunch)

Lunch

12:00-12:20 at table

Milk, 4 oz.
Hamburger, 1 medium
Bread, whole wheat, 1 slice, with butter
Cheerioats—2 handfuls
Carrot—1 medium
Candy—1 small
Watermelon, 1 slice, requested help
Raisins, 1 handful, helped self

4:30 P.M. outdoors

Supper

6:00-6:20 P.M. at table

Milk, 5 oz.
Ham, 2 slices
Waffles, 3, with syrup and cream
Okra, 1, raw
Corn, $\frac{1}{2}$ ear, cooked
Peach, 1, fresh
Ice cream, homemade, 1 scoop

and rarely have desserts. It took very little effort for them to like the type of diet desired for the children.

Table 1 gives typical menus with the foods eaten by each child. Tables 2 and 3 show complete eating schedules for one day.

RESULTS

Both children have good appetites and enjoy eating. They are self-reliant and usually eager to help prepare their food by pouring milk, squeezing oranges, scraping carrots, slicing cheese, and putting the scraps in the garbage pail. Between meals they customarily help themselves without bothering an adult. There is very little fussing over the limitation on sweets. Weeks and months go by without any request for extra amounts of these foods.

Table behavior has been unconventional in many respects, but not objectionable. Also the conduct of the children has consistently become more civilized as they grow older. Meals are pleasant occasions. The children usually eat quickly with little dawdling. Occasionally, in the early years, a meal

lasted an hour. Jumping up from the table is still common. Playing with the food is usually confined to afternoon "tea parties." There has always been a minimum of messiness and spilling. Such things as eating with fingers and licking the plate are now infrequent. At about 5 years of age F. became increasingly interested in adult table manners and at present takes great pride when away from home in being polite and in eating all that is set before her without comment. This was done on her own initiative. She is now ready to eat with the rest of the family when she wishes to do so.

The foods chosen by the children show wide variation in type and quantity from day to day, and week to week. For this reason, in order to estimate the composition of their diet, a record was kept of everything eaten and the approximate amounts in household measures over a period of 6 weeks during one winter. F. was 3½ and S. almost 2 years old at the time.

The average daily intake from various food groups during this 6 week period

TABLE 4
Approximate Average Daily Intake

<i>Food Groups</i>	<i>Measure</i>	<i>F. Age 3½</i>	<i>S. Age 2</i>	<i>Recommended by National Food Guide</i>
1. Milk (Cheese, ice cream)	Cup (8 oz.)	2.4	2.1	3-4
2. Meat, fish, fowl (Legumes, nuts)	* Servings	1.1	1.7	1-2
3. Eggs	No.	0.8	0.4	4 a week
4. Vegetables Green or Yellow	* Serving	1.2	1.0	1 or more
5. Citrus fruit (Other foods high in vitamin C)	* Serving	3.2	3.0	1 or more
6. Other fruits and Vegetables	* Serving	2.1	2.6	2 or more
7. † Bread or Cereals Whole grain or enriched products	Slices or Bowls	2.5	1.9	Some
8. Butter or Oleo	Pats (10 gm.)	1.0	0.9	Some

* Servings:

Meat —2 oz.

Vegetables—1 med. carrot; ½ head broccoli; ½ cucumber, ¼ head lettuce, 1 small potato, 2 heaping

tablespoons cooked vegetables, etc.

Fruit —1 med. orange, pear, peach, banana or apple, 4 oz. fruit juice, 5 figs or prunes, 20

raisins or grapes, etc.

† Includes pancakes, waffles, muffins, brown rice, popcorn.

is shown for each child in Table 4. The food groups have been arranged to conform with the *Basic 7* of the *National Food Guide*,⁹ except that eggs have been taken from the meat group to form an eighth group. The final column shows the recommendations of the *National Food Guide*.

It is seen that both children had an average daily intake of over a pint of milk, more than one serving from the meat group, about half an egg, one serving of green or yellow vegetables, several servings of citrus fruit, two other fruits or vegetables, two servings of a grain product and about a pat of butter or oleo. Not recorded under the milk group was a very small amount of cheese and ice cream. Not recorded under the meat group was a moderate amount of nuts and peanut butter taken by the older child. Almost all of the fruits and vegetables were raw and fresh. All of the bread and over half of the cereals were of the whole grain variety, the rest fortified.

Beside the *Basic 7*, the *National Food Guide* lists certain foods which are chiefly energy giving, and not shown in Table 4. From this group both children took a daily average of about one-half strip of bacon and one teaspoonful of syrup or brown sugar. The older child also had approximately one small cookie and one-third of a piece of candy. Finally, both children received 400 I.U. of vitamin D supplement daily. They were both sun-tanned at this time as they have been the year round since 3 weeks of age—one advantage of living in the South.

The diets taken by the children are entirely satisfactory in comparison with the recommendations of the *National Food Guide* except for milk intake. In this case the 3 to 4 cups suggested as standard is a general allowance for all ages of children, but good authority exists for believing that there is an exception in the early preschool years

when a pint is considered sufficient.^{10, 11} There was some added milk in cooked foods taken by these children, and there are times when they drink considerably more than in the particular 6 week period recorded. For the past 6 months, they have both been taking about 1 quart daily.

The average daily intake of the children does not differ materially from diets for preschool children prepared by Butler¹² and Dann.¹³ These diets are more specific than that of the *National Food Guide* and are designed to meet the daily allowances for various nutrients recommended by the Committee on Food and Nutrition of the National Research Council.¹⁴

The daily intake as tabulated supplied 1,200–1,500 calories. It was high in protein and low in carbohydrate when compared to the usual American diet. The vitamins were abundant.

In addition to taking an adequate diet the children present certain eating habits which are of interest. About one-third of the food is taken between meals but this consists for the most part in fruits, vegetables, and milk. One meal daily is usually much larger than the others but which meal is hearty varies from time to time. The quantity taken on some days may be several times greater than that taken on other days. An enormous appetite may last for weeks to be followed by a sharply reduced intake for no apparent reason.

The children prefer each food by itself and dislike such mixtures as stews, hash, and fancy salads. Even salt is often taken alone especially in hot weather. They have developed a taste for raw foods and whole grain products. There is a large amount of roughage in their diets, but it does not seem to upset them. An occasional loose stool or the presence of undigested food particles in the stool has never been followed by diarrhea. They preferred the "dessert" in the middle of the meal until recently

when they started taking it at the end.

The children tend to limit the variety at any one meal and concentrate on 2 or 3 foods, although this tendency has become less marked as they grow older. The extension of this tendency, the so-called "food jag," is very common, and it may last for days or weeks. There have been jags on almost every well-liked food including numerous fruits and vegetables. On various occasions a meal has consisted of a large amount of a single item, e.g.: 6 eggs, 3 cucumbers, 6 chicken legs, 2 large cans of evaporated milk, 7 bananas, or 8 slices of bread. One child asked for shredded wheat at every meal for several weeks. Watermelon season has been celebrated by having watermelon 6 to 7 times daily for a week. No gastrointestinal upset ever resulted from these jags. In spite of the tendency to concentrate, very few days have passed without there being some choice made from every food group. Especially milk and citrus fruit are rarely skipped entirely. At present about one-half or more of the individual meals are well "balanced." Each child consistently favors certain foods, e.g., one is partial to meats and fruits, the other to eggs and cereals.

The children are not omnivorous eaters, but they take a wide variety of foods which is increasing all the time. They like all fruits; almost all kinds of meat, fish, fowl, cereal; about 15 vegetables. For some reason they have never liked white potatoes except as chips, or cooked greens of any kind. It is interesting to note that even their favorite dishes are refused at times.

Both children have grown and developed normally and show no tooth decay. One is unusually tall, both have always been slender but firm and strong. Table 5 shows the height and weight records. Their growth curves are within normal levels.¹⁵

Both children have had occasional

TABLE 5
Weight—Lbs.—Ozs.

Age—Yrs.	Weight—Lbs.—Ozs.		Height—Inches	
	F.	S.	F.	S.
Birth	7-3	6-3	20.0	20.0
1	19-5	18-4	30.5	29.5
2	25-0	23-12	36.3	33.7
3	32-0	28-0	40.0	36.7
4	37-8	32-0	43.0	39.0
5	42-0		45.5	
6	46-0		47.7	

upper respiratory infections after 1 year of age, but no serious illness. There have been very few and very minor digestive disturbances. Neither child has ever taken or needed a laxative or enema.

DISCUSSION

The success of this method of feeding children presupposes a fundamentally happy home without undue emotional tensions in fields other than eating. It would seem that these tensions may well upset the appetite even when the feeding method itself is sound.

It cannot be assumed that this method will necessarily be successful with a child who has already acquired faulty eating habits. Cure is more difficult than prevention and cannot be discussed here.

The satisfactory operation of the regime obviously depends on the attitude of the parents. It has not been easy to overcome worry and anxiety about what the children eat. Nor has it been easy to avoid showing annoyance at unconventional behavior and food jags. It is also clear that the example of the parents in eating and liking a simple diet and eschewing too highly processed foods is of basic importance.

The program can certainly be carried out more conveniently and happily when the children eat by themselves. Observations at the homes of friends have demonstrated the ease with which parents become short tempered when small children eat at the same table with grownups.

The diet as outlined may involve extra expense for the home, but there is no reason why the same method cannot be attempted with careful planning

on any budget. Raw foods have many advantages but they are not necessary to the success of the regime. It may be thought undesirable to have so much food consumed between meals, but it is believed that the children in this record would not have taken so many fruits and vegetables if they could be eaten only with meals. The older girl, since starting kindergarten and school, obtains less between meals without complaining. One big problem comes in avoiding the excessive consumption of sweets away from home and on special celebrations. This difficulty the parents have to manage to the best of their ability with ingenuity and forethought.

SUMMARY

A modified method of free choice in eating is possible for preschool children in the home without undue effort or expense. The 2 children in this record are healthy and happy. They take an adequate diet and are developing conventional eating habits in their own time.

REFERENCES

1. Richter, C. P. Total Self Regulatory Functions in Animals and Human Beings. Harvey Lecture

Series XXXVIII, 1942-1943, pp. 63-103.

2. Davis, C. M. Self Selection of Diet by Newly Weaned Infants. *Am. J. Dis. Child.* 36:651 (Oct.), 1928.

3. Davis, C. M. Practical Application of Some Lessons in the Self-Selection of Diet Study to the Feeding of Children in Hospitals. *Am. J. Dis. Child.* 46:743 (Oct.), 1933.

4. Sweet, C. Voluntary Food Habits of Normal Children. *J.A.M.A.*, 107:765 (Sept.), 1936.

5. Gesell, A., and Ilg, F. *Feeding Behavior of Infants*. Philadelphia: Lippincott, 1937.

6. Simsarian, F. P., and McLendon, P. A.

- a. Feeding Behavior of Infant in the First 12 Weeks of Life on Self-Demand Schedule. *J. Pediat.* 20:93 (Jan.), 1942.

- b. Further Records of Self-Demand Schedule in Infant Feeding. *J. Pediat.* 27:109 (Aug.), 1945.

7. Aldrich, C. A. Ancient Processes in a Scientific Age. *Am. J. Dis. Child.* 64:714 (Oct.), 1942.

8. Davis, C. M. Choice of Formulas Made by 3 Infants Throughout the Nursing Period. *Am. J. Dis. Child.*, 50:385 (Aug.), 1935.

9. *National Food Guide*, U. S. Department of Agriculture A 15-53. Issued by Bureau of Human Nutrition and Home Economics.

10. Jeans, P. C. The Feeding of Healthy Infants and Children. *J.A.M.A.*, 120:913 (Nov.), 1942.

11. Daniels, A. L., et al. Calcium and Phosphorus Needs of Preschool Children. *J. Nutrition*, 10:373 (Oct.), 1935.

12. Butler, A. M. Nutritional Requirements in Infancy and Childhood. *Am. J. Dis. Child.*, 64:898 (Nov.), 1942.

13. Dann, W. J., and Davidson, W. C. Nutritional Requirements of Childhood. *Am. J. Dis. Child.*, 63:366 (Feb.), 1942.

14. Recommended Daily Allowances for Specific Nutrients (Committee on Food and Nutrition of National Research Council). *J.A.M.A.*, 116:2601 (June), 1941.

15. Sontag, L. W., and Reynolds, E. L. A Practical Method for Analyzing Growth Progress. *J. Pediat.* 26:327 (Apr.), 1945.

BCG Vaccination in New York State

The New York State Department of Health and the Medical Society of the State of New York have recently published a *Program and Guide for Physicians on BCG Vaccination*. The brochure discusses the administrative aspect, the recommendations for use in selecting groups to receive the vaccine, the participation in the program by local agencies, the distribution in the state of the vaccine, the recommended procedures, and a technical guide for physicians.

At the present time BCG vaccine manufactured by the State Department

of Health is distributed on request to local full-time health departments, to medical colleges and teaching hospitals, to superintendents of public tuberculosis hospitals, and directors of tuberculosis clinics, and to certain additional institutions who train physicians who have been designated by the State Commissioner of Health to administer BCG vaccine.

Of the methods for vaccination, the multiple puncture method is set forth first, with descriptions of Birkhaug's and Rosenthal's techniques. Also described are the scarification and intracutaneous methods.

Nutrition Appraisals in Mexico*

RICHMOND K. ANDERSON, M.D., F.A.P.H.A., JOSÉ CALVO, M.D., WILLIAM D. ROBINSON, M.D., GLORIA SERRANO, M.D., AND GEORGE C. PAYNE, M.D., F.A.P.H.A.

DURING the years 1942-1945 inclusive, a series of nutrition appraisals were carried out in selected population groups in several areas on the high central plateau of Mexico under the coöperative auspices of the Mexican Ministry of Health and the International Health Division of The Rockefeller Foundation.† Although the results of these investigations have been reported,¹⁻⁴ it seems worth while to summarize them briefly here and to present certain additional data^{5,6} so that a more comprehensive picture of the nutritional status and food habits of the Mexican people may be available.

The work already reported included a study of the nutritional conditions of the residents of the crowded Santa Julia section of Mexico City (altitude approximately 7,500 ft.), occupied by economically poor wage earners¹; a special study of a group of women in this area during pregnancy and after delivery³; an appraisal of the condition of a number of economically poor families before and after they were fed for periods of 8 to 16 months at a government operated dining room (comedor)

in Mexico City²; and a study of the dietary habits and the nutrition of Otomi Indians in four villages in the Mezquital Valley about 75 miles north of Mexico City (altitude approximately 6,500 ft.), unquestionably one of the poorest areas of the country.

In addition, observations have been made in the small village of Yustes in the Bajío area of the State of Guanajuato (altitude approximately 6,000 ft.),⁵ and in the village of Capula, near Lake Patzcuaro, in the State of Michoacan (altitude about 6,200 ft.).⁶ Yustes lies in one of the country's richest agricultural regions, formerly occupied by large haciendas which are now divided and turned over to the villages as communal lands and parcelled out among the families for cultivation. Most of the families have enough land to produce food for their own needs and to furnish cash incomes to provide for other necessities of living. The residents of this village, alone among the groups studied, were probably not restricted as to caloric intake because of poverty. They are chiefly of Otomi Indian ancestry but have some admixture of white blood. The inhabitants of Capula are predominantly Tarascan Indians, although they no longer use their native tongue and many have abandoned their native customs. They engage in agriculture, pottery making, and charcoal production. Economically they are somewhat poorer than the Yustes families but are better off than the other groups studied.

* The studies and observations on which this report is based were conducted under the auspices and with the support of the International Health Division of The Rockefeller Foundation in coöperation with the Ministry of Public Health and Welfare of Mexico, and its subdivisions—the National Institute of Nutrition and the School of Hygiene.

† Studies made under the auspices of the Pan American Sanitary Bureau, the Department of Nutritional Biochemistry of the Massachusetts Institute of Technology (supported by the Kellogg Foundation), the Mexican Ministry of Health and Welfare, and the International Health Division of The Rockefeller Foundation, supplied information for an evaluation of nutrients in Mexican foods.

PROCEDURES

The family was the unit of investigation in every study. Individual diet records, usually for a 7 day period, were compiled for each member of the families participating in a study. A medical history was obtained for each individual, and each was examined for signs or symptoms of deficiency diseases. The slit lamp and biomicroscope were used for examination of the cornea, bulbar conjunctiva, gums and tongue. From each person over 2 years of age approximately 20 ml. of blood was withdrawn for laboratory examination. Four ml. of each sample was oxalated with a mixture of dried potassium and ammonium oxalate⁸ and used for the hematologic examination, including hemoglobin⁹ and hematocrit⁸ determinations and red cell count. The remainder of the sample was used for determining the total serum proteins and albumin by the quantitative biuret method,¹⁰ the serum carotene and vitamin A,¹¹ and the ascorbic acid.¹² For children between 2 and 5 years of age alkaline serum phosphatase was also determined.¹³ In areas where malaria and intestinal parasite infections were prevalent, blood smears were examined for the presence of plasmodia and stool examinations were made. Such examinations were also made in other areas in special cases.

Diet Records—Each family in a study area was visited daily for one week, usually at the time the main meal was being prepared. The composition of the meal was recorded, and the weights and volumes of the foodstuffs used were determined by means of a beam balance and measures. The record of all food consumed by individual members of the family each day was kept on the basis of household measures or in terms of portions of the various dishes eaten by each person. In so far as possible, foods eaten away from home were also recorded.

On the day of the first visit to a family an inventory of the food in the house was taken, and a record was kept of that acquired during the week. Waste was accounted for as far as possible. At the end of the week a second inventory of food was taken. These inventories, together with the record of food purchased or acquired were compared with the amount consumed so that discrepancies might be detected. From the record of food consumed by each individual the average daily intake of calories, animal and total protein, carbohydrates, fat, vitamin A, thiamine, riboflavin, niacin, ascorbic acid, calcium, phosphorus and iron was calculated.

The food tables used in the study of the Santa Julia area were compiled chiefly from the English literature since at the time of that study no analysis of specifically Mexican foods for vitamin and mineral content had been made. Tables used in later studies were based chiefly on analyses of foods collected in Mexico during the time of these studies, many of them from the regions being surveyed.⁷ Although the number of samples was limited, the error was probably less than when calculations were based on data on foreign foods.

No corrections for cooking losses were made. Tortillas, the outstanding constituent in the Mexican diet, were analyzed as prepared for eating. Chili peppers, both dried and green, are commonly ground and eaten without cooking. Most fruits are eaten raw. Where greens are used they are usually not cooked excessively. Beans are frequently boiled for long periods and often fried after boiling. Under these circumstances it seemed inadvisable to assign an arbitrary figure for loss of nutrients in cooking.

FOOD HABITS

The Mexican diet is basically that of

the aboriginal Indian, influenced to a greater or less extent by the Spanish and succeeding immigrations, and by family economic status. Tortillas, which are made of corn, furnish for some families from 75 to 80 per cent of the total calories consumed; in the quantities eaten they are important sources of protein, carbohydrate, fat, thiamine, niacin, calcium, phosphorus and iron. Corn is also used in the form of "atole," a beverage; in "posole," a soup; and in tamales. In the cities, wheat is tending to supplant corn as a basic cereal. Beans of many varieties are eaten, occupying much the same place that potatoes do in many North American diets. Chick peas (*garabonzos*) serve both as an animal and a human food in certain regions.

Meat is eaten by families at higher income levels, but the Mexican diet as a whole is poor in animal proteins. Except on certain large ranches, few cattle or poultry are raised, and the meat produced is usually sold to buy foods of higher caloric value in relation to cost. Milk is consumed by persons in the higher income groups of the larger towns, chiefly through the practice of drinking "café con leche," a mixture of half or more milk with coffee, usually at the evening meal. Among less favored groups in rural areas, milk plays an insignificant role in the diet.

Although the fruits of Mexico are varied, palatable, and nutritious, they are frequently neglected in the diet. In some arid regions the flowers, fruits, and leaves of certain cacti are important sources of nutrients, particularly vitamin C. Pulque, a weakly alcoholic drink (3 to 5 per cent) prepared from the juice of the century plants growing on the high central plateau, provides good amounts of vitamin C and other vitamins when drunk in large quantities. While the beneficial effects of pulque may be questioned, it would be unwise to discourage its consumption in mar-

ginal areas unless more desirable sources of these vitamins can be substituted.⁴

Most of the vegetables common in the United States, as well as others, are available in Mexico, but individual consumption is low among the poorer groups. Truck gardening usually centers about large cities; in rural areas there is little home gardening. Wild plants, many of them nutritious, are consumed by persons of low income.⁴ Chile peppers, which are rich in vitamins, are widely eaten.

The chief meal of the day is usually eaten in the early or middle afternoon. Among the higher income families it includes several courses and a variety of meats, fruits, and vegetables. Among poorer families it usually consists of a beverage or soup, tortillas, beans, and perhaps a little meat or some vegetable, heavily seasoned with chili peppers. On weekly market days, on the many fiesta days, and on Sundays, larger amounts of meats, fruits, and vegetables, plus alcoholic beverages, may be consumed at this meal.

INTAKE OF NUTRIENTS

Table 1 contains the calculated average daily intake of calories, proteins, vitamins, and minerals per person in the various groups studied. These averages are compared in each instance with the National Research Council's recommended allowance for moderate activity, corrected for the age and sex distribution of the persons included in each survey. The recommended averages as corrected for these factors are low for the "comedor" families because of the large percentage of children in this group.²

Except in one group, the caloric intakes were below the recommended allowances, but they were not so low as those reported for several groups studied in the United States.¹⁴⁻¹⁶ They varied directly with the economic status

TABLE 1
Average Daily Intake of Nutrients

Group	Santa Julia, Mexico City,* Altitude 7,500 ft.	"Comedor," Mexico City	Otomi Indians, Mezquital Valley	Yustes, "Bajio" Area, Guanajuato	Capula, Lake Patzcuaro, Michoacan
Number of diets	540	413	856	151	137
Average calories	2,251	1,679	1,709	2,528	2,032
N.R.C. recommendation	2,458	2,240	2,130	2,438	2,447
Per cent of recommended	92	75	70	104	83
Total cal./basal cal.	1.78	1.50	1.53	2.05	1.75
Total protein (gm.)	73.0	55.5	51.0	75.1	59.0
N.R.C. recommendation	66.4	62.4	64.0	65.1	67.5
Per cent of recommended	117	89	80	115	87
Per cent of animal protein	33	18	4.8	7	13
Vitamin A (I.U.)	3,675	2,583	5,498	3,131	2,022
N.R.C. recommendation	4,532	3,929	4,331	4,182	4,493
Per cent of recommended	81	66	127	32	45
Vitamin C (mg.)	42.0	22.2	96.3	27.8	16.0
N.R.C. recommendation	72.6	63.4	68.1	70.0	72.8
Per cent of recommended	58	35	141	40	22
Thiamine (mg.)	1.4	1.3	1.6	2.4	1.8
N.R.C. recommendation	1.2	1.1	1.2	1.3	1.2
Per cent of recommended	116	118	133	185	150
mg./calories/1,000	0.63	0.78	0.94	0.94	0.89
Riboflavin (mg.)	1.43	0.76	0.69	0.85	0.7
N.R.C. recommendation	1.72	1.51	1.66	1.83	1.71
Per cent of recommended	83	49	42	46	41
mg./calories/1,000	0.64	0.45	0.40	0.34	0.35
Niacin (mg.)	9.1	6.0	9.4	10.3	9.0
N.R.C. recommendation	13.1	11.1	11.9	13.4	12.0
Per cent of recommended	69	54	79	77	75
Iron (mg.)	16.5	11.4	23.2	24.2	19
N.R.C. recommendation	11.5	11.1	11.4	11.6	12.0
Per cent of recommended	144	103	203	208	158
Calcium (gm.)	1.73	0.59	0.82	1.14	0.9
N.R.C. recommendation	1.04	0.98	0.96	0.98	1.0
Per cent of recommended	167	60	85	116	90
Phosphorus (gm.)	1.15	0.93	1.1	1.56	1.5
Ca/P ratio	1.5	0.64	0.75	0.61	0.60

* The dietary calculations in this study, which were based chiefly on U. S. food tables, are not strictly comparable with the others for which values of Mexican foods were used. These Mexican values resulted in some rise in the calculated amounts of vitamins C and A, and some decrease in those for riboflavin, calcium, and phosphorus, with levels for the other nutrients remaining approximately the same.²

of the groups: the intake (2,528 calories) for the Yustes families, whose consumption was not limited by economic factors, slightly exceeded the recommended allowances for moderate activity. Although it may not be true that intakes as high as this promote optimum health, it was our impression that the individuals in this group had the best physiques.

In all groups the calories were derived chiefly from carbohydrates (65 to 75 per cent), with fat furnishing from 10 to 25 per cent and protein from 10 to 15 per cent. The average total pro-

tein intakes in all sections were good, with the lowest being 80 per cent of that recommended. The amount of animal protein consumed was small, however, and many persons ate no protein of this type during the week the diet record was kept. The main sources of protein were corn¹⁷ and beans.

Vitamin A intakes varied from 45 to 127 per cent of the recommended amounts, and vitamin C intakes from 22 to 141 per cent of these amounts. Excellent intakes of both vitamins are recorded for the Otomi Indians of the

Mezquital Valley, whose extreme poverty forced them to eat plants not ordinarily consumed, many of which were found to have a high content of these vitamins.^{4, 7} Furthermore, these Indians drink pulque in large amounts, thus adding to their vitamin C intake. In the other groups, chili peppers were probably the best single source of vitamins A and C.

Thiamine intakes were more than adequate for each of the population groups. Tortillas were by far the chief source, but inasmuch as the amount of this vitamin attributed to tortillas is based on the analysis of only a few samples, the values given may be somewhat inaccurate. Beans constituted the second most important source of thiamine.

Except in the Santa Julia group in Mexico City, the average intakes of riboflavin were less than 50 per cent of those recommended. Improvement in riboflavin intake is one of the most urgent nutritional needs in Mexico today. Milk, high in riboflavin content, is available only in small quantities, and an early increase in its production cannot be anticipated. Attempts to discover and to raise plants that will constitute new sources of this vitamin would therefore seem worth while. Tortillas, though not high in riboflavin, furnish the major proportion of this vitamin in the diets because of the large quantities consumed. Beans rank next in importance.

Niacin intakes varied from 50 to 80 per cent of those recommended and were derived largely from corn, i.e., tortillas. Some was obtained from beans and meat. Considering the level of the niacin intake and the high corn consumption, it is surprising, in view of the counteracting effect of corn on this vitamin, that more cases of severe niacin deficiency, including pellagra, were not encountered.¹⁸ There are no data on the relation of tryptophane in

the Mexican diet to the niacin requirement.¹⁹ Because the consumption of meat and other animal protein is so low in many areas, these cannot be the major sources of tryptophane. Many beans, particularly of the black variety,²⁰ have a rather high content of this amino acid, but bean consumption was not great in some of the groups studied. Pulque may also contain this amino acid, but many persons take little or none of this beverage. Controlled studies on the factors in the Mexican diet which influence the niacin requirement are needed.

In all groups the average iron intakes were well above those recommended. Calcium and phosphorus intakes were fairly good and the calcium-phosphorus ratios were reasonably favorable. The chief source of both of these minerals was the tortilla. In view of the extremely small amount of milk available in Mexico, it is fortunate that the manner in which tortillas are prepared adds large quantities of calcium to the diet.²¹

No attempt was made in these studies to measure the vitamin D intakes. The average Mexican can, through exposure to intense solar radiation, acquire more than a sufficient amount of vitamin D. The use of fish liver oils or other vitamin concentrates was negligible.

RESULTS OF PHYSICAL EXAMINATIONS

The most conspicuous clinical signs of nutritional deficiency that we observed, not only in the areas where our intensive studies were made but in practically all the regions we visited, were cheilosis (angular stomatitis) and glossitis, which are usually attributed to absence of components of vitamin B-complex from the diet. The small amount of therapeutic testing that we did suggested that riboflavin deficiency was chiefly responsible for the angular stomatitis. Most cases of glossitis appeared to be of a chronic type and due to a mixed vitamin

B deficiency. The Mexican habit of eating large quantities of hot chili peppers may have contributed to the glossitis. Among the few persons to whom we gave test treatments for this condition some responded to riboflavin and some to niacin alone, but the most favorable response appeared to follow whole B-complex therapy. Skin changes such as dryness, scaling, induration, and "crackling" were common, but it was difficult to determine to what extent these might be due to poor personal or environmental hygiene and exposure to adverse climatic conditions.

We saw no pellagra in the groups studied, and Yucatan was the only region we visited in which it was an important endemic disease. Although we made no nutrition studies on hospitalized patients, we visited hospitals in Mexico rather frequently. Among patients in these institutions cases of severe nutritional deficiency, particularly those due to B-complex lack, including pellagra, appeared to be more common than in the United States.

The incidence of corneal vascularization was not high in the areas studied as compared with that observed in the United States,^{1-4, 14, 29, 30} despite the low riboflavin content of the diets. We have had difficulty in correlating corneal vascularization either with riboflavin intake or with other signs suggestive of deficiency of this vitamin, and we question the specificity of this sign, particularly when it is mild in degree and not accompanied by other evidence of riboflavin lack.

No peripheral neuritis or other clinical entities definitely ascribable to thiamine lack were observed in the surveys, which was not surprising in view of the adequate intakes of this vitamin in the populations studied. Persons with vague subjective symptoms and mild degrees of calf tenderness were encountered, but these symptoms in themselves do not necessarily indicate thiamine deficiency.

We saw no definite clinical symptoms of vitamin A deficiency among the populations surveyed. Xerophthalmia is observed occasionally in infants in Mexican hospitals, but we encountered none in our studies. We saw no conjunctival spots which appeared to be true Bitot spots. Mild skin folliculosis was common and persons with well marked follicular hyperkeratosis were occasionally seen. We doubt, however, whether such signs are diagnostic of vitamin A deficiency in the absence of other evidence.

Slit lamp examination of the bulbar conjunctiva revealed a high incidence of changes sometimes attributed to vitamin A deficiency.²⁷ These changes appeared at an earlier age and were of a more severe grade than conjunctival changes seen in the groups studied in the United States. However, no direct correlation was demonstrated between blood serum levels or dietary intakes of vitamin A and these lesions,²⁸ either among individuals in the same group or between average values from group to group. In fact the Otomi Indians, with the highest intake of vitamin A and the best average blood level of this vitamin, exhibited the highest degrees of conjunctival changes.⁴ These people also suffered most from exposure to intense sunlight, wind, and dust, which may have contributed to the membrane changes.

Gingivitis was prevalent in all areas studied, but no correlation could be demonstrated between vitamin C intakes or blood serum levels and this condition, either among individuals or groups. The Otomi Indians, with the worst gums we have ever seen, had the highest blood levels and the highest intakes of vitamin C of any group studied.⁴ The role of other vitamin deficiencies in this disease, particularly deficiencies of the B-complex, needs further investigation, but we believe that the gingivitis which we encountered in

Mexico was primarily due to poor oral hygiene.

No cases of clinical rickets were observed in the surveys, which was to be expected, in view of the intense solar radiation to which most Mexicans are exposed. However, occasional cases of rickets are seen in Mexico, particularly in hospitals. Mothers sometimes shield their young children entirely from the sun, believing that its rays are harmful to them.

The teeth of the average Mexican were found to be excellent. In some rural areas nearly 50 per cent of the adults had perfect teeth.^{4, 5} Fluorosis is certainly a factor contributing to this condition in many regions, and severely mottled enamel is not uncommon. In other regions, however, the fluorine content of the water probably did not account for the excellent condition of the teeth.⁴ It is believed by many that the amount of calcium consumed in tortillas may explain the phenomenon. Further studies, however, are desirable.

Underweight persons, as defined by the usual standards, were common in the groups studied, and the absence of obesity was conspicuous. It is well known that undernutrition, unless grossly unbalanced, may result in a retarded growth, thinning of body tissues, and lack of physical well-being rather than in specific signs of deficiency. Such effects of a poor nutrition would be most evident during the growing period. It should not be inferred, however, that the United States type of growth and physique would suit the Mexican better than his own. The average Mexican is probably less active than the average American, but he can, when necessary, carry heavy loads great distances and do work that few Americans would think of attempting.

Of particular interest among the physical findings not obviously related to nutrition was the rarity of hypertension in the groups studied

and its lack of severity when present.

RESULTS OF BLOOD EXAMINATIONS

The average hemoglobin and average blood serum levels of vitamin A and vitamin C for each of the population groups studied are shown in Table 2 according to age groups. The hemoglobin averages are considerably above those found in surveys in the United States, undoubtedly chiefly because of the altitude of the Mexican communities, although the high iron intakes of the people also probably contribute to the satisfactory levels. Red cell counts and hematocrit values were omitted from the table because they were found to be in conformity with the hemoglobin averages. There was, however, a slightly high mean corpuscular volume which might be ascribed to the altitude or possibly to nutritional causes.^{3, 22}

Of the two Mexico City groups studied, the persons participating in the "comedor" experiment showed significantly lower average hemoglobin levels, which may have been due partly to their poorer diets before they attended the government-operated dining room. Average hemoglobin levels for the other three population groups, all at similar altitudes, were virtually identical in spite of the fact that the areas were widely separated and inhabited by people of different racial characteristics and economic status.

Blood serum levels of vitamin C among children were good. The levels in general were somewhat higher than might have been expected from the intakes of this vitamin. This may be attributable in part to the small average size of the Mexican and to the fact that the records of intakes of vitamin C were incomplete because of the difficulty of obtaining accurate information as to the fruit and the drinks containing fruit juices which were consumed away from home between meals. Low levels of vitamin C were observed in pregnant

TABLE 2
Results of Blood Examinations

Group	Santa Julia, Mexico City	"Comedor," Mexico City	Mezquital Valley	Yustes, Guanajuato	Capula, Michoacan
Altitude of region	7,500 ft.	7,500 ft.	6,500 ft.	6,000 ft.	6,200 ft.
Number of individuals	534	481	552	183	163
Hemoglobin (gm./100 ml.)					
1-9 yrs.	14.2	13.9	13.2	13.3	13.3
10-15 yrs.	15.1	14.8	14.2	13.7	14.6
16 yrs. and over (males)	16.9	16.6	15.5	15.5	15.8
16 yrs. and over (females)	15.0	14.1	13.8	13.3	13.5
Entire group	15.2	14.6	14.1	14.0	14.2
Serum ascorbic acid mg/100 ml.)					
1-15 yrs.	0.96	0.94	1.3	0.90	0.93
16 yrs. and over (males)	0.63	0.58	1.2	0.57	0.69
16 yrs. and over (females)	0.68	0.67	1.2	0.64	0.72
Entire group	0.83	0.81	1.2	0.72	0.80
Serum vitamin A (I.U./100 ml.)					
1-9 yrs.	70	77	74	51	53
10-15 yrs.	87	82	89	65	70
16 yrs. and over (males)	127	106	117	82	94
16 yrs. and over (females)	97	86	104	73	75
Entire group	95	85	98	70	73

women.³ The Otomi Indians had the highest ascorbic acid serum levels of all the groups studied.

Serum vitamin A values for most of the individuals in the areas surveyed, as well as for others for whom these values were determined in the same laboratory, approximated those commonly found in the United States. However, in the Yustes and Capula areas the average values, particularly among children, were lower than those usually encountered. The groups with the higher vitamin A intakes had the higher average serum levels. Few of the levels were in the range of those ordinarily associated with clinical vitamin A deficiency,²³ and no persons with classical symptoms of vitamin A deficiency were observed.

Since, from a clinical standpoint, vitamin B-complex deficiency was the main one encountered, it is unfortunate that no practical tests for its presence applicable to population groups have been developed. Under the best controlled conditions the value of excretion tests on urine may be questioned, and under survey conditions even single samples are sometimes difficult to obtain. However, in the hope that information of

significance regarding a group as a whole might be obtained,²⁴ in the Yustes and Capula surveys riboflavin was determined in single samples of urine,²⁵ and in the Capula survey F₂ (methyl-nicotinamide) was also measured.²⁶

Results of the riboflavin excretion tests in Yustes are summarized in Table 3. In view of the low riboflavin intakes, recorded for this area (Table 1) and the prevalence of clinical signs of the lack of the vitamin, the low excretion levels were not unexpected. Sixty per cent of the values were below 0.3 mg. per liter, the minimum normal level suggested by Feder, *et al.*²⁴ Although there was a wide overlapping in values, the average excretions for persons with cheilosis were less than half those for the group as a whole. In spite of the errors involved in the use of single samples, the observation suggests that riboflavin deficiency is related to this clinical sign.

Of the group at Capula, for which F₂ determinations were performed, 8 per cent excreted no methyl-nicotinamide, and among pregnant and lactating women 17 per cent excreted none. Glossitis, which was probably partially due

TABLE 3
*Urinary Riboflavin Excretion**
Yustes, Guanajuato

	Age →	1-9 Yrs.	10-15 Yrs.	16 and over (Male)	16 and over (Female)	Entire Group
Entire group						
No.		22	38	44	61	165
Mean		0.326	0.426	0.543	0.303	0.398
S.E.m		0.070	0.065	0.11	0.10	0.032
Group with angular stomatitis						
No.		8	4	3	6	21
Mean		0.208	0.204	0.233	0.121	0.186
S.E.m		0.023
Range		0.06-0.36	0.09-0.50	0.19-0.26	0.06-0.20	0.06-0.50
Range for persons without angular stomatitis		0.05-0.71	0.09-1.98	0.09-4.27	0.07-1.70	0.05-4.27

* Expressed in terms of milligrams per liter

to niacin deficiency, was common in this group, but the meaning of low or absent F_2 excretions in the urine is too obscure at present to warrant drawing conclusions.

Alkaline serum phosphatase determinations performed on children between 2 and 5 years of age rarely showed values above normal, and they showed none within ranges usually associated with severe clinical rickets.

Serum protein levels were adequate. In Mexico, as in the United States, we have been impressed with the fact that few low blood protein values attributable to poor nutrition were encountered in general population groups. Cases of edema were rare and when found could usually be ascribed to concurrent disease rather than to low blood proteins.

SUMMARY AND CONCLUSIONS

Studies of the nutritional status of several population groups on the high plateau of central Mexico have demonstrated that the common dietary pattern is fundamentally sound. This pattern is based on a liberal consumption of tortillas, beans, and chili peppers, supplemented to a greater or less extent with foods obtained locally. However, the caloric intake is low, little animal protein is consumed and insufficient amounts of riboflavin and niacin are

obtained from the diet. Thiamine and mineral intakes are in general good.

Clinical evidences of nutritional deficiencies were uncommon in the population groups studied, but there were indications of mild deficiencies, particularly of lack of vitamin B-complex. By United States standards the growth of Mexicans is retarded and their stature is small; but racial and other factors, besides nutrition, may contribute toward these physical characteristics.

Hemoglobin levels were excellent, partly because of the altitude and partly owing to the large consumption of iron. Anemia was not often noted.

Definite clinical evidence of deficiencies in vitamins A and C were rare. Blood serum levels and dietary intakes of vitamin A varied from good in some groups to moderately low in others. The average blood serum level of vitamin C for one population group was unusually good owing chiefly to the consumption of pulque, a mildly alcoholic drink which in the quantities taken was a good source of this vitamin. Blood serum levels of vitamin C in the other population groups were less favorable and intakes were low by present standards.

While there is need for improvement in the quantity and quality of the average Mexican diet, attempts at modification should take into account the fact

that there is much of nutritive value in the food usually consumed. To try to impose the food pattern recommended for a United States population upon a country like Mexico, with its present food resources and economic and social conditions might lower rather than improve the nutritional status of the people.

NOTE: We wish to express our appreciation of the coöperation and facilities afforded us by Dr. Francisco de P. Miranda, Director of the Institute of Nutrition, Dr. Manuel B. Marquez Escobedo, Director of the Training Center of the School of Hygiene, and Dr. Angel de la Garza Brito, Director of the School of Hygiene, without whose assistance and support these studies would not have been possible. We are also indebted to our technical staff for their capable assistance, particularly to Sr. Leobardo B. Terpan, Srta. Mercedes Prieto Lopez, Srta. Consulo Sanchez Mesa, and Srta. Antonia Montano S.

REFERENCES

1. Robinson, W. D., Payne, G. C., and Calvo (de la Torre), J. A Study of the Nutritional Status of a Population Group in Mexico City. *J. Am. Dietet. A.*, 20:289-297 (May), 1944.
2. Calvo, J., Serrano, G., Millan, R. Segura, Miranda, F. de P., and Anderson, R. K. Nutritional Status of Economically Poor Families Fed in a Government-operated Dining Room in Mexico City. *J. Am. Dietet. A.*, 22:297-302 (Apr.), 1946.
3. Anderson, R. K., Robinson, W. D., Calvo (de la Torre), J., and Payne, G. C. Nutritional Status during Pregnancy and after Delivery of a Group of Women in Mexico City. *J. Am. Dietet. A.*, 22:588-593 (July), 1946.
4. Anderson, R. K., Calvo, J., Serrano, G., and Payne, G. C. A Study of the Nutritional Status and Food Habits of Otomi Indians in the Mezquital Valley of Mexico. *A.J.P.H.*, 36:883-903 (Aug.), 1946.
5. Anderson, R. K., Calvo, J., Serrano, G., and Payne, G. C. Nutritional Status of a Typical "Ejido" Village in the "Bajio" Area of Mexico. Unpublished data.
6. Calvo, J., Serrano, G., and Payne, G. C. Estudio sobre el estado de nutrición de un grupo de personas vecinas del pueblo de Capula, Estado de Michoacan. Unpublished data.
7. Cravioto, B. R., Lockhart, E. E., Anderson, R. K., Miranda, F. de P., and Harris, R. S. Composition of Typical Mexican Foods. *J. Nutrition*, 29: 317-329 (May), 1945.
8. Wintrobe, M. M. *Clinical Hematology*. Philadelphia: Lea & Febiger, 1942, pp. 200-201.
9. Evelyn, K. A. Stabilized Photoelectric Colorimeter with Light Filters. *J. Biol. Chem.*, 115:63-75 (Aug.), 1936.
10. Robinson, H. W., and Hogden, C. G. Biuret Reaction in the Determination of Serum Proteins; Study of Conditions Necessary for Production of Stable Color Which Bears Quantitative Relationship to Protein Concentration. *J. Biol. Chem.*, 135:707-725 (Sept.), 1940.
11. Kimble, M. S. Photocolorimetric Determination of Vitamin A and Carotene in Human Plasma. *J. Lab. & Clin. Med.*, 24:1055-1065 (July), 1939.
12. Mindlin, R. L., and Butler, A. M. Determination of Ascorbic Acid in Plasma: A Macromethod and Micromethod. *J. Biol. Chem.*, 122:673-686 (Feb.), 1938.
13. Bodansky, A. Phosphatase Studies: Determination of Serum Phosphatase. Factors Influencing Accuracy of Determination. *J. Biol. Chem.*, 101: 93-104 (June), 1933.
14. Milam, D. F., and Anderson, R. K. Nutrition Survey of an Entire Rural County in North Carolina. *South. M. J.*, 37:597-605 (Nov.), 1944.
15. Youmans, J. B., Patton, E. W., and Kern, R. Surveys of the Nutrition of Populations. Description of the Population, General Methods and Procedures, and the Findings in Respect to the Energy Principle (calories) in a Rural Population in Middle Tennessee (Part 2). *A.J.P.H.*, 33:58-72 (Jan.), 1943.
16. Milam, D. F., and Darby, W. J. The Average Diet of a Southern County and Its Effects on the Nutritional Status. *South. M. J.*, 38:117-125 (Feb.), 1945.
17. Corn Germ, a Valuable Protein Food. *Nutrition Rev.*, 2:212-213 (July), 1944.
18. Pellagra and Corn. *Nutrition Rev.*, 3:267-269 (Sept.), 1945.
19. Krehl, W. A., Teply, L. J., Sarma, P. S., and Elvehjem, C. A. Growth-retarding Effect of Corn in Nicotinic Acid-low Rations and Its Counteraction by Tryptophane. *Science*, 101:489-490 (May 11), 1945.
20. Unpublished data, Mexican National Institute of Nutrition.
21. Cravioto, R. O., Anderson, R. K., Lockhart, E. E., Miranda, F. de P., and Harris, R. S. Nutritive Value of the Mexican Tortilla. *Science*, 102:91-93 (July 27), 1945.
22. Hurtado, A., Merino, C., and Delgado, E. Influence of Anoxemia on the Hemopoietic Activity. *Arch. Int. Med.*, 75:284-323 (May), 1945.
23. Levels of Carotene and Vitamin A in Human Blood. *Nutrition Rev.*, 3:38-39 (Feb.), 1945.
24. Feder, V. H., Lewis, G. T., and Alden, H. S. Studies on the Urinary Excretion of Riboflavin. *J. Nutrition*, 27:347-353 (Apr.), 1944.
25. Snell, E. E., and Strong, F. M. A Microbiological Assay for Riboflavin. *J. Ind. Eng. Chem., Anal. Ed.*, 11:346-350 (June), 1939.
26. Huff, J. W., and Perlzweig, W. A. A Rapid Method of Estimating N1-methylnicotin-Amide in Urine. *J. Biol. Chem.*, 150:483-484 (Oct.), 1943.
27. Kruse, H. D. Medical Evaluation of Nutritional Status. IV. The Ocular Manifestations of Avitaminosis A, with Especial Consideration of the Detection of Early Changes by Biomicroscopy. *Pub. Health Rep.*, 56:1301-1324 (June 27), 1941.
28. Anderson, R. K., and Milam, D. F. Biomicroscopy of the Eyes in Evaluation of Nutritional Status. Conjunctival Changes. *J. Nutrition*, 30:11-15 (July), 1945.
29. Darby, W. J., and Milam, D. F. Field Study of the Prevalence of the Clinical Manifestations of Dietary Inadequacy. *A.J.P.H.*, 35:1014-1021 (Oct.), 1945.
30. Anderson, R. K., and Milam, D. F. Biomicroscopy of the Eyes in Evaluation of Nutritional Status. Corneal Vascularization. *J. Nutrition*, 30:17-24 (July), 1945.

Development of a Voluntary Agency for Venereal Disease Control*

HERBERT H. COWPER, M.D., M.P.H.

Los Angeles City Health Department, Division of Venereal Disease Control, and the Venereal Disease Council of the City and County of Los Angeles, Inc.

IN 1841, a Frenchman who had visited America wrote the following:

Americans of all ages, all conditions and all dispositions constantly form associations . . . religious, moral, serious, futile, extensive or restricted, enormous or diminutive . . . If it be proposed to advance some truth, or to foster some feeling by the encouragement of a great example, they form a society. Wherever, at the head of some new undertaking, you see the government in France, or a man of rank in England, in the United States you will be sure to find an association . . . I have often admired the extreme skill with which the inhabitants of the United States succeeded in proposing a common object to the exertions of a great many men, and in getting them voluntarily to pursue it.^{1, 2}

The "common object" for the Los Angeles Venereal Disease Council was arrived at during a teaching program in which nurses in service, students from the University of California, and three schools of nursing were oriented in public health as practised by the Los Angeles City Health Department in a program consisting of two days of formal lectures on venereal diseases and one month of practical experience in the department. Organized to meet the requirements of the State Board of Nurse Examiners, the first course was held toward the end of August, 1943.

This teaching program, as well as the Venereal Disease Council, was conceived and developed by a state public health nurse assigned to the Los Angeles City

Health Department. She had had experience with a lay organization for the advancement of public health in Alameda County. She had seen the usefulness of that organization in promoting public health, supplying the official health agency with needed personnel and equipment items, and in bringing to the attention of civic governing bodies the importance of an adequate budget for health. Certain guiding principles in organization were obtained from publications of the American Social Hygiene Association.^{3, 4}

The third lecture series for nurses was expanded to include a few guests from health and welfare agencies. Other social agencies became attentive and the fourth series of lectures was attended by approximately 100 persons, some attracted by newspaper publicity given to the meeting. At this institute of November 19, 1943, on the medical, public health, social, and psychiatric aspects of venereal disease control, a panel discussion aroused such interest and so many unanswered problems that members of the panel met formally at a later date to discuss plans for organized venereal disease education in city schools.

As a result of general interest, ideas unfolded. Some thirty-two additional persons, representing City and State Departments of Health, schools and colleges, newspapers, police officers, radio studios, medical specialists, labor, Parent-Teacher Association, League

* Address presented at Western Venereal Disease Control Officers' Conference, San Francisco, Calif., May 25, 1947.

of Women Voters, Council of Social Agencies, American Institute of Family Relations, and Catholic, Protestant, and Jewish church representatives accepted invitations to join the original panel group of seven. The City Health Officer called the first committee meeting December 7, 1943. Some twenty-five attended. A temporary chairman and a secretary were elected. The chairman appointed finance, planning, and nomination committees. A short talk on present venereal disease control activities was delivered. Committee members suggested that more work should be done in public education, school education, and in the rehabilitation of sex delinquents. A resolution was adopted requesting that the Surgeon General make permanent recordings of the K.F.I. radio broadcasts on venereal diseases, which at that time were receiving national attention.

The planning committee met again in December to prepare for a general meeting on January 20, 1944. Fourteen more members were added, including representatives from the Merchants and Manufacturers Association, Hollywood, political organizations, courts, various governmental institutions, and other health department members. At the January meeting it was reported that, due to the influence of the Council, the Parent-Teacher Association had employed a nationally known authority on sex education for the purpose of instructing teachers in facts and methods of presenting sex education in primary and secondary schools. This program was approved by the Board of Education. Teacher credits were allowed. At the same meeting, a well known family relations expert delivered a talk on divorce in relation to venereal disease, and a professor of psychology of a local college presented plans for a psychologic work-up for venereal disease inpatients. It was thought that individual findings of the latter study

could be useful in making referrals to the rehabilitation program of the California Youth Authority. During this second meeting, the desirability of having an executive secretary who would carry out the instructions of the committee, was mentioned.

The group formally went into action February 10, 1944. Regular officers were elected, an executive committee was selected, the name "Coördinating Committee for Venereal Disease Control" was chosen, subcommittees on finance, publicity, education, institutes, and psychologic studies were appointed, and a statement of purpose was formally adopted.

The statement of purpose reads as follows:

It is the purpose of the Coördinating Committee to serve as a clearing house, information center, and medium of exchange for various community organizations which have to do with problems relating to venereal disease control in its broader aspects; to stimulate interest in problems that need attention, and to extend and facilitate the services of the health department in the control of venereal disease. The Coördinating Committee is not an operating organization but functions in an advisory, promotional and coördinating capacity. Through its services the work of other community agencies in the solution of venereal disease and related problems is to be promoted as well as that of the health department.

This purpose of the organization is in effect that of any non-professional and nonofficial voluntary health agency. It is promotional in character, utilizing the methods of education, publicity, and propaganda to achieve the two essential needs: (1) justification—by carrying the gospel, and (2) perpetuation—by attracting new members and new support. It also enlarges the field of activity to include the basic factors of promiscuity and "average of concern for body health" in the spread of venereal disease as related to education, opportunity, housing, medical care, and other normal human growth requirements. In line with current thought,

the committee was not to carry out operational functions. However, some operational tasks are necessary even to a voluntary health agency. Some tangible demonstration of usefulness and some promotional springboard, such as chest x-rays or blood tests, must be carried out.

Following the formal organization of the committee, rules of membership, policy statements, and a constitution were formulated by the executive committee and adopted by the membership. At each subsequent regular monthly meeting, leaders in governmental and voluntary agencies presented formal talks on their activities in relation to venereal disease control. Speakers included members of the police department, judiciary, Department of Institutions, Mayor's office, and Social Protective Division of the Federal Security Agency. Since the Venereal Disease Council was nonofficial and responsible only to itself and the public, it could, and did, scrutinize the activity of every agency. Mystics and logicians alike were granted impartial hearings.

In 1945, the committee was well under way. Early in the year a resolution memorializing the Mayor and City Council to study ways and means for increasing the health budget, was drawn. This resolution was in turn backed by the Association of School Physicians, Council of School Nurses, the Junior League of Los Angeles, Los Angeles Central Labor Council, Southern California Association of Life Science Teachers, Tenth District Parent-Teacher Association, California Protective Society, Health Division of Welfare Council, League of Women Voters, Los Angeles County Probation Committee, and a Teachers' Union. In later meetings with the Mayor, supported by Army, Navy, and Public Health Service officials, an emergency increase of approximately \$78,000 per year was obtained for the health de-

partment. This, in my opinion, has been the greatest contribution of the committee.

At about the same time, connection with the Columbia Foundation³ was established, and arrangements were made for the committee to receive a grant of \$10,000. This fund was made available for one year, during which time the committee was to demonstrate its worth to the community. Support during succeeding years was, in the Foundation's judgment, to come from other sources. The committee incorporated under the title of the "Venereal Disease Council of the City and County of Los Angeles," a name adopted earlier to eliminate the objectionable and indefinite terms of "Coördinating" and "Control" and to widen the area to be served.

An excellent selection was made in employing an executive secretary who was well qualified, scholastically and by experience, and was very personable. This selection was possible during a time of acute labor shortage because of a relatively high salary. He began work in July, 1945, 1½ years after formal organization of the committee. There can be no doubt about the wisdom of this move, yet in retrospect it seems that the Council members' participation decreased slightly while the executive secretary's responsibilities increased.

A diagrammatic picture of the organization from its inception to January, 1947, is presented by the following list of projects and accomplishments. The Council:

1. Revealed as a result of a telephone survey that social agencies lacked information but had an enthusiastic desire to participate in the program.
2. Instituted psychologic work-ups consisting of psychometric tests, personality inventories and aptitudes, on venereal disease patients.
3. Secured Parent-Teacher Association funds and sponsorship for a series of lectures

over an 18 month period on sex education. Approximately 850 persons completed the course.

4. Surveyed prison facilities for prostitutes and encouraged improvements in jail recreational and rehabilitation programs.

5. Compiled a bibliography on the venereal diseases for public libraries.

6. Actively supported the health department in a substantial improvement in the budget for personnel.

7. Supported increase in salary for public health nurses.

8. Developed with the Board of Education a sex education lecture series for mothers attending child health clinics.

9. Submitted a resolution to the Board of Education requesting an exploration of needs and methods of sex education in public schools. This was formally acknowledged by the Board which authorized the formation of a study committee of experts and interested persons.

10. Actively assisted in the educational program at the local Rapid Treatment Center, arranging for circulating library service at this institution.

11. Obtained permission of Catholic authorities to resume showings in schools of the film "Know for Sure," which had been withdrawn due to their objections.

12. Supplied and distributed many pamphlets on sex education. Prepared the pamphlet *Do You Know* and posters on the Rapid Treatment Center for clinic patients.

13. Maintained an active program of film showings and lectures on venereal disease for public groups.

14. Materially aided in arranging educational and blood survey programs in six high schools.

15. Planned four large public institutes on all phases of venereal disease control.

16. Interested a local high school to plan and carry out a forum on health and family life for Public School Week. Sixteen schools participated.

17. Prepared material and participated in a weekly radio program on health and family life.

18. Completed a survey of adults regarding their source of sex information and their retrospective views on their schools' program.

19. Explored the need for an adequate teaching film on venereal disease for public schools.

20. Initiated five "work shops" for teachers on Family Life Education. Approximately 150 teachers completed these sessions.

21. Originated a program, with the coöperation of the Southern California Retail Drug-

gists Association, for informing druggists regarding the procedure and importance of the proper referral of venereal disease patients.

22. Suggested the program of monthly mailings to private physicians on venereal disease trends, diagnosis, and treatment.

The sharing of problems and the pooling of experience in their solution, as exemplified in the Council, leads to group participation and group action. The process is slow but effective, and in looking backward, the number of accomplishments is surprising.

During the first part of 1946, the Council was faced with a termination of its funds by July. Several possible alternatives were presented: another grant from Columbia Foundation, which seemed unlikely; a special community solicitation of funds; Community Chest participation or a return to former non-budgetary status. The Welfare Council of Los Angeles, made up of representatives of the Community Chest, recommended that the Council seek affiliation with the Los Angeles Tuberculosis and Health Association, and that if such was accomplished, a grant of \$15,000 would be available for the Council's activities. This was in accord with the general recommendations of the Gunn-Platt report⁶ which suggested the consolidation of voluntary health agencies for the purpose of pooling resources, limiting the number of public appeals for funds, better distribution of expenditures, and for promotion of general health, not specific diseases.

Though there was some disagreement with this report by a member⁷ of its Advisory Committee, it was almost universally agreed that a venereal disease organization could not raise public funds independently, and should properly align with a larger health agency. The Los Angeles Tuberculosis and Health Association was reluctant to include the venereal diseases in its program, but after mature consideration and consultation with the Welfare Council and the California Social Hygiene Association, a

one year trial marriage was consummated on February 19, 1947. The offices of the Council's Executive Secretary were moved to the Tuberculosis Association and the Council suspended its activities in favor of a committee selected by the Executive Board of the Association. Just prior to this union, the Venereal Disease Council affiliated with the American Social Hygiene Association, and will, with the Tuberculosis Association's committee, serve as the local outlet of the American Social Hygiene Association.

It is believed that this change is a step forward for three reasons: (1) A certain organizational stability is gained; (2) the community standing of the Tuberculosis and Health Association lends prestige to venereal disease problems; and (3) the educational and promotional experience and equipment of that agency may be directed to study and combat the venereal diseases. However, certain undesirable elements are attached to this amalgamation, i.e., the enthusiasm that accompanies a new and unconventional organization is lost; the Council is yoked with the traditions, patterns, and dignity of an old and crystallized agency; and, due to administrative policy, those actively concerned with venereal disease control are removed from direct relationship with the new committee.

A story of pathfinding experience has been given. Welfare agencies of neighboring communities in Los Angeles County are seeking similar organizations. According to the American cus-

tom, many such organizations are to be expected. This writer would advise venereal disease control officers to support them in their growth and development. They may be harassing and irritating at times, but they can also be very useful in the general promotion of the control program. Some will no doubt feel that a voluntary agency for the venereal diseases is not justified since the efforts of official agencies are well organized and developed. No one, however, will disagree that promotional activity could be multiplied and improved, or that the underlying factors in the spread of these diseases have scarcely been touched.

REFERENCES

1. Cavins, Harold M. *National Health Agencies*. Washington: Public Affairs Press, 1945, p. 33, etc.
2. de Tocqueville, Alexis. *Democracy in America*, 4th ed. New York: J. & H. G. Langley, 1841, Vol. 11, pp. 114-115.
3. *Suggestions for Organizing a Community Social Hygiene Program*. New York: American Social Hygiene Association, Publ. 1433, 1942.
4. Kirkendall, Lester A. Now Is the Time to Prepare. *Am. J. Soc. Hyg.*, 28:458, 1942.
5. Harrison, S. M., and Andrews, F. M. *American Foundations for Social Welfare*. New York: Russell Sage Foundation, 1946, p. 120.
6. Gunn, Selskar M., and Platt, Philip S. *Voluntary Health Agencies*. New York: The Ronald Press Company, 1945.
7. Armstrong, D. B. Facts and Fallacies in the Integration of National Voluntary Health Agencies. *J.A.M.A.*, 7:587, 1946.

NOTE: The author is indebted to Dr. Hamlet C. Pulley, Chief Assistant Health Officer, Los Angeles City Health Department; Mrs. Flavia Prentiss, P.H.N., Chairman of the Finance Committee; Albert Torribio, past Executive Secretary, and Daniel Howell, present Executive Secretary of the Venereal Disease Council of the City and County of Los Angeles, Inc., for valuable assistance in the preparation of this manuscript.

Study of Vision Testing Procedures^{*}

THOMAS E. SHAFFER, M.D.

Associate Professor of Pediatrics and Physician, University School, The Ohio State University, Columbus, Ohio

THIS report deals with some observations made during a study of the vision of children carried on at the University School, Ohio State University, in the spring of 1947. The study consisted of a thorough appraisal of the ocular functions of 203 children in the first through the eleventh grades and was a coöperative undertaking by members of the staffs of the College of Medicine, the College of Education, and the School of Optometry. A number of people contributed services and advice, and I am particularly indebted to Dr. Claude S. Perry of the Department of Ophthalmology and to Dr. Glenn A. Fry and Dr. Howard F. Haines of the School of Optometry for assistance in all stages of the investigation.

The main purpose of our study was to evaluate several widely known screening methods for testing visual function and to bring forth, if possible, some facts upon which plans for a vision testing program could be based.

The need for periodic vision testing in schools has been amply demonstrated. School physicians, nurses, and administrators are now faced with the problem of deciding upon the scope and methods to be used in such a program.

Methods and Procedure—By random selection, determined only by the order in which parental permission was re-

ceived, 203 pupils from the 1st through the 11th grades took part in the study. The Snellen Test for visual acuity at 20 ft., the Massachusetts Vision Test,^{1,2} and the Keystone Telebinocular Tests³ were administered to each subject in an unhurried fashion and in quiet surroundings. For the Snellen Test, the illiterate "E" chart, artificially and evenly illuminated, was used. In administering the Massachusetts and Keystone Tests, the procedures prescribed in directions accompanying the apparatus were followed meticulously, except that the three parts of the Massachusetts Test were given, regardless of failure in one part. Additional procedures were employed, including tests for color-blindness, eye dominance, and near visual acuity. The same examiners also made precise measurement, in prism diopters, of ocular muscle functions.

Soon after these tests, but not on the same day, each subject was given a complete examination, with cycloplegia to relax accommodation, by an ophthalmologist. This examination included a search for pathologic conditions within and surrounding the eyes, and determination of refractive error by both retinoscopic and subjective methods. Some time later, after the effects of cycloplegia had completely disappeared, each child was reexamined to determine the amount of correction required to obtain maximal acuity with accommodation functioning. For evaluative purposes in this study, the cor-

^{*} Presented before the School Health Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 6, 1947.

FIGURE 1

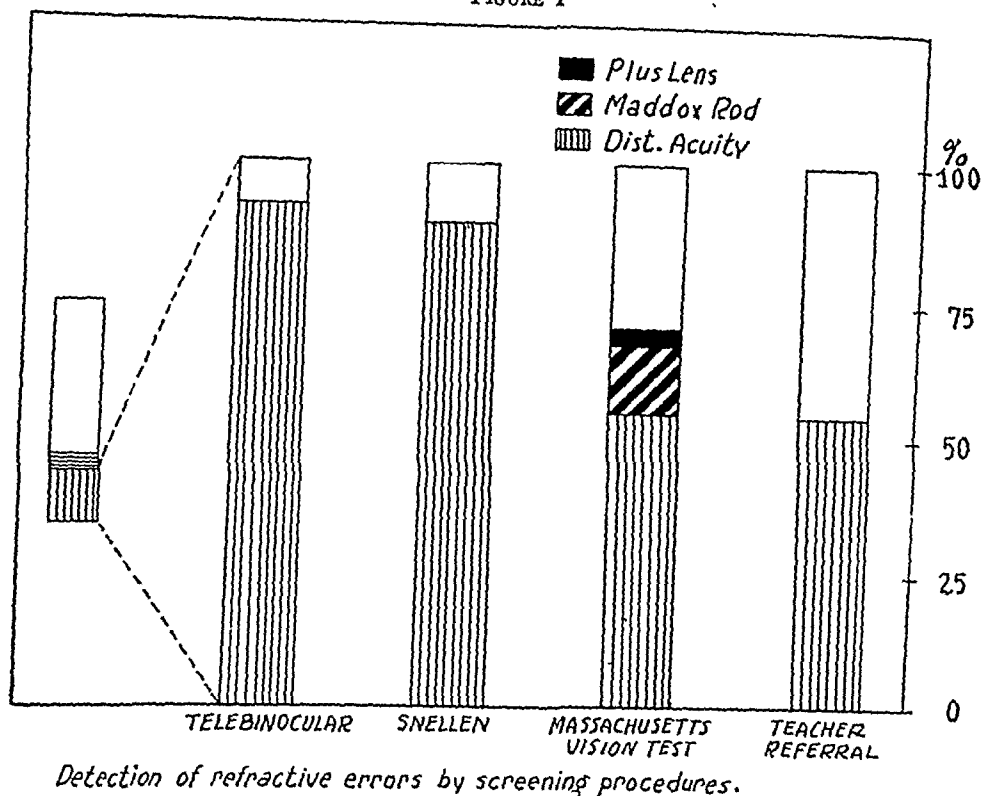
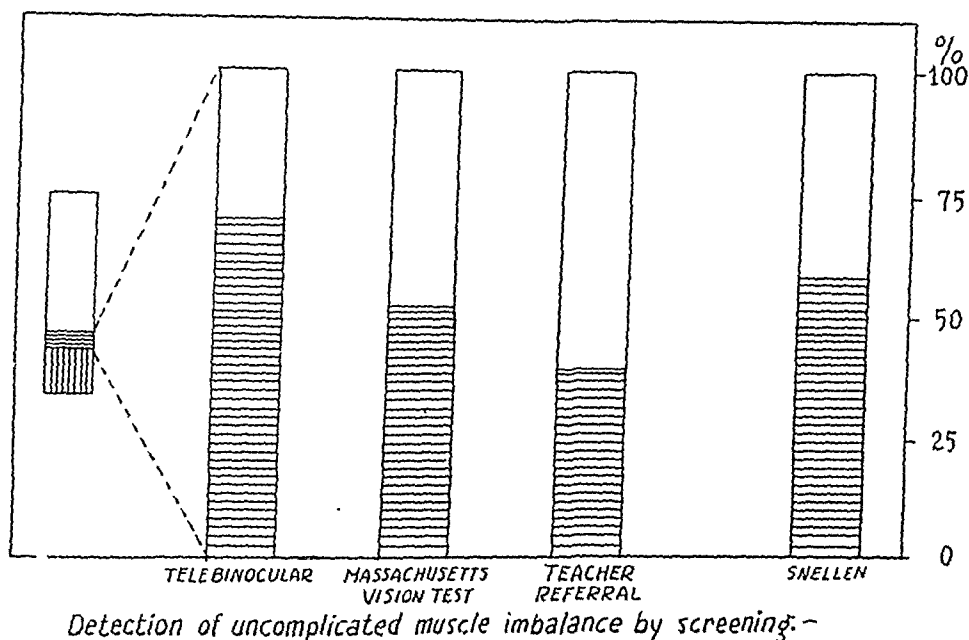


FIGURE 2



NOTE: The small bar-graph on the left side of Figure 1 and Figure 2 shows the distribution of cases with refractive error (vertical lines), cases with muscle imbalance alone (vertical lines) and cases with normal vision (unlined) among the total group of 188 children.

rection required at this post-cycloplegic examination has been recorded as the refractive error.

Subjects who wore glasses were usually tested with and without them. With few exceptions the data used for these individuals are the results obtained with glasses, and opinion on need for referral is based on the difference between our refraction and the correction afforded by the subject's glasses.

Results—After elimination of incomplete records due to absence during part of the examination, data on 188 subjects were analyzed. In age distribution, each year of age between 6 and 15 was represented by from 6 per cent to 12 per cent of the total, while ages 16, 17 and 18 made up, respectively about 6 per cent, 4 per cent, and 0.5 per cent of the sample.

Specialists assisting in the study decided on the basis of errors of refraction that 47 cases, or 25 per cent, required treatment or observation. There is an additional group of 14 cases, 7.4 per cent, consisting of children who had no marked error of refraction but who proved to have sufficient ocular muscle imbalance to justify referral, making a total of 61 cases, or 32.4 per cent of the total group, whose detection by screening examination should be expected.* As there is some difference of opinion among specialists concerning the advisability of searching for muscle imbalance uncomplicated by errors of

refraction, this group of 14 cases has been kept distinct and will be considered separately.

Except for the Snellen Test, the standards for referral or failure were those prescribed in directions received with the equipment. In the Snellen Test, children 7 years of age and younger were failed (referred) when vision in either eye was 20/40 or worse, while children older than 7 years were failed when either eye had vision 20/30 or worse. Figure 1 shows the performance of the three screening procedures in the group of 47 cases with refractive errors. The Telebinocular disclosed 43, or 91.5 per cent of them, the Snellen Test identified 42, or 89.4 per cent, and the Massachusetts Vision Test revealed 32, or 68.1 per cent. The accuracy with which teachers were able to select children in need of referral is also shown. While this is not a reliable procedure when used alone, teachers did select 25 cases, 53.2 per cent.

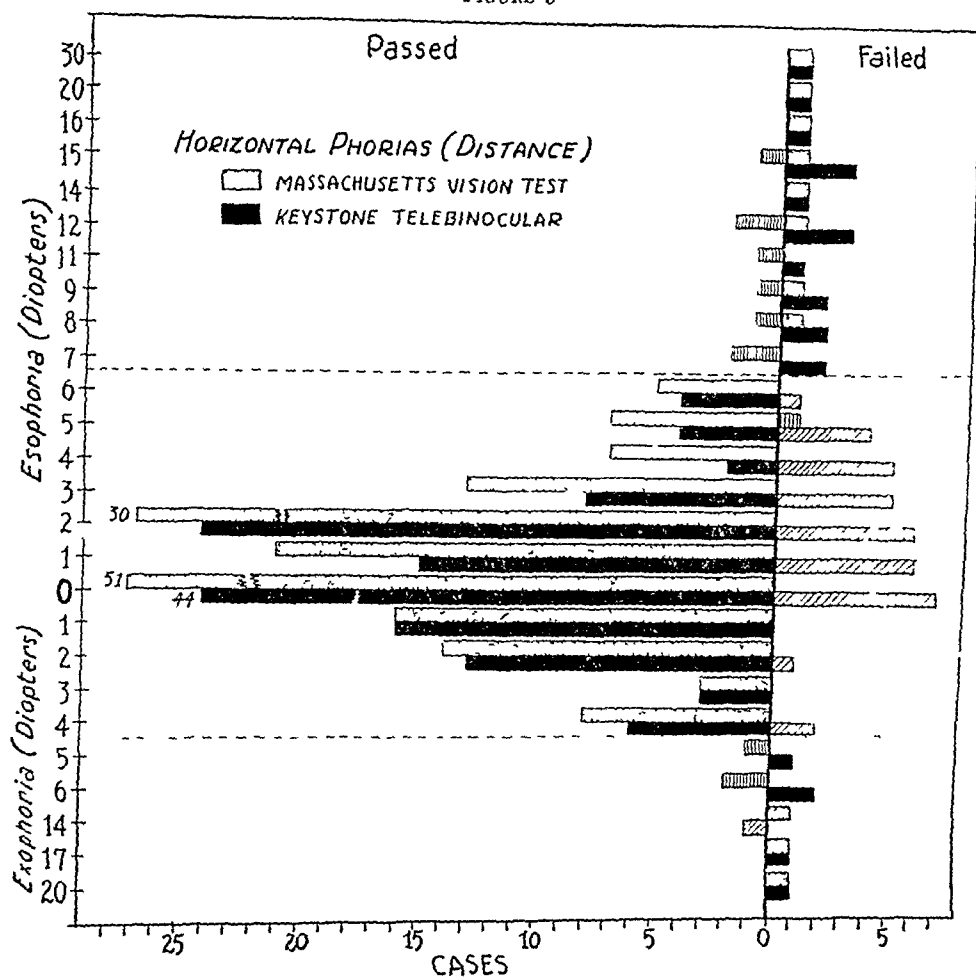
The performance of each test among the cases with muscle imbalance, uncomplicated by significant error of refraction, is shown in Figure 2. The Telebinocular Test revealed 11 of 14 cases, and the Massachusetts Vision Test disclosed 8 cases. It is interesting to note that 9 of the cases would have been referred for further examination on the basis of the Snellen visual acuity results, although that test is certainly not specific for imbalance.

With regard to ocular muscle balance, comparison of results from the tests specific for lateral imbalance from the Telebinocular and the Massachusetts Tests is worthy of note. The amount of esophoria or exophoria was accurately measured by optical prisms for comparison with screening results. In Figure 3 it is seen that in the test at 20 ft. the Massachusetts Test rarely fails a case unnecessarily, but does miss cases it is constructed to detect. The Telebinocular Test refers a great many

* Need for referral was established on these criteria: *Spheres*: +1.50 diopters or more; any amount of minus. *Cylinders*: under 13 years of age, -0.75 or more; age 13 years and over, -0.50 or more. *Phorias*: more than 6 prisms of esophoria or 4 prisms of exophoria at 20 ft., and more than 6 prisms of esophoria or 8 prisms of exophoria at near point; more than 1.25 prisms of hyperphoria.

Except for minus corrections these limits are thought to be too generous, especially for older children; but more rigid limits than those specified in the tests would have made impartial evaluation impossible. With respect to myopia, it is our belief that any degree of near-sightedness should be detected early and that the child, particularly an adolescent, should be under observation even though glasses may not be indicated at the first referral.

FIGURE 3



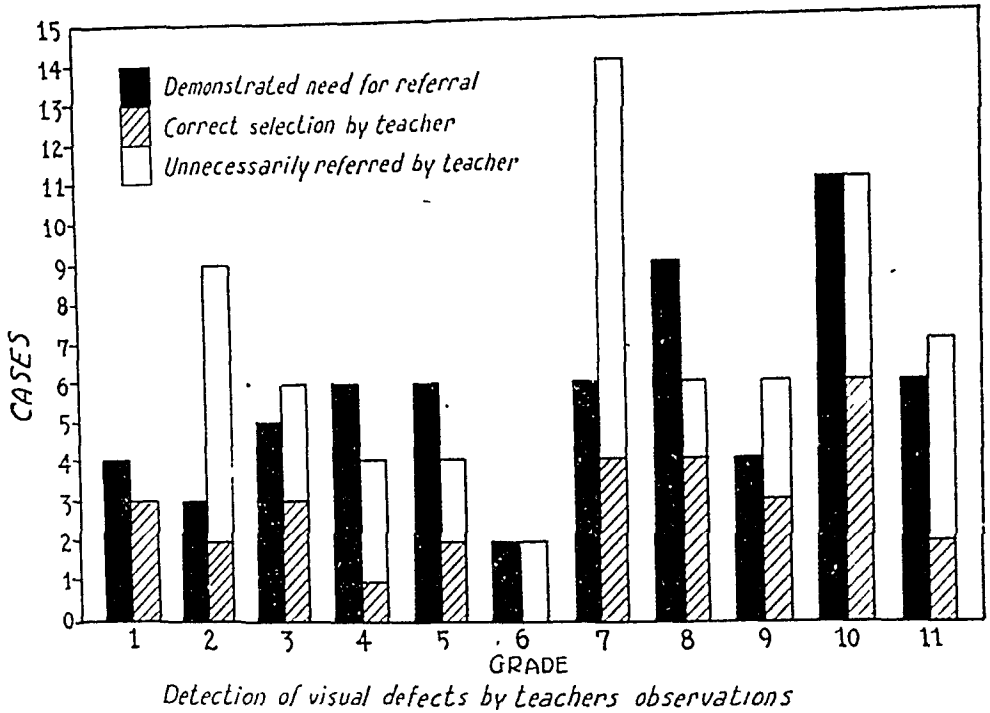
cases needlessly, but rarely misses significant ones. A similar pattern was found for each test in the case of imbalance at the reading distance.

Results from each test in the group of 127 cases considered as having no significant visual problem are as follows: Sixty-eight, 53.5 per cent, of these failed the Telebinocular Test; 28, 22 per cent, failed the Snellen Test; and only 2 cases, or 1.6 per cent, did not pass the Massachusetts Test.

We do not feel prepared at this time to make a final statement on the plus-sphere test. The test is based on sound physiological principles. Its usefulness, however, is limited by the small number of children who have sufficient degree of simple far-sightedness to accept a

correction of $+1.50$ sphere. The test, in our study, was found to refer many children unnecessarily. In 6 instances 20/20 vision through the plus-sphere was recorded, when, according to refraction findings, this should not have occurred. There were many more occasions when 20/30 vision was noted without apparent justification. Technical errors may have been responsible, but it is doubtful whether the test will ordinarily be given under such favorable circumstances. We have become interested in investigating modifications in the technique of the test because this test theoretically at least should be a valuable addition to a screening procedure. For example, further study is needed to determine the amount of

FIGURE 4

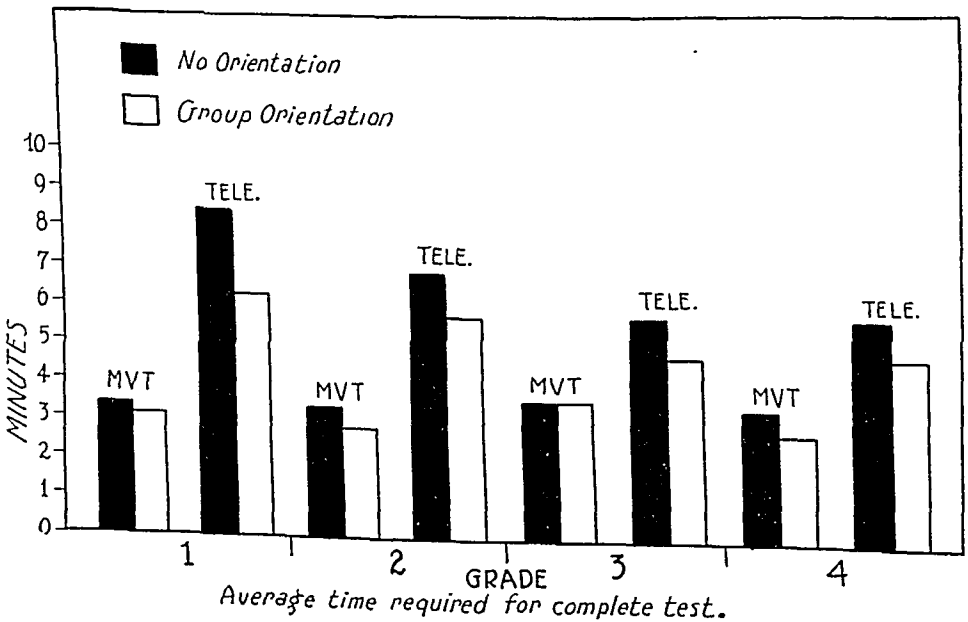


plus-sphere appropriate for testing in different age groups. Hyperopia of less than $+1.50$ diopters may properly be considered normal in very young children. Among older children, however, lesser degrees of hyperopia are significant, and for them it is probable

that a spherical lens of $+0.75$ or $+1.00$ diopters should be used in the test. Another matter under investigation is the length of time an individual should wear the plus-sphere before his visual acuity is determined in this test.

Inclusion of tests for visual acuity at

FIGURE 5



reading distance in school testing programs has been advocated by some. Theoretically such a test is not warrantable, since far-sighted children usually can accommodate sufficiently to pass it, and astigmatic and near-sighted individuals who would fail it would be expected also to fail the distance-acuity test. Our findings support this view, since only one-third of the group needing referral failed the test. Only one subject passed the distance-acuity test and failed the near-acuity test.

Figure 4 depicts the degree of accuracy with which teachers or counselors were able to select the children with significant visual problems. The irregular pattern indicated that the individual ability of each teacher plays a large part in the matter. The good records of several teachers emphasize the contribution which well trained, health conscious teachers can make to such a program.

The time required for administering the Massachusetts Vision Test and the Telebinocular Test was studied in four elementary grades. Students in each grade were divided into two similar groups, and one group in each grade received some preliminary explanation of the tests. The average time needed for students in each group is shown in Figure 5. In addition to the benefits from health teaching, there is a small saving of time in the instructed group which would become appreciable when a large number of children are to be tested.

COMMENT

At this stage in the analysis of our data several comments concerning these vision testing procedures seem justifiable: The Snellen Test for visual acuity at 20 ft. is the most reliable single screening procedure, when car-

ried out carefully and with proper illumination. It should by all means be included in testing programs in schools.

The Keystone Telebinocular, when the entire battery of tests is used for a screening procedure, has a much higher over-referral rate than the Snellen Test and is not significantly more accurate in finding cases in need of referral. Unnecessary referrals, without increased case finding efficiency, are not economical. This criticism does not refer to the possible usefulness of the Telebinocular in investigating readiness for reading and reading failures, a matter we have not yet studied.

The record of the Massachusetts Vision Test, both in selecting cases in need of referral and in the margin of over-referral, seems too low for the purposes of a screening test in schools. Since the Snellen Test is included in the Massachusetts Test, more exacting criteria for referral would achieve at least the efficiency of the Snellen Test as employed in this investigation plus the cases discovered by the plus-sphere and Maddox rods. More rigid standards are particularly needed in the older school-age groups, where even small refractive errors merit careful evaluation. Recommendations with respect to this as well as some modification of the plus-lens test will be included in our final report.

Further analysis of our data is being directed toward recommendations for a simple, effective vision test for use in all school-age groups.

REFERENCES

1. Sloane, A. E. Massachusetts Vision Test. *Arch. Ophth.*, 24:924 (Nov.), 1940.
2. Amer. Med. Assoc., Council on Physical Therapy. Massachusetts Vision Test Acceptable. *J.A.M.A.*, 135: 158 (Sept.), 1947.
3. *Keystone Visual Survey Tests*, DB Series. Keystone View Co., Meadville, Penna.

American Journal of Public Health

and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

August, 1948

Number 8

Editorial Board

REGINALD M. ATWATER, M.D.
Chairman, and Managing Editor

LEONARD GREENBURG, M.D.
PROFESSOR JOHN M. HENDERSON
RALPH S. MUCKENFUSS, M.D.

STUART MUDD, M.D.
RAYMOND S. PATTENSON, PH.D.
GEORGE ROSEN, M.D.

C.-E. A. WINSLOW, DR.P.H., Editor

AUGUSTA JAY, *Editorial Associate*

HEALTH AND ECONOMICS

WE are generally accustomed to trace recognition of the importance of economic factors in health to John Howard and Lord Ashley, and Edwin Chadwick and John Simon, the great English pioneers of sanitary reform in the 18th and 19th centuries. The English approach to these problems was, however, characteristically empirical; and its philosophical formulation was handicapped by the dominant *laissez faire* individualism of the times. George Rosen has performed a real service¹ in preparing a scholarly and well balanced "Genetic Analysis" of the concept of "Social Medicine," which we recommend to readers interested in the basic aspects of the problem. The first outstanding thinker in this field (after Johann Peter Frank) was Virchow who said a century ago: "Medicine is a social science and politics nothing but medicine on a grand scale." Edward Reich² in 1871 arranged his *System of Hygiene* under four main headings: Moral Hygiene (including mental hygiene); Social Hygiene (including the problems of poverty); Dietetic Hygiene (including not only nutrition but the whole field of personal hygiene); and Police Hygiene (conventional public health administration). He says, "Because social life depends, on the one hand, on the physical and moral constitution of individuals, and on the other, on property; the measures taken by social hygiene can be effective only if they aim to improve the constitution, and at the same time make possible a natural development of the property relationship. Above all else social hygiene must wipe out poverty, for as long as this exists there can be no question either of improving the constitution or of a normal development of economic relations." Finally, Alfred Grotjahn in the present century conceived clearly the idea of systematic investigation of medical problems in the light of social science, so as "to arrive finally at a theory of social pathology and social hygiene which, with its own methods . . . would be used to investigate and to determine how life and health, particularly of the poorer classes, are dependent on social conditions and the environment."³

An even more exhaustive review of this subject has recently appeared from the pen of René Sand, a distinguished Belgian pioneer in the field of social medicine.⁴ He defines "Social Medicine" as "the art of prevention and of cure, considered . . .

from the point of view of the reciprocal relations which relate the health of men to the conditions of their life." Sand's book is primarily historical and is written with a width of vision not before achieved in this field. He ranges from Egyptian records of 3000 B.C. to the Constitution of the World Health Organization. Major chapters deal with the history of the medical profession in its various social and economic relations; with hospitals, outpatient services, and social service; with personal hygiene, public hygiene, social hygiene, and occupational hygiene; with public assistance; and with the basic sciences relating to man (demography, anthropometry, psychology, sociology, and the like). In a final chapter, Dr. Sand reviews 20th century advances of social medicine in Germany and Austria, France, Belgium, the Netherlands, Italy, Czechoslovakia, Romania, Jugo-Slavia, Great Britain and its Dominions, the United States and Latin America, with an unfailingly keen perception of major trends.

The critical reader may be inclined to point out that the gross social inequalities which stirred Chadwick and Simon, Virchow and Reich in the 19th century no longer exist in the England or the United States of today. This contention is relatively sound. The difference between economic classes has been measurably narrowed so that the condition of what Chadwick described as "the laboring population"—in fortunate countries like ours—has been greatly ameliorated; but the gap has not been closed, as pointed out at our Atlantic City Convention last fall.⁷

The contribution by Terris in this issue of the *Journal* brings out an interesting relationship between economic and occupational status and tuberculosis rates in the City of Buffalo. The mortality from this disease was, of course, higher at low economic levels. For males under 35 years of age and for females at all ages, the figure for the lowest economic group was about twice that for the highest economic group. For males over 35 years of age, however, the figure for the lowest economic group was three and one-half times that for the highest economic group. This excess Dr. Terris reasonably attributes to conditions of occupation.

The same relationship is brought out with striking force in the recent *Statistical Yearbook* of the New York Tuberculosis and Health Association.⁸ The actual death rate for white persons in New York City is almost the same for males and for females up to the age of 34 years (between 18 and 31 per 100,000 at ages 20 to 34). From 35 years on the rate for females drops from 27 at 30-34 years to 16 at 45-49 years and then rises to 34 per 100,000 at 70-74 years. But the rate for white males rises steadily from 31 at 30-34 years to 142 at 70-74 years.

This may be due to some physiological difference between the sexes; but it seems far more probable that the strains of earning a livelihood are the major factors at work.

Social hygiene (in the broad sense) still has its serious problems to be solved.

REFERENCES

1. Rosen, G. *Bull. Hist. Med.* 21:674 (Sept.-Oct.), 1947.
2. Reich, E. *System der Hygiene*. Leipzig: F. Fleischer Verlag, 1870-1871.
3. Grotjahn, A. *Eulebter und Erstrebtes Kommissions-Vortrag*. F. A. Herbig. G.M.B.H., 1932.
4. Sand, R. *Vers la Médecine Sociale*. Lieges J. B. Bailliere et fils. 1948, 671 pp.
5. Winslow, C.-E.A. *A. J. P. H.* 38:173 (Jan.), 1948 (Part II).
6. *Tuberculosis Statistical Reference Yearbook*. Year 1946. New York Tuberculosis and Health Association. 1947.

THE PUBLIC HEALTH NURSE AND THE SOCIAL WORKER

THE present issue of this *Journal* contains at least three articles which involve, in some measure, emphasis on the respective roles of the public health nurse

and the social worker in dealing with important present-day health problems. Perhaps perusal of these articles may stimulate the reader—as it did the Editor—to speculate on the relations of these two professions.

A commonly accepted definition of public health reads as follows:

“Public health is the science and the art of preventing disease, prolonging life, and promoting physical and mental health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing services for the early diagnosis and treatment of disease, and the development of the social machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health.”

The attempt to find a definition of public welfare which has received a similarly general recognition in that field has proved unsuccessful. The Editor therefore asked two friends, of distinguished eminence in social work, to try their hand at such a formulation—with the following result: “Public welfare (social welfare) is concerned with all activities relating to the well-being of the individual and the group. It encompasses prevention of social disorders, treatment of social maladjustments, and the development of a social order which provides the essentials for a satisfying life. Public welfare is advanced through social and health services to the individual and the group (such as psychiatric and psychological services, social case work, financial assistance, and recreation) social action (such as the organized efforts of the community and legislation), and education.”

The reader will note that public health theoretically annexes the whole field of social welfare under “the development of the social machinery which will ensure a standard of living adequate for the maintenance of health.” On the other hand, social welfare, politely but firmly, takes possession of the field of public health, since “social and health services to the individual and the group” are essential prime elements in the advancement of social welfare.

Both these contentions are entirely sound; and they indicate the need for mutual understanding between two closely related and overlapping professions. The most concrete possibility of jurisdictional misunderstanding lies in the individual home. Most cases of sickness involve social problems; and most cases of poverty are likely to involve health problems. The public health nurse will often need the aid of the family social worker and the social worker will often need the help of the nurse. The primary classification of a given family may be a matter of chance, depending on whether sickness or economic stress happened to cause the primary visit of one or the other field worker. Incidentally, it may be pointed out that the social worker tends more and more to limit her home visiting, believing that the client may be freer to discuss his, or her, problems apart from the family setting, which at a given time may be confused or under tension.

Ideally, as it seems to us, there should be available for any given area a district field worker of each of these two types. In the health field, there is general acceptance of the standard of one public health nurse for every 2,000 people; and this ideal is already realized in our best organized communities. In many rural areas the nurse—for lack of adequate social service—is forced to fill both health and social functions; and in Monmouth County, N. J., such a program is definitely in force. More than fifteen years ago, a public health surveyor had the temerity to suggest that at least one generalized social worker should be provided for every 10,000 persons in the population. If some goal of this sort could be set, it would clarify planning in the wide borderland of health and welfare.

Intelligent coöperation between nurse and social worker should be facilitated

by current trends of thought with respect to the training of the social worker herself. The schools of social work are reconsidering their curricula with a view to developing a more adequate "core program" which would avoid premature specialization but give each student a wider vision of the basic principles in social work (including its health aspects) which are important for the generalized social case worker.

There will be resistance in certain localities to a generalized social case work program, due to the traditional feeling that the worker in a public welfare department who provides direct relief in the form of money grants, food, clothing, shelter, and medical care must deal only with the indigent or the near-indigent. This is, however, a prejudice which is gradually losing its force. A sound public welfare program should include case work service to all families who need such service, whether they also require direct relief or not.

Even, however, if we agree on the desirability of providing for the homes of every area a local field worker in public health nursing and a local field worker in public welfare, we should be only at the threshold of our jurisdictional possibilities. Nearly all health problems and most social problems involve emotional stresses; and the psychiatric social worker comes into the picture. Working out from the hospital and clinic is the medical-social worker. In the health or social agency is the nutritionist. In many localities there may be still other specialists of diverse allied types—dealing with poliomyelitis or rheumatic fever, or deficiencies in sight or hearing.

It is clearly uneconomical and ineffective to have five or six different experts in the fields of health and welfare visiting the home. In public health nursing the ideal of generalized district service has been almost universally accepted—though not as yet always realized. The field worker in such a program *must have enough* training in allied knowledges to know where her own competence ends; and she must have at her disposal expert specialists for consultation in their various fields. There might be real gain in a program under which there were two, and only two, workers for home visiting, the district nurse and the district social worker, both with some training in the elements of mental hygiene—coöperating with each other and relying on the specialist to supplement their less intensive skills. The representative of medical-social service in a hospital or of a local mental hygiene clinic should naturally have access to the home but would go in after mutual agreement with, or referral by, the public health nurse or the family social worker under whose general jurisdiction a given family might be. Perhaps this is a Utopian dream—perhaps just a nightmare. Possibly it may be a problem which the American Public Welfare Association and the American Public Health Association might study to advantage through a joint committee.

CHANGING ATTITUDE OF THE ARMY WITH REGARD TO VENEREAL DISEASES

IT is obvious that the control of the venereal diseases involves two major objectives: (1) reduction of exposure to infection, and (2) prompt treatment of the infected individual.

In World Wars I and II, the Army was not indifferent to the first line of approach. Effective procedures were adopted for controlling areas of prostitution in the vicinity of military encampments, with far-reaching results in the elimination

of red-light districts in many American cities; and, through education and the provision of recreational facilities, every effort was made to reduce promiscuous sexual intercourse. It would only be fair to say, however, that major emphasis in the total program was laid on medical treatment, both prophylactic and curative. The key to this latter approach during World War I was to be found in the provision that a soldier who developed venereal disease without record of prophylactic treatment was penalized, while if he had been recorded as receiving such treatment, he was not. This penalty was eliminated during the Second World War.

Today, the major emphasis of the program has been shifted from medical to moral grounds. A circular issued by the War Department a year ago¹ places responsibility for the whole venereal disease program on command channels and states that "the members of special staffs will be utilized only as technical advisers for that part of the program of venereal disease control specifically allied to their normal functions and responsibilities." The commanders must "impress moral responsibility and encourage strong self-discipline in officers and enlisted men of their command. Special attention will be given to the elimination of officers and non-commissioned officers, who, by the example of their private lives, undermine discipline and respect for command." Elaborate procedures of indoctrination are provided, with emphasis on "self control, self discipline, the worth of right conduct, clean living and its rewards, the obligation of the soldier to the home, the family and the nation." In this indoctrination, "Prophylaxis will be mentioned and discussed in a scientific manner, bringing out its limitations. No more than 10 per cent of the time of one lecture should be expended on the subject of prophylaxis. There should be no mass instruction in the details of prophylaxis. Those who desire this information should be referred to a medical officer for consultation." The chaplain, rather than the physician, is central in this program.

The wartime policies sought to remove the stigma from venereal disease, in order to facilitate prophylaxis and prompt treatment. The present program may seem to the average soldier intended to penalize venereal infection and promiscuity. Commanders must—

"Restrict military personnel infected with venereal disease to the unit areas for a minimum of 30 days, and, on recommendation of the surgeon, up to 90 days after the completion of treatment in order to diminish the chance of relapse or early reinfection and to insure, in the case of gonorrhea, that a co-existing syphilitic infection has not been masked by the treatment for gonorrhea. Individuals infected with venereal disease will not be evacuated to the zone of interior until 30 days have elapsed following completion of treatment. Exceptions to this working quarantine may be made only for medical reasons and when extreme hardship will result."

"In recommending the promotion of individuals and in the preparation of efficiency reports of officers, take cognizance of repeated infections of venereal diseases, intemperance, and similar traits and habits prejudicial to good order and military discipline."

"Restrict passes in the case of irresponsible individuals who repeatedly expose themselves to the risk of venereal disease. The granting of passes is a privilege and not a right and should be a reward of good conduct."

"Give consideration to the separation from the service, under the provisions of existing Army Regulations and directives, of individuals who demonstrate undesirable habits and traits of character including the repeated incurrence of venereal disease."

The working out of this plan at Fort Knox, Ky.² and of a similar plan in the First Army Command Area³ has been described more fully—with editorial comment⁴—in the *Journal of Social Hygiene*. The program as a whole represents a radical reversal of past attitudes—both military and civil—with regard to the control of venereal diseases. Its results will be awaited with great interest. We are informed that Army incidence rates for syphilis and gonorrhea have gone down under

the new policy. It remains to be seen, however, whether such a reduction is real or imaginary. Obviously, the severe restrictions involved and implied, are not likely to stimulate free and ready recourse to prophylactic and treatment services. They might, on the other hand, lead to concealment of infection, recourse to quacks and self-medication, with serious ultimate results. Only time will tell. If the experiment succeeds, it will be a major contribution to our thinking about the whole problem of sex hygiene.

REFERENCES

1. *J. Social Hyg.* 34:122 (Mar.), 1948.
2. Devine, J. M. *J. Social Hyg.* 34:195 (May), 1948.
3. Carroll, G. J. *J. Social Hyg.* 34:201 (May), 1948.
4. *J. Social Hyg.* 34:193 (May), 1948.

THEY ALSO SERVE WHO ONLY SIT AND WRITE

THE visit of a staff member of the Association to the Spring Meeting of one of its constituent associations (The South Carolina Public Health Association)—in addition to delightful memories of Southern hospitality—brought one quite revealing experience. This was the organized representation of the health department clerical staff on the program. The conference, as usual, had formal group sectional meetings for health officers, nurses, engineers and sanitarians, health educators, and nutritionists; but it had also a sectional meeting for secretaries, stenographers and clerks. We understand that this development is not unique in the South; but it is certainly unusual in most of our state meetings.

We believe that this recognition of a group of workers whose service is so vital in daily routine constitutes a step of primary importance in the development of sound health department practice. The work of the technical expert would be sadly handicapped without the diligence, the accuracy, the imagination—and the diplomacy in public contacts—of the clerical staff. This group of essential public health personnel will function at a much higher level with a broad view of their tasks; any assistance and any encouragement we can give them will be amply rewarded.

Clearing House on Public Health Salary Information

ANNUAL NURSE SALARY STUDY

THE annual nurse salary study of the National Organization for Public Health Nursing was published in three parts in the October, 1947, February and March, 1948, issues of *Public Health Nursing* and dealt with salaries of nurses, clerks, and non-nurse professional workers. The study is based on 641 agencies—state, county, and municipal health departments, boards of education, and nonofficial agencies employing a total of 10,351 nurses.

In the October, 1947, *Public Health Nursing*, median salaries for 1942, 1945, and 1947 are shown for three groups of nurses—directors, generalized supervisors, and generalized field nurses—in nonofficial agencies and in county and municipal health departments and for supervisors and school nurses of boards of education. These groupings represent nearly 7,000 of the total reported on, 260 directors, 528 supervisors, 5,109 generalized field nurses, and 998 school nurses.

For these groupings median salaries rose in the 5 years from 27 to 46 per cent, with the major increases between

1942 and 1945. The percentage increases, together with 1947 median salaries for the various groups, were as shown below.

It will be noted that, except for directors, the highest medians were reported by municipal health departments, a situation related in part to the size of the nursing staff. It will further be noted that the median for school nurses is higher than for generalized field nurses except in municipal departments although the school nurse's year is shorter than that of other nurses.

The published analysis also shows median salaries for all these groups classified by the number of nurses employed by agencies. As might be expected there is a fairly close correlation between salaries and size of agency which becomes inverse with agencies employing only one nurse or fewer than 5 nurses.

Detailed analyses for other occupational classifications and other agencies, chiefly state health departments, as well as by geographical areas have been made by the statistical service of the National Organization for Public Health

	Directors	Generalized Supervisors	Generalized Field Nurses	School Nurses
1947 Median Salaries				
Nonofficial Agencies				
Official Health Departments	\$3,521	\$2,921	\$2,161	\$
Municipal	3,169	3,338	2,527	. . . .
County	3,032	2,869	2,265	. . . .
Boards of Education	. . . .	2,931	. . . .	2,481
Percentage increase 1942-1947				
Nonofficial Agencies	33	46	34	..
Official Health Departments				
Municipal	27	34	34	..
County	42	46	40	..
Boards of Education	..	34	..	41

Nursing, which is prepared to furnish on request detailed data to public health administrators and directors of public health nursing.

Studied also in 1947, the first time since 1940, were salaries of non-nurse professional workers (*Pub. Health Nurs.*, Feb., 1948) in the agencies reporting on nurse salaries. Only 83 of the 41 agencies reported such workers numbering 209, more than half of which were about equally divided between state health departments and nonofficial agencies. The most numerous were nutritionists of whom 69 were reported.

The median salaries for the group of non-nurse professional workers, except for dental hygienists and physical therapists were nearly as high as those for generalized supervisors, but the small numbers involved may actually invalidate the significance of these figures. They should be studied in relation to size of agency, geographical location, etc.

Clerical salaries in the nursing services or departments were also reported (*Pub. Health Nurs.*, Mar., 1948). Perhaps the most significant single figure is the ratio of clerks to nurses. In all types of agencies 1,414 clerks were reported, representing one clerk to more than 7 nurses. County health departments reported one clerk to 3 nurses, nonofficial agencies one to 6, municipal health departments one to 9, and state health departments one to 12.

Median annual salaries for all clerical workers was \$1,816 ranging from \$1,676 for typists to \$2,111 for a miscellaneous group, including office managers, statistical clerks, etc. Of the 1,414 positions in this group, 520 were classified as clerks for whom the median salary was \$1,692.

LOCAL HEALTH DEPARTMENT SALARY STUDY

The June Journal (p. 867) reported

that a sampling study of local health departments is under way including 126 jurisdictions serving populations between 50,000 and 250,000. Questionnaires were sent to the health officers of these areas requesting information on the salaries paid to various professional groups, number of positions filled, and number of vacancies. After half of the questionnaires had been returned it became evident that the sample would not be large enough to assure statistical reliability. Reason: in most of the health departments there are many more vacancies than had been expected when the study was planned.

It was therefore decided to increase the sample to 100 per cent, covering all health departments in the population groups mentioned. Two hundred and sixty additional questionnaires are being mailed. It is expected that the results of the study will be available in the fall of 1948.

WESTCHESTER COUNTY MEDICAL SOCIETY RESOLUTION

The Westchester County Medical Society presented to the May meeting of the House of Delegates of the New York State Medical Society the following resolution on salary scales for public health physicians which was unanimously approved by the House of Delegates and referred to the Council for action:

WHEREAS: The health and welfare of the State of New York are dependent in many ways upon the satisfactory operation and performance of services provided through the New York State Department of Health, and

WHEREAS: Upon investigation it is evident that these services are suffering from a lack of essential medical personnel, and

WHEREAS: The Commissioner of Health is handicapped in making replacements of highly important specialists because of inadequate salary scales, and

WHEREAS: Present available salaries for public health and laboratory physicians in the State Department of Health are not com-

mensurate with incomes earned by physicians of like experience and training, and
WHEREAS: 48 out of 96 full-time medical positions in the State Department of Health remain unfilled as a result of the low salary scales now in effect, and

WHEREAS: Important public health programs and necessary research cannot be carried on because of these conditions, and

WHEREAS: These deficiencies threaten the health and welfare of the people of New York State, now therefore be it

RESOLVED: That the Medical Society of the State of New York respectfully petition the Governor of New York to take prompt action to rectify this situation by means of:

1. Upward salary scale revision.
2. The déléation of greater latitude to the Commissioner of Health to permit recruitment of personnel above salary scale minimums.
3. The simplification of civil service recruitment procedures as they pertain to medical personnel.

This resolution has added significance when it is remembered that New York is among the three or four states with the highest public health salaries in the country.

Sanitarian In-Service Training—Los Angeles County

The Bureau of Sanitation of the Los Angeles County Health Department has inaugurated an in-service training program for sanitarians. Classroom instruction amounts to 3½ hours per week. The classes are designed to continue over a period of 7 months. The list of subjects covered is comprehensive

in the field of environmental sanitation. In addition, such general topics as public health administration, public health statistics and epidemiology, and public health laws and law enforcement will be covered. Roy O. Gilbert, M.D., is the Health Officer of the Los Angeles County Health Department.

Public Health in Foreign Periodicals

GEORGE ROSEN, M.D., PH.D.

BEFORE World War II, the level of public health organization and effectiveness in Germany was comparable to that found in other countries of Western Europe or in the United States. One of the chief differences in organization as compared with such countries as Great Britain or the United States was the high degree of centralization in the German system. Apart from the changes in scope and structure resulting from the injection of political and racial ideologies, the functions performed by the German public health authorities were, on the whole, like those of our own.

The end of the war found the German public health system in a state of almost complete administrative disintegration. In the three years that have elapsed since then steps have been taken to reconstitute the administrative agencies necessary for effective public health work. Nevertheless, the political, economic, and social constellation has not been particularly favorable. The state of affairs is perhaps best described by the statement of an eminent German physician: "The average level of the health services in this country is already far below that which the older generation can still remember as having existed in times of even moderate prosperity."¹ Evidence is available, however, that strenuous efforts are being made to remedy this situation. A review of articles published in the *Ärztliche Wochenschrift* during the past six months reveals an awareness of pressing needs, a desire to evaluate and make use of whatever data are available, and a recognition that there is much to be learned

from public health practice in other countries.

PUBLIC HEALTH PROBLEMS

These trends are well exemplified in a paper by Otto Buurman surveying the public health needs and problems of present-day Germany.² These fall under three main heads: administration and personnel, control of communicable diseases, and nutrition.

Administrative reconstruction is hampered by the lack of uniformity resulting from the present zonal organization. Furthermore, within each state, the problem of centralization versus decentralization still remains to be solved. Buurman points out, for instance, that the central public health agency in the Soviet zone is actively rebuilding the necessary administrative organization, but that not infrequently this occurs in terms of a standpoint at variance with that which prevails in the British zone. For this reason, he strongly urges an interzonal exchange of ideas which will make possible uniformity of action in communicable disease control and other urgent health problems.

Effective action in dealing with these urgent matters is also handicapped by lack of adequately trained personnel. At the beginning of the war, medical education was accelerated and curtailed to provide the doctors and other personnel required for military purposes. With the prolongation of the war, further curtailment was found necessary. As a result, by the time the war ended a considerable deterioration in the quality of the German medical personnel had occurred. Buurman points up the urgent

need for repairing this damage, and insists that all physicians be given adequate training in bacteriological methods. In this connection, he states that other countries, particularly the United States, have left Germany far behind in this field. Such training is badly needed to control diseases such as typhoid fever, dysentery, diphtheria, and tuberculosis which are widely prevalent. Hand in hand with the training of personnel must go the creation of public health laboratories.

Problems of nutrition require urgent attention. Formerly German public health officials were concerned chiefly with food sanitation. Now, the advances made in the science of nutrition must be applied to benefit the German people. Here Buurman cites the technical excellence of the American food industry. In view of the close relation between nutritional status and resistance to disease, this author feels strongly that attention to problems of nutrition will go a long way in dealing with prevalent communicable diseases, particularly tuberculosis.

TYPHOID FEVER IN BERLIN

Study of the current German literature reveals that the problems presented above are seen in correct perspective. An instance in point is a report by Anders on typhoid fever in Berlin during the winter of 1946-1947.³ Typhoid fever has been endemic in Germany, between 3,000 and 6,000 cases occurring annually. Prior to the outbreak of the war, the number of cases in general tended to decline. Since 1939, however, the incidence of typhoid has been on the increase. During the war large-scale epidemics occurred, for instance, in Schleswig-Holstein and Hamburg.

In 1945 there was a large outbreak with about 15,000 cases in Berlin, but even after it was over a strikingly high number of fresh cases continued to be reported during 1946. In June, 1946,

there were 208 cases, in July 197, and in August 230, as compared with 151 reported cases in Berlin for the entire year of 1938. For a time it seemed that typhoid fever would become endemic in Berlin. To combat this situation a typhoid control campaign was organized in October, 1946, by the State Health Office.

The campaign lasted from October, 1946, to May, 1947, at which time all the districts of Berlin except four had been encompassed. The chief purpose of the campaign was to discover hitherto unknown typhoid carriers, and to check known carriers. Every reported case of typhoid was thoroughly checked to determine the source in the patient's environment. Diagnostic methods employed were examination of stool, urine, and bile, as well as examination of the blood for Vi-agglutination. In all, a total of 56 previously unknown carriers was found.

In his comments the author points out that certain sections of Berlin, which he calls "typhoid districts" are of particular concern to the health authorities. Living under indescribable hygienic and social conditions, the residents of these areas do not cooperate with the public health officers, and represent a threat to the city. Anders also calls attention to the defective training of many of the physicians in the typhoid wards of the hospitals, but adds that measures were taken to provide postgraduate lectures and demonstrations on typhoid fever. Shortly after the beginning of the campaign, the number of reported cases began to drop considerably. It is the author's opinion that, in addition to the seasonal and epidemiological factors involved, the drop in the reported cases was significantly influenced by the campaign against carriers.

VENEREAL DISEASE IN HAMBURG

The usual venereal diseases occur in Germany, but since 1940 little detailed

information on the incidence and prevalence of these conditions has been made available. For this reason the data provided by Hopf and Wennecke for Hamburg are of considerable interest.⁴ These authors state that while the impression has existed since 1939, in private and clinic practice, of an increase of the venereal diseases, such a rise was not numerically demonstrable for Hamburg. Recognizing the necessity of establishing as precisely as possible the magnitude of the venereal disease problem, the Hamburg Health Department decided to carry out on August 20, 1946, an enumeration of all venereal disease patients under treatment on that day. The interest of practitioners was secured by informing them that this enumeration would serve as a basis for medication procurement.

As a result, 5,064 patients were enumerated. Among these, 3,569 patients (72 per cent) were being treated for gonorrhea, and 1,379 (28 per cent) for syphilis (in various stages). There were 322 cases of primary lues, and 633 in the secondary stage. Of interest is the apparent relative increase in syphilis. Formerly, in Hamburg, lues accounted for 17 to 20 per cent of venereal disease while it now amounts to 25 to 30 per cent.

It had previously been estimated that there were 12,000 new cases annually in Hamburg. On the basis of the enumerated cases reported by Hopf and Wennecke, it was calculated that there is probably a minimum of 15,000 new infections annually. As the present population of Hamburg is 1.4 million, the estimated number of new infections represents an average annual increase of 1 per cent. In 1919 this percentual increase had been calculated at 3 per cent, and for the period from 1927 to 1934 at from $1\frac{1}{2}$ to 1 per cent. Consequently the authors conclude that while an increase in the incidence of the venereal diseases has occurred, the situation in

Hamburg is not particularly unfavorable.

DIPHTHERIA IN THE OBERBARNIM DISTRICT, 1942-1944

As in many other countries, German physicians are now evaluating the experiences of the war years. H. Malchin reports on the influence of diphtheria immunization on the epidemiological and clinical picture of diphtheria in the Oberbarnim District northeast of Berlin.⁵

Before the war diphtheria was already one of the major health problems. However, the incidence of diphtheria in various sections of the Reich varied greatly. During the 1920's and 1930's the course of diphtheria in Germany exhibits periodic fluctuations with epidemic peaks around 1917-1918, 1928-1929, and 1935-1937. The magnitude of the problem may be envisaged from the fact that the number of cases rose from 30,000 in 1926 to 293,000 in 1943. This increase was particularly marked after 1940, and was no doubt favored and facilitated by the large population movements of the war years. Furthermore, in 1942, an apparent change occurred in the clinical character of the disease. Toxic cases became more common, and the fatality rose. On the basis of these observations the health authorities of the Oberbarnim District, in March, 1942, decided to undertake a campaign of diphtheria immunization. This was done before any general policy had been established, and before any of the neighboring districts began to immunize.

The Oberbarnim District contained a population of 90,000. Of these, 19,000 were children ranging in age from 1 to 14 years; 92.08 per cent of the children received two injections of alum-precipitated toxoid. There was a drop in the number of cases among children, while cases among adults continued to rise. Cases did occur among immunized

children, but clinically these were mild. During the second half of 1944 there was a gradual rise in morbidity among the children who had been immunized. In view of this development, it was decided to Schick test all immunized children between the ages of 3 and 9 in the Oberbarnim District. This study included children from urban and rural environments. The testing began in the late summer of 1944, but had to be prematurely discontinued owing to the terminal events of the war. While admitting that his data were too small for definite conclusions, Malchin points out certain interesting observations. He reports that the percentage of urban children found to be Schick-positive was much higher than for the rural children, and attributes this to the better nutrition of the latter group.

MALARIA IN GERMANY

Interest in malaria has increased in Germany since the end of the war. In a recent article, Weyer discusses the present situation.⁶ Owing to a lack of exact statistical data there is considerable confusion regarding the origin, number, and significance of malaria cases in Germany at present. Weyer refers to the existence of endemic malaria in the Emden area, but states that by 1945 it had practically disappeared.

Nevertheless, since the end of the war the malaria situation in Germany has become worse owing to the development of autochthonous malaria in various areas. Malaria cases have appeared in Schleswig-Holstein, Lower Saxony, in the Rhineland, in Northern Württemberg, in the neighborhood of Karlsruhe, and in Mecklenburg, Pomerania, and Saxony. In 1946, through July, 662 cases were reported in Berlin, of which 220 were considered as having been acquired in the city. In 1947, Hohenner reported on 200 cases treated in Frankfurt a.d. Oder, of which 197 were newly acquired. In 1946, in Schleswig-Hol-

stein there were 470 cases; 119 were autochthonous. This malaria has been imported by returning German nationals who had acquired the infection abroad. In view of this situation, Weyer raises the question as to the probable future development of malaria in Germany.

The further existence and spread of malaria would require a sufficient number of infected humans, transmitting anophelines, and susceptibles. In addition, suitable environmental conditions are necessary. The considerable number of autochthonous cases indicates that these prerequisites are available in numerous localities. Yet it is extraordinarily difficult to make an epidemiological prognosis on the basis of the available information. The mosquito factor requires further study. Weyer believes that there are now more mosquitoes than before the war, especially in the cities, where they are able to breed more freely due to the destruction. Finally, the factor of climate must be studied. This factor would seem to be relatively unfavorable to mosquito development in Germany.

For the control of malaria and its epidemiological development, Weyer proposes constant supervision by the health authorities, intensive treatment of all malarious persons, control of mosquitoes by chemical means, and education of the public.

ORGANIZATION OF HEALTH AGENCIES

In order to deal with the problems discussed above, various semi-official health agencies have been organized. In 1947, organizations were created in Lower Saxony to combat venereal diseases and tuberculosis.⁷ Their chief purpose is to carry on health education in these fields.

REFERENCES

1. Von Weizsäcker, V. *Der Begriff der allgemeinen Medizin* [Beiträge aus der allgemeinen Medizin, Heft 1] Stuttgart, Ferdinand Enke Verlag, 1947, p. 2.

2. Buurman, O. Gedanken über Aufgaben und Organisation moderner Gesundheitsabteilungen in Länderregierungen, *Ärztliche Wochenschrift* ½:1045-1054, 1947.

3. Anders, W. Die Typhussonderaktion in Gross-Berlin im Winter 1946/47, *Ärztliche Wochenschrift* ½:1073-1076, 1947.

4. Hopf, G., and Wennecke, W. Die Zahlenmässige Entwicklung der venerischen Krankheiten in Hamburg, *Ärztliche Wochenschrift* ½:983-985, 1947.

5. Malchin, H. Einflüsse der aktiven Diphtherie-Schutzimpfung auf das epidemiologische und klinische Bild der Diphtherie im Kreise Oberbarnim in den Jahren 1942 bis 1944, *Ärztliche Wochenschrift* 3:152-157, 1948.

6. Weyer, F. Bemerkungen zur gegenwertigen Malarialage in Deutschland, *Ärztliche Wochenschrift* 3:56-59, 1948.

7. Tagesgeschichte, *Ärztliche Wochenschrift* ½:1024, 1947.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted. All books reviewed in these columns may be purchased through the Book Service.

The Neighborhood Unit Plan—Its Spread and Acceptance—Compiled by James Dahir. New York: Russell Sage Foundation, 1947. 91 pp. Price, \$1.00.

This selective bibliography with its interpretive comments is an important contribution to the urgent problems of city planning and urban housing in the years ahead. The subject presented, however, is broader and more fundamental to future family life than is indicated by the title.

The report should be of interest to lay and professional leaders alike, since it proposes an intelligent decentralization of all physical, governmental, social, recreational, and educational facilities in the interest of happy democratic living. The author marshalls an important array of evidence in support of the need of neighborhood planning and analysis, and interprets the material well. His method of presenting the references, illustrating the dramatic shifts in urban development, and building pictures from these authoritative sources, is unique and effective. The report serves a further useful purpose in bringing together in understandable fashion the varied experiences in neighborhood unit planning up to now and some of the obstacles to be over-

come. The last two chapters especially, which deal with American plans and projects and the neighborhood unit abroad, give an excellent view of new units in the making.

However, while the arguments are convincing, we need a better picture of how its development is to be accomplished; how long it will take; how it will work; and how it will build to its conclusion. How the obstacles are to be overcome might well be the subject of a later publication.

KENNETH D. WIDDEMER

A New Approach to Nutrition Services in State Health Departments—1946 Conference of the Milbank Memorial Fund. New York: Milbank Memorial Fund, 1947. 108 pp. Price, \$.75.

This compilation of papers, presented at the Round Table on Nutrition and Public Health, 1946 Conference of the Milbank Memorial Fund, deals with a subject of vital interest in public health. The experience and the vision of individuals prominent in public health and in the field of nutrition have been brought together in this volume to point a way for long needed direction to nutrition programs. It is suggested that the nutrition division in state health de-

partments needs at its head, a physician with special training in nutrition "to bring it to the necessary breadth of view." The functions of all health workers in the field of nutrition are thoughtfully discussed, and consideration is given to the needs of various population groups, such as industrial, maternal and infancy, and the school child. The record of the discussion is important, for, as is usual, the participants offered valuable suggestions in discussion which might never have been included in a prepared paper.

HAROLD R. SANDSTEAD

America's Needs and Resources—A Twentieth Century Fund Survey Which Includes Estimates for 1950 and 1960—By J. Frederic Dewhurst and Associates. New York: Twentieth Century Fund, 1947. 812 pp. Price, \$5.00.

This volume is an ambitious survey of the major economic and social trends in the United States, and on the basis of these it attempts to estimate the country's needs for 1950 and 1960, as well as the resources available to meet them. The project was broad in scope and required the efforts of a large group of experts in the various fields which the book covers.

The trustees and officers of the Twentieth Century Fund were well aware of the difficulties of a project of this kind at a time when world conditions were so unsettled as to make forecasts of any kind rather hazardous. Nevertheless, they had the courage to attempt to meet an important need of the times. Their purpose is well expressed in the Foreword by Evans Clark, Executive Director of the Fund. He says, "In authorizing and underwriting this survey the Trustees of the Fund have hoped to provide those who work and plan in each separate field, as well as those whose concern is the economy as a whole, with the bench

marks essential to any intelligent planning or appraisal. It is the Fund's hope that the educator, the clothing manufacturer, the cattleman, the wheat farmer, the Federal Reserve Board member, the labor unionist, the senator from this state or that, the president himself, as well as the average citizen who wants to know what this economy of ours is all about—that each of them can find in this volume some of the basic facts he needs to do his job more intelligently—and therefore more effectively."

Although no direct comparison was intended, this volume brings together and interprets masses of statistical material on economic and social trends similar to those embodied in the volumes *Recent Economic Changes in the United States*, published in 1929, and *Recent Social Trends in the United States*, published in 1933. It departs from these earlier projects in that a program of policies based upon the findings is avoided.

The book covers in some detail the facts on population trends; national income, expenditures and savings; consumer spending patterns and trends in terms of the major categories of consumption; capital needs and demands as well as capital formation; and government expenditures and their impact on the economy. In the discussion of capital requirements due attention is given to the needs arising from urban development and rural and regional development. The section dealing with resources and capacities considers both the human and natural resources as well as both our agricultural capacity and industrial capacity. Dealing as the volume does with the problems of the whole nation, it leans heavily on the statistical resources of many government agencies, and in fact, many of the contributions come from workers in these agencies. Throughout the volume one finds emphasis on the impact of the

war and more particularly how our sights were raised in many directions on the economic plane as a result of our amazing record of war production.

This book will be a valuable source of factual data for many years to come. It is liberally documented with numerous tables and charts both in the text and in the appendices.

Unfortunately world conditions have continued so unsettled and political and social trends have continued to vary so much from their pre-war pattern that many of the projections for 1950 made on the assumptions of two years ago will require considerable modification. For example, currently proposed military expenditures are much higher than were anticipated in this volume. This holds true also of our contributions for foreign reconstruction and restoration. Housing programs have fallen short for several reasons, such as the hesitancy on the part of private enterprise because of mounting construction costs and the lack of a consistent public housing policy. In the field of population, the projected figures are taken from the 1943 estimates of Thompson and Whelpton. The post-war birth rate has continued at a level much higher than was anticipated in these estimates, and immigration and repatriation of our citizens has further swelled the population. The effects of this unexpectedly large gain in population will be felt in many fields such as consumer demands and requirements, family life, education, and housing.

Of special interest to readers of this *Journal* is the chapter on Medical Care which was written by Margaret C. Klem and Helen Hollingsworth of the Bureau of Research and Statistics of the Social Security Administration. This chapter contains a wealth of statistical information on personnel and facilities for medical care, their number and distribution, incomes of the various professional groups in the medical and health

field, sources of hospital income, the major trends in health, medical care in relation to income and other factors, government expenditures for health, and prospective trends in the medical care field, particularly in relation to the future role of government. It is no fault of the authors that a good part of the literature in the field is relatively old, but they might have warned readers as to the limitations of the available data. Perhaps more should have been said with respect to the magnificent accomplishments in public health, especially the fine record made during the war years in the face of difficult conditions. In the matter of Selective Service findings, the authors accept rather lugubrious views which are far from justified.

In some respects the point of view in this chapter on Medical Care is not as objective as one would have liked to see it. Inevitably the authors of this chapter have been influenced by their official work and connections, but one cannot avoid the feeling that there is too much special pleading for the adoption of compulsory health insurance plans. Little notice is taken of the extension of medical group practice, of the extraordinary growth of private insurance plans covering hospitalization and medical care, of the marked increase in research in the field of cancer, heart disease, and other so-called degenerative diseases, which conditions will weigh heavily in the medical care needs of the future.

LOUIS I. DUBLIN

Child Care and Training—By Marion L. Faegre and John E. Anderson. (7th. ed.). Minneapolis, Minn.: University of Minnesota Press, 1947. 310 pp. Price, \$3.25.

In the seventh edition of this well known book the original plan has not been changed but the material has been brought up to date. This book de-

veloped out of the extension courses of the Institute of Child Welfare of the University of Minnesota. It is a sound and practical guide for study groups.

This book is also appropriate for individual parents. Three of the first chapters on the physical aspects of growth, including how children grow, general care, and children's diseases, are weak as compared with the rest of the text. The section on nutrition contains generalizations and suggestions which might be questioned. The section on height and weight has not been changed since the first editions of the book. The results of more recent studies on the measurement of growth and nutritional status could well have been mentioned.

The discussions on discipline, development and curiosity, social and mental development, emotional behavior, play, and the role of the family are particularly good and are concerned with children from infancy through high school. The chapter on sleep is to be recommended, as the authors recognize the importance of individual variations in sleep patterns and report the behavior and observations of large numbers of children.

The book contains an up-to-date bibliography on books dealing with the development and training of children, lists of toys and play material, and a number of reading lists for children.

RUTH RAATAMA

Factors Regulating Blood Pressure. *Transactions of the First Conference April 24-25, 1947, New York, N. Y. New York: Josiah Macy, Jr., Foundation.* 175 pp. Price, \$1.90.

In accordance with one of its established policies, the Josiah Macy Jr., Foundation has inaugurated a series of conferences on *Factors Regulating Blood Pressure*. This monograph is a record of the initial meeting which took place April 24-25, 1947.

It contains the text of 12 short intro-

ductory papers followed by a general informal discussion directly recorded at the time of the conference.

Members of the conference were selected on the basis of their past and continuing research interest in problems of the circulation. The papers represent original unpublished studies and elaborations of published data.

The papers cover a wide area, including discussions of the relation of the nervous system to hypertension, humoral factors in the pathogenesis of experimental and human hypertension, quantitative measurements of renal function, the prophylaxis of experimental hypertension and the treatment of human hypertension with low salt diets, low protein diets, renal extracts, tyrosinase, and quinones.

These studies bring up to recent date the wide variety of problems under discussion.

Especially valuable is the general informal discussion in which opposing points of view are freely expressed.

This monograph is highly instructive. It contains factual data and opinions of seasoned investigators which should be of considerable value to students of the circulation.

WILLIAM GOLDRING

The Blowflies of North America
—By David G. Hall, Baltimore, Md.: Monumental Printing Company, The Thomas Say Foundation, Entomological Society of America, 1948. 477 pp. Price, \$6.50.

Health officers, physicians, sanitary engineers, food inspectors, veterinarians, entomologists, nurses, in fact all those in any way concerned with preventive medicine will welcome the appearance of this excellent monographic treatment of a group of insects so important from a medical and veterinary point of view. In almost every quarter of the globe blowflies are in ill repute. True, they serve a useful purpose in helping to dispose of dead animal matter and in

cleaning up necrotic wounds. Many of them, however, are prone to leave animal carcasses and excreta and proceed with their germ-laden feet and mouth parts to contaminate fresh wounds or food.

Although this work is primarily systematic, the author follows the few pages on the history of classification of the blowflies with concise accounts of the part they play in the transmission of disease and the causation of myiasis. Up-to-date information on method of controlling blowflies is summarized in nine pages, and methods of collecting as well as preserving specimens are outlined.

The author has grouped the blowflies (family *Calliphoridae*) into 5 sub-families. Under each sub-family, keys are given to genera and species. Several new genera and many new species are described. The keys and text are very conveniently arranged. The discussion of each species includes synonymy, description of each of the stages of the more important flies, brief description of others, distribution, biology, habits, and economic importance. The summation of information on the biology and distribution is especially useful.

Those who have been grappling with blowfly problems for a number of years and have gathered a speaking or reading acquaintance with several of the scientific names of the species of medical importance will doubtless be much disturbed and perhaps disgusted to find so many of the old familiar handles replaced by new and not always euphonious ones. For instance, *Cynomyia cadaverina* becomes *Cynomyopsis cadaverina* and the "i" is knocked out of *Cynomyia*. When that generic name is used, *Lucilia sericata*, the common greenbottle fly becomes *Phaenicia*; the screwworm, *Cochliomyia americana* becomes *Callitroga americana*; and the false screwworm *Cochli-*

omyia macellaria also assumes *Callitroga* as a generic name, which from a pronunciation viewpoint we must admit is an improvement. Well, we know the desirability of following the approved rules of zoölogical nomenclature and we therefore bow in acceptance and just hope these new names and combinations are not soon changed again.

The volume is well and attractively bound in blue buckram with gold lettering. The paper is of excellent quality and the typography distinctly above the average. A well selected list of bibliographical reference is included. The index is excellent from the standpoint of valid names and synonyms, but reference to other information might have been more complete.

An examination of the 5 colored plates of flies and the 46 black and white drawings of heads, wings, and genitalia of adults, and principal structures of the larvae will convince the reader that the author is an artist as well as an entomologist. By the aid of these drawings and descriptions many who are not trained entomologists should be able to identify a number of the species of larvae involved in cases of myiasis. Accurate records of such cases are so desirable, however, that it would be well to send specimens to the U. S. National Museum for verification of identity.

Every medical library should have this valuable publication and every worker in the field of preventive medicine will find it a useful working tool.

FRED C. BISHOPP

American Building: The Forces That Shape It—By J. M. Fitch. Boston: Houghton Mifflin, 1948. 382 pp. Price, \$5.00.

James Emerson Fitch is an architect and planner of wide experience (including service with the T.V.A. and the Federal Housing Administration) and at present technical editor of the

Architectural Forum. He has written a book which will be of interest to the increasing number of members of our profession who realize that housing must be one of the central issues in the public health of the future.

Irrespective of any practical applications, this volume has much that will be of interest to the general reader. It is fascinating to follow the history of building from colonial days to prefabrication, to note the influence of technological factors—such as the sawmill and the brick kiln, the Franklin stove, the "Golden Leap" toward the control of space made in the construction of the Crystal Palace, the Brooklyn Bridge and the Eiffel Tower, the development of steel and of the welding process—upon structural possibilities. It is illuminating to trace the influence of men's ideals upon architecture to see how the Greek temple reflected the philosophy of Athens, the Gothic cathedral, the aspirations of the medieval church, and the functionalism of today, the empirical spirit of modern science. The series of plates, which include 177 individual pictures, are illuminating to the text and, in some cases, breath-taking in their beauty.

Mr. Fitch is intensely alive to the exciting possibilities of the newest advances of science and technology in the housing field; and allows himself even the luxury of such flights of fancy as the following: "To-morrow's sunlight will not enter to-morrow's buildings through holes punched in solid walls; rather it will be absorbed by the entire building, there to be filtered and mixed in the right proportions with artificial light to form a synthetic environment designed to our specifications. To-morrow's buildings may open and close automatically with the sun, like morning-glories; or, like sunflowers revolve slowly to keep their faces toward the sun."

Above all, this author is intensely

conscious of the broad social purposes of housing and planning; and it is this emphasis which will be most appealing to the student of public health. We can accept to the full his statement that "the function of American building must be the maintenance of those optimal environmental conditions essential to the health and happiness of the individual and to the peaceful and efficient development of American society."

C.-E. A. WINSLOW

Give Your Child a Chance—By Lenore Turner. *New York: Georgian Press, 1948.* 170 pp. Price, \$1.50.

This is a genuine effort on behalf of children. The author speaks directly and simply to mothers about the hundreds of everyday matters that come up in the life of infants and young children. She knows the mother's practical problems and also her fears and uncertainties. She tries to get the mother to understand the child's needs and feelings, and to relax while carrying out her program—avoiding tensions for both mother and child.

The book is readable and helpful and full of examples that make the teaching real. The contents cover the main problems that confused or anxious mothers ask questions about—management, fears, nervousness, and "bad habits," sex education, toilet training. The chapter on feeding is the longest in the book, but a good part of it has to do with the parent's attitude toward food and feeding, with recognizing the child's needs, the idea of letting the child indicate when he is hungry and when he has had enough, with changing diet and program, with getting the child to feed himself. That is, this chapter on feeding is in keeping with the entire book—guiding the child's emotional development is the central theme.

The book is addressed to fathers as well as to mothers. The discussion of

nursery schools and day nurseries tells the reader what to look out for, what to expect, and what choices one has to make. There is a usable index—that with one footnote reference represents the only concessions to the appearance of scholarship. Perhaps a few additional references to other useful books for those who will want to know more could have been included. But this is an excellent book that can be recommended without reservation. And it is a gratifying demonstration that people can be helped toward understanding and sound attitudes rather than be left to depend upon formal rules for meeting daily situations.

SIDONIE MATSNER GRUENBERG

Bacteriology — A Textbook of Microorganisms—*By F. W. Tanner and F. W. Tanner, Jr. (4th ed.). New York: Wiley, 1948. 625 pp. Price, \$4.50.*

In their preface the authors state that this is a textbook intended for those who are studying bacteriology for the first time, and the objective is to allow the student to build his structure on a broad biological basis of fundamental principles. This statement describes the book and its scope of usefulness.

In keeping with the expressed intent, nearly half of the book is devoted to the biology of bacteria, including their classification and relation to their environment. The applications of bacteriology that concern human welfare are treated in a general way and in orderly sequence.

The book presents several departures from the usual textbook treatment of bacteriology in that there is no consideration of individual bacterial species, and the etiological relationships of bacteria to human and plant diseases are presented in tabular form. More detailed considerations are left for subsequent advanced courses.

Discussions of culture media and methods, and of staining and other techniques, are omitted with the obvious intent to supply them from laboratory manuals. The teacher's attitude toward these omissions and condensations will depend on his approach to the subject. This book was designed for teaching in undergraduate college classes, not in medical schools. Considered from the viewpoint of its expressed purpose, of presenting bacteriology as biology, this reviewer likes it.

The text is well written and very readable, and the book is well made up by the publishers. Especially noteworthy are the sketches, in Chapter 1, of scientists prominent in developing bacteriology. The glossary of terms and literature citations should be useful.

JAMES E. FULLER

Canned Food Reference Manual. (3rd ed.) *New York: American Can Company, Research Division, 1947. 638 pp.*

Although the first edition of this volume was published only 8 years ago, in 1939, with a second edition in 1943, the numerous improvements and changes that occurred in commercial canning methods during the war made a third edition seem necessary. It presents the story of commercial canning from a general discussion of food preservation to a description of the commercial process. A general discussion of nutrition—what good nutrition is, what foods are necessary, what common nutritional inadequacies are, recommended dietary practices, and the nutritive value of commercially canned foods—and a review of regulations with specific reference to the Food, Drug and Cosmetic Act of 1938, complete the textual matter. A considerable portion of the volume is given over to an appendix consisting of numerous tables, giving the composition and nutritive value of the components of com-

mercially canned foods. A bibliography is also included. FRANCIS B. ELDER

Comparative Physiology — By Bradley T. Scheer, Ph.D. New York: Wiley, 1948. 563 pp. Price, \$6.00.

This is a new textbook intended for use in an advanced university course in comparative physiology. The author feels that comparative physiology should take its place beside comparative anatomy in the curriculum, since it serves to introduce basic principles by examining and interpreting variations in function in a wide variety of animal types.

The book represents a departure from previous texts in comparative physiology in that each chapter takes up the functional systems in a definite order for a single phylum. This arrangement makes it possible to compare functions in closely related organisms. A summary at the end of each chapter stresses the evolution in function within the phylum and the relations to other phyla.

The first chapter is devoted to a summary of fundamental physiological processes. To present this material in an abbreviated form without sacrificing accuracy is a difficult task. The author has done particularly well with it. The book is well documented throughout, numerous references in each section to original sources being readily available in footnotes. The great wealth of material presented and the arrangement of the material should attract the interest of physiologists and advanced students in zoölogy.

C. W. HAMPEL

Legal Aspects of Milk Sanitation — By James A. Tobey, Dr.P.H., LL.D. (2nd ed.). Washington: Milk Industry Foundation, 1947. 133 pp. Price, \$5.00.

The first edition of this book, published in 1936, listed and interpreted over 300 court decisions relating di-

rectly to milk control with pertinent discussion and quotations from judicial opinions. The present revision brings the work up to date, including about 100 additional decisions that have been handed down since 1936 and other new material. It is concerned primarily with public health control of milk and milk products. The legal aspects of price fixing are not covered except by a brief review of decisions handed down by the United States Supreme Court.

The purpose of the book is given in the preface as "an attempt to restate in lucid terms the constitutional, administrative, public, and private law in this country as it has been and is being applied to the production, handling, processing, distribution, and sale of milk and dairy products. The book is not intended as a substitute for an attorney, but as a practical guide to the established law on this important subject. For this purpose it has been extensively documented, so that those who are faced with specific problems may have sources of further information."

With many years of experience in this field and unusual ability as a writer, the author has fulfilled the above purpose admirably. The text is concise but is adequate for a general understanding of the law on all aspects of milk control. Case references are given page by page in footnote citations and also at the end of the book in a table of cases arranged according to states. A good general bibliography and an adequate index are included.

Although written primarily as a source of information for the milk industry, this book is equally suitable for the use of health officers and others who must deal with the administration and enforcement of milk sanitation regulations. Although not very strongly bound, the book is well printed, conveniently arranged, and otherwise of satisfactory format. ROY J. MORTON

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

- COMMUNICABLE DISEASES. Nina D. Gage, R.N., and John Fitch Landon, A.B., M.D. (5th ed.). Philadelphia: F. A. Davis, 1948. 541 pp. Price, \$4.00.
- THE DIABETIC'S HANDBOOK. Anthony M. Sindoni, Jr., M.D. New York: Ronald Press, 1948. 194 pp. Price, \$3.00.
- DIAGNOSTIC PROCEDURES FOR VIRUS AND RICKETTSIAL DISEASES. Thomas Francis, Jr., M.D., Chairman, Committee on Diagnostic Procedures for Virus and Rickettsial Diseases. New York: American Public Health Association, 1948. 347 pp. Price, \$4.00.
- DIE LUNGENTUBERKULOSE BEIM ERWACHSENEN. Klinik und Therapie Fur Die Praxis. Hermann Weber, M.D. New York: Gruen & Stratton, 1948. 417 pp.
- THE ENGAGED COUPLE HAS A RIGHT TO KNOW (A Modern Guide to Happy Marriage). Abner I. Weisman, M.D. New York: Renbayle House, 1948. 256 pp. Price, \$3.00.
- ENJOY YOUR CHILD—Ages 1, 2 and 3. James L. Hymes, Jr. New York: Public Affairs Committee, Pamphlet No. 141. 32 pp. Price, \$20.
- ESSENTIALS OF ZOOLOGY. George Edwin Potter, Ph.D. (2d ed.). St. Louis: C. V. Mosby, 1948. 544 pp. Price, \$4.00.
- EVALUATING THE SERVICES OF THE NURSE. A Handbook for Staff Nurses and Supervisors. New York: Metropolitan Life Insurance Co., 1948. 54 pp.
- HEALTH AND PHYSICAL EDUCATION FOR JUNIOR AND SENIOR HIGH SCHOOLS. David K. Brace. New York: A. S. Barnes and Co., 1948. 392 pp. Price, \$4.00.
- HEATING VENTILATING AIR CONDITIONING GUIDE 1948. Vol. 26. New York: American Society of Heating and Ventilating Engineers, 1948. 1280 pp. Price, \$7.50.
- HISTORY OF FACTORY AND MINE HYGIENE. Ludwig Teleky, M.D. New York: Columbia University Press, 1948. 342 pp. Price, \$4.50.
- INSECT PESTS. Wm. Clunie Harvey, M.D., D.P.H., and Harry Hill, F.R.San.I., F.S.I.A., A.M.I.S.E. (2d ed.). New York: Paul B. Hoeber, Inc., 1948. 347 pp. Price, \$5.00.
- INTRODUCTION TO HEALTH EDUCATION. Jackson R. Sharman. New York: A. S. Barnes and Co., 1948. 273 pp. Price, \$3.00.
- MEDICAL RESEARCH COUNCIL. Memorandum No. 18. Thyroid Enlargement and other Changes Related to the Mineral Content of Drinking Water (with a Note on Goitre Prophylaxis). Margaret M. Murray, J. A. Ryle, Beatrice W. Simpson, and Dagmar C. Wilson. London: His Majesty's Stationery Office, 1948. 39 pp. Ninepence net.
- PHYSICAL EDUCATION: INTERPRETATIONS AND OBJECTIVES. Jay B. Nash, Ph.D. New York: A. S. Barnes and Co., 1948. 288 pp. Price, \$3.00.
- PRINCIPLES OF HEALTHFUL LIVING FOR THE INDIVIDUAL AND THE COMMUNITY. Edgar F. Van Buskirk, Ph.D., and Edited by Carl L. Kline, M.D. New York: The Dryden Press, 1948. 474 pp. Price, \$3.50.
- THE PSYCHOLOGY OF ABNORMAL BEHAVIOR. Louis P. Thorpe, Ph.D., and Barney Katz, Ph.D. New York: Ronald Press, 1948. 877 pp. Price, \$6.00.
- THE PSYCHOLOGICAL ORIGIN AND TREATMENT OF ENURESIS. Stevenson Smith, Ph.D., Seattle, Wash.: University of Washington Press, 1948. 70 pp. Price, \$1.75.
- THE PUBLIC WELFARE DIRECTORY 1948. Howard L. Russell, Editor. Chicago: American Public Welfare Association, 1948. 310 pp. Price, \$1.80.
- RECENT ADVANCES IN PUBLIC HEALTH. J. L. Burn, M.D., D.Hy. D.P.H. London: J. & A. Churchill Ltd., 1947. 409 pp. Price, 25/s.
- THE SALICYLATES: A Critical Bibliographic Review. Martin Gross, M.D., and Leon A. Greenberg, Ph.D. New Haven, Conn.: Hillhouse Press, 1948. 380 pp. Price, \$6.00.
- SAFETY FOR THE HOUSEHOLD. U. S. Department of Commerce. National Bureau of Standards. Washington, D. C.: Government Printing Office, 1948. 190 pp. Price, \$75.
- SCIENTIFIC PERIODICALS IN THE NETHERLANDS. Compiled by A. Gorter. The Hague, Netherlands: Centrale Organisatie T.N.O., 1947. 36 pp. Price, \$1.25.
- SEX VARIANTS: A STUDY OF HOMOSEXUAL PATTERNS. George W. Henry, M.D. New York: Paul B. Hoeber, Inc., 1948. Price, \$8.00.
- SMOKE. The Problem of Coal and the Atmosphere. Arnold Marsh. M.Sc.Tech., M.Inst.F. Cleveland: The Sherwood Press, 1948. 356 pp. Price, \$7.00.
- WORKBOOK FOR HEALTH IN YOUR DAILY LIV-

ING. Francis L. Bacon. Boston: Houghton Mifflin Co., 1948. 121 pp. Price, \$.80.
 YOUR SKIN AND ITS CARE. Howard T. Behrman, M.D., and Oscar L. Levin, M.D. New York: Emerson, 1948. 255 pp. Price, \$2.50.

THE FOLLOWING REPORTS HAVE BEEN RECEIVED

AMERICAN CANCER SOCIETY. Annual Report 1947. New York: American Cancer Society, 102 pp.
 ASSOCIATION OF AMERICAN RAILROADS. Technical Reports Nos. 3 and 4. Report on an Investigation into the Use of Railway Passenger Car Toilets and the Nature and Quantity of the Toilet Wastes. New York: Association of American Railroads, 1947.
 CALIFORNIA PUBLIC HEALTH REPORT 1945-1947. San Francisco: State Department of Public Health. 187 pp.
 CITY OF MONTREAL, CANADA. Ad. Groulx, M.P.H., M.D. Report of the Department of Health, 1946. 329 pp.
 DADE COUNTY DEPARTMENT OF HEALTH. Annual Report 1947. Miami, Fla.: Department of Health.
 HARLEM COUNCIL ON SOCIAL HYGIENE, INC.

Annual Report, 1947. New York: Harlem Council on Social Hygiene. 15 pp.
 IT WAS 100 YEARS AGO LAST MAY. Annual Report of the Peoria City Health Department, 1947. Peoria, Ill.: Department of Health. 14 pp.
 LIFE INSURANCE MEDICAL RESEARCH FUND. Third Annual Report, 1947. New York: Life Insurance Medical Research Fund. 95 pp.
 LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE. Report on the Work of the School for the Year 1946-1947. London: University of London. 134 pp.
 MARYLAND STATE DEPARTMENT OF HEALTH. Report of a Health Officer Committee on the Coördination of Preventive and Curative Services, 1948. 37 pp.
 NATIONAL COMMITTEE FOR MENTAL HYGIENE, INC. Annual Report, 1947. New York: National Committee for Mental Hygiene, 1948. 48 pp.
 PORTLAND, OREGON, CITY OF. Annual Report of Bureau of Health for 1946. Department of Finance. 71 pp.
 QUEENSBORO TUBERCULOSIS AND HEALTH ASSOCIATION. 29th Annual Report April, 1947-March, 1948. Jamaica, New York: Queensboro Tuberculosis and Health Association.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Warmly Recommended Reading
 —Based, for a change, on realities a practical dental health plan for Baltimore children is set in motion. There should be some suggestions for you— if you have any concern whatever about the commonest of all physical defects— in this forward-looking move.

ANON. A Dental Care Program for Baltimore's School Childrep. Baltimore Health News 25, 5-6:26 (May-June), 1948.

Alcoholics Non-Industrious—Alcoholism is a very great public health problem, asserts this student who tells what industry might do about reclaiming its drunks during the two to ten years they take to progress from serious

drinker to full-blown souse. The cost is \$90 to \$140 per lush reclaimed.

BACON, L. R. Alcoholism in Industry. Indust. Med. 17, 5:161 (May), 1948.

Strains of Influenza A—Vaccines, which were effective against earlier influenza outbreaks, failed to protect the vaccinated during the 1947 visitations, in so far as the experience of 13 industrial establishments goes. But, don't be too discouraged: probably we'll have more potent vaccines in the future, asserts the reporter.

BAETJER, A. M. Results of Influenza Vaccination in Industry During the 1947 Epidemic. Indust. Med. 17, 5:171 (May), 1948.

This Seems Reasonable—After a three year study, a commission concludes that influenza A and B are endemic infections which periodically erupt in epidemics. Between eruptions the virus is transferred from unrecognized case to unrecognized case.

COMMISSION ON ACUTE RESPIRATORY DISEASES, FORT BRAGG, N. C. Endemic Influenza. *Am. J. Hyg.* 47, 3:290 (May), 1948.

Go Slow, They Urge—Streptomycin cannot be considered a cure for tuberculosis at present, assert two Doubting Thomases. More controlled experiences are needed before accepting the drug as more than incompletely retardant of the infection in man. The paper's discussant seems to imply that the writers erected a sizable straw-man to bowl over.

CORPER, H. J. and COHN, M. L. Various Phases of the Use of Streptomycin in Tuberculosis. *J. A. M. A.* 137, 4:356 (May 22), 1948.

Rats Is Rats—For what it's worth to you, here is a statistic: a third of all roof rats of San Antonio carried typhus antibodies, while a half or more of the brown rats were positive.

DAVIS, D. E. Observation on Rats and Typhus Fever in San Antonio, Texas. *Pub. Health Rep.* 63, 21:783 (June 11), 1948.

"An Idea Whose Time Has Come"—Outlined in this useful paper is the plan for a rural-hospital-health-center to be created under the Hospital Construction Act. You had better familiarize yourself with this example of what can be done.

DAVIS, G. L. The Hospital as a Community Health Center. *Pub. Health Nurs.* 40, 6:311 (June), 1948.

"Study, Decision—and Action"—Don't miss this. The chairman and four participants discuss the National Health Assembly. We are due to hear about that gathering for months to come, but you'll profit by this early report.

EWING, O. R., *et al.* Essentials for National Health. *Survey* Midmonthly, 84, 6:185 (June), 1948.

Sanitizing Agents—One quote is offered on the chance it will tell you whether you will profit by reading the whole paper: "If the alkalinity of the detergent is sufficiently high to saponify fat, the resulting soap will inactivate the cationic quaternary ammonium compound with resultant loss in bactericidal activity."

GLASSMAN, H. N. Surface Active Agents and Their Application in Bacteriology. *Bact. Rev.* 12, 2:105 (June), 1948.

Carriers are Responsible—Polio virus leaves the patient through secretions of the mouth and nose and by the feces. Direct contact with infected persons rather than any widespread neighborhood factor is the usual source for the spread, these researchers conclude.

GORDON, F. B., *et al.* Laboratory Study of the Epidemiology of Poliomyelitis. *J. Infect. Dis.* 82, 3:294 (May-June), 1948.

"Serious Deficiencies Exist"—Having ascertained the needs, the Academy of Pediatrics, collaborating with the Public Health Service and the Children's Bureau, has embarked upon an ambitious attempt to better the distribution of child health services for *all* children. May they succeed beyond their most ambitious dreams!

HUPBARD, J. P., *et al.* Health Services for the Rural Child. *J. A. M. A.* 137, 4:337 (May 22), 1948.

What's a Cured Cancer Worth?—Cancer detection centers are an expensive undertaking, outside the realm of practicability for the average community. The National Cancer Institute has set up a demonstration unit at Hot Springs to see what parts can be salvaged from the idea that might be put to use locally.

KOPLIN, A. N. Objectives and Program of the Arkansas Cancer Detection Project. *Pub.*

Health Rep. 63, 25:813 (June 18), 1948.

Tampering With Personality— This you must read. It's about the nurse's contribution to mental health, but what the writer says to nurses applies equally to most of the rest of us. His introductory statements about the practicability and applicability and durability and clarity of ideas is not to be missed.

LEMKAU, P. V. What Can the Public Health Nurse Do in Mental Hygiene? Pub. Health Nurs. 40, 6:299 (June), 1948.

Good Samaritans Please Note— Blood donors recovered their hemoglobin, red cell, and serum protein levels quickest when their diets furnished 90 gm. of protein daily. One quart of milk, an egg, two servings of meat and one of cheese or legumes produced the 90—and a little gain in weight.

LEVERTON, R. M., *et al.* Blood Regeneration in Women Blood Donors. J. Am. Dietet. A. 24, 6:480 (June), 1948.

Artificial Respiration— Health workers with a yen for first aid will want this exhaustive report on "suck and

blow" and other respirators, for their clipping files.

MOTLEY, H. L., *et al.* Intermittent Positive Pressure Breathing. J. A. M. A. 137, 4:370 (May 22), 1948.

"Needs Must When the Devil Drives"—On May 7, London commemorated the centenary of the appointment of Sir John Simon, first Medical Officer of Health for the city. You need the historical information in the story of his appointment. Fear of approaching cholera was the principal cause.

UNDERWOOD, E. A. The Centenary of British Public Health. Brit. M. J. No. 4557 p. 890 (May 8), 1948.

He's Against Wholesale Medication—Of the contacts of early syphilis cases brought in for examination, slightly less than half were found to be infected. The proposal that *all* contacts be treated seems unwise, in the face of these findings, says the writer.

VON WERSSOWETZ, A. J. The Incidence of Infection in Contacts of Early Syphilis. Ven. Dis. Inform. 29, 5:132 (May), 1948.

Greetings from the Public Health Association of Brazil

The American Public Health Association is in receipt of the following letter from Dr. Oswaldo L. da Costa, the Executive Secretary of the Sociedade Brasileira de Higiene of Rio de Janeiro. Through the columns of the *American Journal of Public Health* it is shared with North American colleagues to whom it is addressed.

"The Sociedade Brasileira de Higiene, a National Organization of Public Health workers, considers this opportunity very appropriate to address its North American colleagues through the American Public Health Association.

"The factors that determined the creation of our society are the same that prompt us now to send this message: Association of

ideas and efforts for the progress of Public Health.

"The aims of all workers in the field of health protection are not limited by national boundaries and are free from individual or group prejudices.

"This assertion has more power and more truth for those who follow the new and successful road of the aptly called 'Good Neighbor Policy.'

"We want to add to the many facts that day by day are strengthening the approach of our governments and people this letter from the doctors, engineers, nurses and other affiliates of the Sociedade Brasileira de Higiene to the American Public Health Association.

"The American Public Health Association will surely make known to all its associates this message of friendship and hope for ever-increasing cooperation."

ASSOCIATION NEWS

SEVENTY-SIXTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
BOSTON, MASS., NOVEMBER 8-12, 1948

NOMINATIONS FOR THE GOVERNING COUNCIL

In accordance with the By-laws of the Association, the Nominating Committee for Governing Council Members consisting of one Fellow elected by each Section and a Chairman appointed by the Executive Board, reports the following nominations for the Governing Council. The Chairman of the Committee is George T. Palmer, Dr.P.H., Consultant in Public Health Administration with the California State Department of Public Health. The other members are: J. Lloyd Barron, Engineering Section; Samuel R. Berenberg, M.D., Maternal and Child Health Section; Frank C. Cady, D.D.S., Dental Health Section; Marion H. Douglas, R.N., Public Health Nursing Section; Marietta Eichelberger, Ph.D., Food and Nutrition Section; J. William Fehnel, Industrial Hygiene Section; Ruth E. Grout, Ph.D., School Health Section; Henry E. Meleney, M.D., Epidemiology Section; Lucy S. Morgan, Ph.D., Public Health Education Section; Hugo Muench, M.D., Vital Statistics Section; Thomas F. Sellers, M.D., Laboratory Section; and E. V. Thiehoff, M.D., Health Officers Section.

The By-laws provide that "upon the petition of twenty-five Fellows, the Nominating Committee shall add the name of any Fellow to the nominees selected by it, provided such petition is received not less than thirty days before the Annual Meeting."

The terms of ten elective Councilors will expire at the time of the Boston Annual Meeting. The ten nominees receiving the highest number of votes cast by the Fellows present and voting at the Annual Meeting will be declared elected to fill the three year term expiring in 1951.

Joseph C. Aub, M.D.
Massachusetts General Hospital
Boston, Mass.

Charles F. Blankenship, M.D.
U. S. Public Health Service
Chicago, Ill.

Ruth E. Boynton, M.D.
University of Minnesota
Minneapolis, Minn.

H. Trendley Dean, D.D.S.
National Institute of Health
Bethesda, Md.

Vivian Drenckhahn, M.S.
National Tuberculosis Association
New York, N. Y.

Marietta Eichelberger, Ph.D.
Evaporated Milk Association
Chicago, Ill.

Paul R. Ensign, M.D.
State Board of Health
Topeka, Kans.

Frederick W. Fabian, Ph.D.
Michigan State College
East Lansing, Mich.

Katherine Faville, R.N.
Wayne University
Detroit, Mich.

Roy F. Feemster, M.D.
State Department of Public Health
Boston, Mass.

Alfred H. Fletcher, M.S.
City Health Department
New York, N. Y.

John E. Gordon, M.D.
Harvard University
Boston, Mass.

Harold B. Gotaas, Sc.D.
University of California
Berkeley, Calif.

Ann W. Haynes, M.P.H.
State Department of Public Health
San Francisco, Calif.

Marjorie M. Heseltine, M.A.
Children's Bureau
Washington, D. C.

Benjamin G. Horning, M.D.
W. K. Kellogg Foundation
Battle Creek, Mich.

Edmund K. Kline, Dr.P.H.
Cattaraugus County Department of Health
Olean, N. Y.

Louise Knapp, R.N.
Washington University
St. Louis, Mo.

Guy G. Lunsford, M.D.
State Department of Public Health
Atlanta, Ga.

James E. Perkins, M.D.
National Tuberculosis Association
New York, N. Y.

Ruth R. Puffer, Dr.P.H.
State Health Department
Nashville, Tenn.

James S. Simmons, M.D.
Harvard University
Boston, Mass.

Dean F. Smiley, M.D.
American Medical Association
Chicago, Ill.

Eunice N. Tyler, Ph.D.
University of North Carolina
Chapel Hill, N. C.

Myron E. Wegman, M.D.
Louisiana State University
New Orleans, La.

PROGRESS IN THE MERIT SYSTEM SERVICE

The Merit System Service of the Association has more than tripled its output during the past year as is revealed in a recent report to the Executive Board. Thirty-three states and nine cities have used the examinations prepared by the Merit System Service. In addition, schools of public health nursing, schools of sanitary engineering, visiting nurse associations, the U. S. Public Health Service and state licensing or registration boards are using these examinations.

Descriptive of the activity of the staff on the 5th floor at 1790 Broadway, New York, is the report for the month of May, 1948. Twenty-seven examinations were prepared for 6 states and delivery of examinations was made to one school of public health nursing. Three states ordered 19 examinations for future delivery. There are orders on hand for 61 examinations for 9 states and 23 exami-

nations for the U. S. Public Health Service.

To show the widespread use of the examinations, lists were prepared as of May 31, 1948. Seven states have ordered written examinations for administrative health officers, and two cities have used examinations for similar classes. The U. S. Public Health Service is using written objective-type examinations prepared in coöperation with the Merit System Service for the selection and promotion of commissioned officers. One state is planning to use the examinations for the selection of medical officers for promotion within the state health department. The states which have used examinations for administrative health officers are as follows:

Administrative Health Officers

California
Colorado
Illinois
New York
Oklahoma
South Dakota

Examinations for the selection of laboratory personnel have been delivered to 16 states as follows:

Laboratory

Alabama	Nevada
Georgia	North Carolina
Illinois	Oklahoma
Kentucky	Rhode Island
Louisiana	South Dakota
Maryland	Utah
Mississippi	Vermont
Missouri	West Virginia

Twenty-one states have ordered examinations in environmental sanitation. One state is using an examination for licensing sanitary inspectors and a school of sanitary engineering used an examination for students of sanitary engineering. The Public Health Service is now using examinations for the selection and promotion of sanitary engineers. The states using examinations in environmental sanitation are listed.

The most extended use of written examinations prepared by the Merit System Service is in the field of public health nursing. Examinations have been delivered to 30 states as well as to

Environmental Sanitation

California	Massachusetts
Colorado	Mississippi
Florida	Missouri
Georgia	Nebraska
Idaho	Nevada
Illinois	North Carolina
Iowa	Oklahoma
Kentucky	South Carolina
Louisiana	South Dakota
Maryland	Utah

schools of public health nursing, visiting nurse associations and the U. S. Public Health Service. The states are listed below.

The use of written objective examinations as one of the devices for selecting public health personnel is on the increase and indicates a trend in personnel practices. A health agency is considering using written objective examinations for determining knowledge in the general field of public health as a guide to in-service training. The Merit System Service is developing short illustrative examinations for use at the annual meeting. Inquiries regarding the examination services are invited.

Nursing

Alabama	Kentucky	Oklahoma
Arizona	Louisiana	Pennsylvania
California	Maryland	Rhode Island
Delaware	Massachusetts	South Carolina
Florida	Mississippi	South Dakota
Georgia	Nebraska	Utah
Idaho	Nevada	Vermont
Illinois	New Mexico	Virginia
Iowa	New York	West Virginia
Kansas	Ohio	Wyoming

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Joseph M. Bistowish, M.D., County Health Dept., P. O. Box 491, Gainesville, Fla., Asst. Health Officer, Alachua County
L. R. B. Centanni, M.D., Box 128, Thibodaux, La., Director, Lafourche Parish Health Unit

Sidney Cobb, M.D., Nashoba Health Unit, Central Ave., Ayer, Mass., Director
Harold O. Hunt, M.D., Town Hall, Falmouth, Mass., Inspector, Falmouth Board of Health
George Kraus, M.D., 51 Blaine St., Fairfield, Conn., Health Officer, Town of Fairfield

- Juan Moroder, M.D., M.P.H., Escuela de Salubridad, 9 de Julio, 3467, Santa Fe, Argentina, S. A. Professor of Public Health Administration, School of Public Health, National University of the Litoral
- Gordon M. Parrott, M.D., 1023 N. Tacoma Ave., Tacoma, Wash., Asst. Director, Tacoma & Pierce County Health Depts.
- W. M. Singleton, M.D., Court House, Room 303, Portsmouth, Ohio, County Health Commissioner, Scioto County Board of Health
- Joseph H. Stickler, M.D., M.P.H., Route 5, Box 993, Hanford, Calif., Kings County Health Officer
- Albert E. Thoms, M.D., C.M.D.P.H., Leeds & Grenville Health Unit, Brockville, Ontario, Canada, Director
- Myron G. Tull, M.D., M.P.H., 426 E. Lake Ave., Baltimore 12, Md., Administrative Health Officer, City Health Dept.

Laboratory Section

- Virginia D. Allen, M.S., State Laboratory of Hygiene, M. I. Bldg., Madison, Wis., Bacteriologist
- Louise Barney, 2227 Ellis Ave., Boise, Idaho, Senior Bacteriologist, State Dept. of Public Health
- Seymour A. Greenspon, A.M., 201 College Ave., Columbia, Mo., Instructor in Medical Bacteriology and Preventive Medicine, Univ. of Missouri
- Russell R. Harrison, 209 Center Drive, N.H.A. 1, Honolulu 50, T.H., Bacteriologist and Asst. Epidemiologist, District Medical Office, Preventive Medicine Section, Pearl Harbor, T.H.
- Floyd A. Martin, M.D., 4 McAlester Hall, Columbia, Mo., Professor of Bacteriology and Preventive Medicine, School of Medicine, Univ. of Missouri
- A. Kealy Mayes, City Health Dept. Laboratory, 2013 Commerce, Dallas, Tex., Laboratory Director
- Francis Pattison, Caro State Hospital for Epileptics, Caro, Mich., Bacteriologist
- Helen Schmidt, 4218 Geneva St., Pittsburgh 1, Pa., Student, Univ. of Pittsburgh
- Milton Segalove, Ph.D., 10717 Venice Blvd., Los Angeles 34, Calif., Bacteriologist, Bio-Science Laboratories, Inc.
- Charles Symon, M.D., Benesova 10, Brno, Czechoslovakia, Asst. Dept. of Hygiene and Bacteriology, Medicine Faculty, Brno
- Peter Vogel, M.D., 51 East 90th St., New York 28, N. Y., In charge, Rh. Testing Laboratory, Bureau of Laboratories

Engineering Section

- Charles G. Caldwell, M.S., 554 E. Garcia,

- Santa Fe, N. M., Director, Division of Sanitary Engineering and Sanitation, State Dept. of Public Health
- Ray L. Derby, Terminal Annex, P. O. Box 3669, Los Angeles, Calif., Principal Sanitary Engineer, Los Angeles Dept. of Water and Power
- Robert E. Mytinger, 136 South Canon Drive, 106, Beverly Hills, Calif., Student, School of Public Health, Univ. of California
- Donald L. Truax, 101 California St., San Francisco 19, Calif., Consulting Sanitarian, California Packing Corp.
- Thomas N. Uffelman, 1012 18th Avenue South, Nashville 4, Tenn., Trainee, Davidson County Health Dept.

Industrial Hygiene Section

- M. N. Rao, Dr. P.H., 110 Chittaranjan Ave., Calcutta, India, Asst. Professor in Physiological and Industrial Hygiene, All India Institute of Hygiene and Public Health

Food and Nutrition Section

- Margaret P. Zealand, 19 W. State St., Trenton 8, N. J., Nutritionist, State Dept. of Health

Maternal and Child Health Section

- Helen E. Hestad, 2732 Harriet Ave., South, Minneapolis, Minn., Consultant in Maternal and Child Health, Bureau of Public Health Nursing, City Health Dept.
- Wallace S. Trowbridge, 1116 Denver, Boise, Idaho, Special Investigator, State Dept. of Public Health
- Shih-Chin Wang, M.D., M.P.H., National Institute of Health, Ministry of Health, Nanking, China, Technical Expert, Maternal and Child Health

Public Health Education Section

- Ernest L. Bates, 343 Atlas Ave., Grand Rapids 6, Mich., State Representative, National Foundation for Infantile Paralysis, Inc.
- William T. Beatty, II, 74 John St., Kingston, N. Y., Health Educator and Asst., Ulster County Tuberculosis and Health Assn.
- Marion T. Bryant, M.P.H., 2761 Fifth Ave., San Diego 3, Calif., Public Health Educator, San Diego City and County Health Depts.
- Charles E. Burbridge, 654 Girard St., N.W., Apt. 201, Washington 1, D. C., Supt., Freedmen's Hospital
- Mrs. Eleanor Fletcher, 993 Cragmont Ave., Berkeley 8, Calif., Trainee at Univ. of California and San Diego Health Dept.
- Winifred H. Hillard, R.N., 405 Walker St., Cliffside Park, N. J., Asst. School Health Educator, District of Columbia Tuberculosis Assn.

Valda V. Johnson, 915 S. 5th, Ponca City, Okla., Exec. Secy., Kay County Tuberculosis Assn.

W. Wray Jonz, M.P.H., 805 Sixth, Eureka, Calif., Health Educator, Humboldt County Health Dept.

Charles L. Massey, Jr., 613 W. Dickson St., Fayetteville, Ark., State Representative, National Foundation for Infantile Paralysis, Inc.

Miriam Newmark, 1 Madison Ave., New York 10, N. Y., Secy., Metropolitan Life Insurance Company

Wilbert P. Pape, 633 North Fourth St., Milwaukee 3, Wis., Director of Health and Physical Education, Young Mens Christian Assn.

Gladys M. Peacock, 222 E. 49th St., New York, N. Y., Information Secy., Bronx Committee, N. Y. Tuberculosis and Health Assn.

Maxine T. Shafer, M.S.P.H., City Health Dept., Asheville, N. C., Public Health Educator

W. Franklin Wood, M.D., McLean Hospital, Waverley 79, Mass., Director

Public Health Nursing Section

Gertrude Cramer, R.N., 321 E. 6th St., A.R.C., Cincinnati, Ohio, Director Nursing Services, Cincinnati and Hamilton County Chapter, American National Red Cross

Ruby Daniels, Box 1296, Sterling, Colo., Supervising Nurse, Northeast Colorado Health Dept.

Olive J. Faulkner, M.S., 3924 Alma Ave., Richmond, Va., Advisory Nurse, State Health Dept.

Pearl H. Hamilton, R.N., Michigan Dept. of Health, Lansing, Mich., Regional Nursing Consultant

Mary Kutansky, 1001 E. 3rd St., Chattanooga, Tenn., Instructor, Erlanger Hospital

Dorothy Morris, B.S. in N.Ed., St. Elizabeths Hospital, Washington 20, D. C., Asst. Chief Nurse

Charlotte C. Skooglund, M.A., 56 Lockwood St., Providence 2, R. I., Assoc. Director, School of Nursing, Rhode Island Hospital

Roma M. Summers, Orofino, Idaho, Public Health Nurse, State Dept. of Public Health

Irene P. Woods, 618 8th Ave., Lewiston, Idaho, Supervising Public Health Nurse, North Central District Health Unit

Epidemiology Section

Dudley W. Hargrave, M.D., M.P.H., 510 Terminal Bldg., Rochester 4, N. Y., District State Health Officer

Luis E. Najera-Angulo, M.D., Buenos Aires 769, Tucuman, Argentine, S. A., Professor

of Epidemiology, Universidad Nacional de Tucuman

Harold J. Sacks, M.D., 3825 S. Burnside, Los Angeles 56, Calif., Clinic Director, City Health Dept.

Vaclav Tomasek, M.D., Veveri 9, Brno, Czechoslovakia, Professor of Hygiene, Masaryks Univ., Medical Faculty

School Health Section

Roland Y. Glidden, M.D., 5334 Chesley Ave., Los Angeles 43, Calif., Supervisor, School Health, City Board of Education

Basil R. Tolle, P. O. Box 2275, Stanford, Calif., Student, Stanford Univ.

Dental Health Section

Frank P. Bertram, D.D.S., M.P.H., 3400 North Eastern Ave., Oklahoma City, Okla., Director, Division of Preventive Dentistry, State Health Dept.

Harry I. Kurisaki, D.D.S., 1192 Smith St., Honolulu, T.H., Territorial Dental Board Member

Norman C. LeClerq., D.D.S., University Club Bldg., St. Louis, Mo., Dentist

Roy D. Smiley, D.D.S., 1098 W. Michigan St., Indianapolis, Ind., Director, Division of Dental Health, State Board of Health

William E. Walton, D.D.S., R.F.D., Auburn, Pa., District Dental Officer, Bureau of Dental Health, State Dept. of Health

Unaffiliated

Philip E. Adams, D.M.D., 106 Marlboro St., Boston 16, Mass., Professor of Orthodontics, Tufts College Dental School

Albert L. Albright, 1021 Tyler, Topeka, Kan., Director, Division of Personnel and Finance, State Board of Health

Kenneth J. Carhart, 87 Acres Drive, Hamilton Square, N. J., Asst. Chief, Division of Personnel, Administration Records and Accounts, State Dept. of Health

John J. Carroll, 54 40th St., Irvington 11, N. J., Secy., Health Dept.

Eva H. Erickson, 515 Main, Olean, N. Y., Administrator, Olean General Hospital

Howard E. Ericson, 3114 West Raymond St., Seattle 6, Wash., Operating Manager, Washington State Dept. of Health

Henry Gavens, M.C.S., Municipal Center, D. C. Health Dept., Washington, D. C., Budget and Administrative Officer

Alice Harris, 2747 Haste St., Berkeley, Calif., Asst. Secy., American Public Health Assn., Western Branch

Robert T. Malone, Centennial Bldg., Room 6, Springfield, Ill., Fiscal Officer, State Dept. of Public Health

Sue Z. McCracken, R.N., 328 Oakmoor Rd., Bay Village, Ohio, General Secretary, District 4, Ohio State Nurses Assn.

Sol L. Nemzoff, c/o Dr. E. Ruegg, Susen-bergstrasse 90, Zurich, Switzerland, Medical Student, Univ. of Zurich

Irvin C. Petersen, R.F.D. 3, Boise, Idaho, Lay Investigator, Local Health Service, State Dept. of Public Health

Mae Reynolds, State Board of Health, Raleigh, N. C., Budget-Purchasing Officer, State Board of Health

Mrs. Lucille M. Smith, 9403 Flower Ave., Silver Spring, Md., Chief, Medical Needs

Section, Bureau of Public Assistance, Federal Security Administration

Kenneth A. Tyler, M.D., 905 South Main St., Gooding, Idaho, Medical Director, Idaho State Tuberculosis Hospital

Beulah T. Wild, M.A., 1014½ Capitol, Houston, Tex., Exec. Secy., Health Council of the Community Council

Henry M. Wiswall, M.D., 308 Ford Bldg., Vancouver, Wash., General Medicine and Surgery

Charles V. Wynne, M.B.A., Waterbury Hospital, Waterbury 61, Conn., Superintendent

Hotel Reservations at Boston

Members are asking which is the "Headquarters" hotel for the Boston Annual Meeting. The answer is that no one hotel has been designated headquarters for delegates because Boston's hotels, though numerous, are not large.

A Housing Bureau is being operated for the Association by the Boston Convention Bureau. We are asking members to select their own hotel from among those listed on page 1178. The application should be carefully filled in and mailed to:

The Housing Bureau
Boston Chamber of Commerce
80 Federal Street
Boston, Mass.

Convention activities will center largely in Mechanics Building. We rearrange the list of hotels below to show you their location with relation to Mechanics Building. No. 1 is nearest, 2 next in order of distance, and so on.

- | | | |
|-----------------------|-------------------------|----------------------|
| 1—Hotel Minerva | 6—Hotel Statler | 13—Hotel Kenmore |
| 2—Copley Square Hotel | 7—Hotel Bradford | 14—Hotel Braemore |
| 3—Copley Plaza Hotel | 8—Hotel Touraine | 15—Hotel Bostonian |
| 4—Hotel Lenox | 9—Hotel Puritan | 16—Hotel Bellevue |
| 5—Hotel Gardner | 10—Hotel Somerset | 16—Hotel Manger |
| 5—Hotel Hemenway | 11—Hotel Myles Standish | 16—The Parker House |
| 5—Hotel Vendome | 12—Hotel Sheraton | 17—Hotel Continental |

Single rooms are few and are hard to obtain. Rooms for double occupancy are strongly recommended. There is no question about the ability of Boston's hotels to accommodate the delegates to the Annual Meeting, but the Housing Bureau and the Local Committee ask the coöperation of the membership in seeking double rather than single room accommodations.

A.P.H.A. membership application blank on page XXV

THE 76TH ANNUAL MEETING

Boston, Mass., November 8-12, 1948

Hotel Reservation Form

The hotels listed below have rooms available for Association delegates at the rates indicated. Please note that NO RESERVATIONS WILL BE ACCEPTED DIRECTLY BY HOTELS. Make your reservation through:

The Convention Bureau, Boston Chamber of Commerce, 80 Federal Street, Boston 10, Mass.

Hotels	Singles	Doubles	Twin Beds	Suites
Bellevue	\$4.00-\$6.00	\$6.00-\$8.00	\$7.25-\$10.00	\$12.00-\$15.00
Bostonian	3.00- 4.50	5.00- 6.50	5.00- 7.00	8.00- 10.00
Bradford	4.00- 6.00	6.00- 7.00	6.50- 8.00	12.00- 14.00
Braemore	4.40- 6.60	6.40- 9.90	6.60- 9.90	9.90- 25.00
Continental	3.50- 4.00	6.60	7.00	8.00- 25.00
Copley Plaza	4.50- 6.60	7.75- 8.80	8.80- 10.00	15.00- 25.00
Copley Square	4.00- 5.00	6.00	7.00	10.00- 14.00
Gardner	2.50- 5.00	4.00- 6.00	4.00- 6.00	7.50
Hemenway	3.00- 3.85	4.40- 5.50	4.40- 5.50	None
Kenmore	4.00- 6.00	6.50- 8.50	6.50- 8.50	10.00- 12.50
Lenox	3.75- 5.00	5.50- 6.50	7.50	10.00- 16.00
Manger	3.85- 5.50	5.00- 7.50	5.50- 7.50	None
Minerva	3.00- 5.00	4.00- 6.00	5.00- 7.00	5.00- 8.00
Myles Standish	3.85- 6.50	5.50- 7.50	6.50- 7.50	6.50- 15.00
Parker House	4.00- 6.50	6.25- 8.50	7.50- 10.00	14.00- 16.00
Puritan	4.40- 6.60	6.60- 8.80	9.90	13.20- 17.60
Sheraton	4.00- 4.50	7.00- 8.00	7.00- 8.00	7.00- 16.00
Somerset	5.00- 9.00	7.00-11.00	7.00- 11.00	10.00- 20.00
Statler	4.00- 9.50	6.50-12.00	8.50- 14.00	17.50- 27.00
Touraine	4.00- 6.00	6.00- 9.00	7.50- 9.00	14.00- 16.00
Vendome	3.75- 7.00	5.50- 8.75	6.50- 8.75	10.00- 15.00

MAKE ROOM RESERVATIONS EARLY

APPLICATION FOR HOTEL ACCOMMODATIONS AMERICAN PUBLIC HEALTH ASSOCIATION

76th Annual Meeting and Meetings of Related Organizations, Boston, November 8-12, 1948

(Note that the Meeting opens Monday, November 8, at 9.30 A.M.)

Please make hotel reservation as indicated below:

Give three choices of hotels.

Hotel 1st Choice; Hotel 2nd Choice; Hotel 3rd Choice

.... Room with Double Bed at \$..... per day for persons

.... Room with Twin Beds at \$..... per day for persons

.... Room for three people at \$..... per day for persons

.... Single room at \$..... per day

.... Suite at \$..... per day for persons

ARRIVING: NOVEMBER Hour LEAVING: NOVEMBER Hour

Please print (or type) names and addresses of all occupants including persons making reservation.

NAME	STREET ADDRESS	CITY	STATE
.....
.....
.....

Name

Street Address

City State

MAIL TO: The Convention Bureau, Boston Chamber of Commerce, 80 Federal St., Boston, Mass.

RESERVATIONS WILL BE HELD UNTIL 6:00 P.M. ONLY. UNLESS
THE HOTEL IS NOTIFIED OF LATE ARRIVALS

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

(Supplemental to list in July Journal)

POSITIONS AVAILABLE

General Sanitarian whose principal duties will be restaurant sanitation; should have Bachelor's Degree with major in Chemistry or Bacteriology, and a minimum of one year's experience in full-time local Health Department. Post-graduate work of at least one semester in a school of public health desirable. Densely populated county; large, well organized department staff; salary open. Write Director, Will County Health Department, 21 East Van Buren Street, Joliet, Ill. Include snapshot and short history in the first letter.

Town of 26,000, convenient to medical and cultural centers needs full-time **Health Officer**, salary \$6,000, plus mileage. Write Board of Health, Milford, Conn., for application.

Bacteriologist with B.S. or B.A. degree, and 1 year training in public health bacteriology and serology, and 1 year's experience in a public health laboratory to work in State Public Health Laboratory. Salary \$3,120 to \$3,984. Apply State Department of Health, Box 1877, Richmond, Va.

Health Educator for generalized full-time public health program; atomic energy project Pacific Northwest; salary depending upon experience and training; 40 hour week; complete community and plant program; M.P.H. required. Write or wire: Administrator, Kadlec Hospital, Richmond, Wash.

Senior Bacteriologist, County Health Department Laboratory. Salary \$3,600-\$4,560. Write Kern County Health Department, P.O. Box 120, Bakersfield, Calif.

Clinical Laboratory Technician in Kern County Department of Public Health, California. Salary \$2,640 to \$3,120 annually. Write P.O. Box 120, Bakersfield, Calif.

Nurses are needed for public health work in Texas. The program is con-

ducted under a Merit System. The compensation range for Sr. Public Health Nurses is from \$189.75 to \$212.75 per month. The compensation range for Jr. Public Health Nurses is from \$166.75 to \$201.25 per month. The compensation for War Emergency Nurses is from \$143.75 to \$178.25 per month. In addition to the above salary there is usually provided approximately \$600.00 per year car allowance. Write State Health Department, Austin, Tex.

Industrial Hygiene Physician. \$6,720 to start. Advances to \$7,440. Minimum of three years' experience in industrial medicine. Graduation from medical school, one year internship and at time of appointment or within three years thereafter one year of graduate training. Permanent. Civil Service status. Retirement. Apply to: Harold M. Erickson, M.D., State Health Officer, Oregon State Board of Health, 1022 S. W. 11th Ave., Portland 5, Ore.

Public Health Nurses for pleasant rural county in Southwestern Michigan within 125 miles of Chicago, 150 of Detroit, 17 of Kalamazoo. A recreation area bordering on Lake Michigan with many lakes. Excellent opportunity to obtain generalized Public Health Rural Nursing experience, under well qualified supervision. Salary dependent upon training and experience, generous travel allowance, 40 hour week, liberal vacation and sick leave allowance with pay. Write, Director, Van Buren County Health Department, Paw Paw, Mich.

Several Qualified Public Health Officers in Texas. Must meet Merit System requirements. Formal specialized training or experience needed. Salary range \$5,500 to \$7,200 per year, plus \$600 per year travel allowance. Write, Dr. Geo. W. Cox, State Health Officer, Austin, Tex.

Full-time Health Commissioner to direct and develop public health program in Lorain, Ohio, an industrial city of 50,000 and to head staff of assistants. Write:

William Lefever, Board of Health, Lorain, Ohio.

Public Health Nurses to render generalized nursing service which includes school nursing. Salary \$2,400 to \$3,000 with bonus of 10 per cent for 1948. Write: Town Nursing Service, Greenwich, Conn.

Sanitarian or Public Health Engineer as Director of milk, food, meat, and sanitation in sixty person Health Department of midwest city of 160,000. Sanitation staff of thirteen at present. Degree in Sanitary Engineering or related science and experience required. Usual Civil Service status and benefits, car and travel expenses including important meetings provided. Salary \$4,400 to \$4,850 at completion of two years' service. Write Box A-21, Employment Service, A.P.H.A.

Assistant Bacteriologist, male, U. S. citizen, for City Public Health Laboratory for bacteriological and serological work and related duties. College degree with major in the natural sciences including courses in bacteriology and one year's pertinent experience or equivalent combination required. Applicants with less than one year's experience may be taken on as trainees. Write Personnel Officer, 4th floor, City Hall, 241 W. South Street, Kalamazoo 13, Mich.

Wanted — M.D., Master in Public Health, experience in local health department. Starting \$7,920, top of range \$9,000, new auto furnished, large staff, adequate budget, Chicago area. Apply Will County Health Department, 21 E. Van Buren, Joliet, Ill.

Public Health Educator (Lecturer in Social Hygiene). Monthly salary \$270-\$325. Write Personnel Officer, State Board of Health, Madison 2, Wis.

Public Health Nurse wanted with Public Health Certificate. Beginning salary \$3,428 to maximum of \$4,018. Car furnished. Permanent tenure, vacation and sick leave, five day week. For further information apply to the Civil Service Board, City Hall, Dearborn, Mich.

Sanitarians wanted for Food and Sanitation Division of a city—population approximately 85,000. College graduates preferred who have working knowledge of modern methods, techniques, and practices of public health sanitation. Permanent tenure, liberal vacation, sick leave, and retirement privileges. Salary range \$3,854-\$4,248. Apply to Civil Service Board, City Hall, Dearborn, Mich.

Two Staff Nurses for generalized Public Health Nursing Program, adjacent to

Washington, D. C. Three weeks paid vacation, sick leave, 40 hour week, merit salary increases, opportunity to attend universities part-time in Washington. Must own car. Apply Personnel Director, Arlington Court House, Arlington, Va.

Public Health Nurse, salary range \$2,700 to \$3,000. Must have certificate or degree in Public Health Nursing. Generalized service. Write to Tuscarawas County General Health District. Box 249, New Philadelphia, Ohio.

Sanitary Engineer with knowledge of mosquito control for large industrial concern in tropical location. Must be willing to go abroad on single status for about six months. Excellent opportunity for man under 35 to do interesting work on career basis. Write Box A-22, Employment Service, A.P.H.A.

Deputy Health Officer at the Rochester Health Bureau, Rochester, N. Y. Salary \$7,000. M.D. degree and graduate work in public health required. Duties varied. Write, Dr. Albert D. Kaiser at above mentioned address giving training and experience and special interests in public health.

Associate Bacteriologist, Public Health. Master's degree. Two years' suitable postgraduate experience. Salary range \$306 to \$350 per month. Permanent position under effective civil service.

Senior Assistant Bacteriologist, Public Health. Salary range \$242 to \$270 per month. B.S. degree with major in biology and at least 18 months' public health laboratory experience required. Some graduate work or teaching experience highly desirable. Write: Director of Laboratories, Laboratory Section, St. Louis Health Division, Room 32, Municipal Courts Building, St. Louis, Mo.

Public Health Nurse: For generalized program (including school service). Staff of 40 nurses. Completion of accredited public health nursing course required. Beginning salary \$2,940—possibly higher. County car or 6¢ per mile for use of personal car. Personnel policies good, including five day week and annual salary increments. Write: Director of Public Health Nursing, Kern County Department of Public Health, P. O. Box 120, Bakersfield, Calif.

Staff School Nurse for small, well organized school health department on Pacific Coast. Salary approximately \$2,850, 35 hour week, 9 calendar months including 3 weeks vacation. Three summer months free. Annual increment for ten years, tenure after three probationary years. Must be under thirty with B.A.

and P.H.N. degrees, at least one year's experience in generalized nursing program and own car. Send photograph, age, degrees, training and experience since receiving P.H.N., marital status, number of children. Position open September, 1948. Write: Box A-23, Employment Service, A.P.H.A.

Public Health Nurse, white. Starting salary \$2,200. Apply: Health Officer, Health Center, Alexandria, Va.

Supervisors of Public Health Nurses. Baltimore County Health Department. Population 230,000; suburban, industrialized and rural areas; county seat 8 miles from Baltimore. Generalized service; director, 4 supervisors, 36 field nurses. Degree and experience required. Salary \$3,100 to \$3,600; for special preparation in child hygiene, venereal disease, mental hygiene or orthopedics, \$3,400 to \$3,900. Also **Public Health Nurses**, beginning salary \$2,300 (for trainee) to \$2,700, depending on experience and education; increases to \$3,300. Retirement plan; 1 month's vacation; 5 day, 35½ hour week; sick leave. For use of personal car, allowance of 7 cents per mile. Write: Dr. William H. F. Warthen, Health Officer, Baltimore County Health Department, Towson 4, Md.

Sanitarian, for town of 30,000 in the Northeastern United States. College graduate with major in Biological sciences and experience in sewage disposal and restaurant sanitation. Salary \$3,000 to \$3,500, plus car allowance. Car necessary. Write: Health Officer, Fairfield, Conn.

School Nurse for High School, Northeastern United States. R.N. and some public health experience required. College graduate preferred. Salary \$3,000 annually and increments. Write: Health Officer, Fairfield, Conn.

Public Health Nurse Supervisor—with certificate or one year of graduate study in public health. Salary range \$3,120 to \$3,600. Vacation, sick leave, retirement plan, 5 day week, permanent tenure. Car furnished. Write: Charles A. Neafie, M.D., Director, Dept. of Public Health, Pontiac 15, Mich.

Director for School Health Service, City Public Schools, M.D. required. M.P.H. desirable but not essential for applicants with public health experience. Age preferred 30-40. Beginning salary \$6,000. Staff of 17. Write: W. A. Bass, Superintendent, City Public Schools, Nashville - Tenn.

Health Educator for a college major in Health Education. Master's degree is required. Should be able to teach Administration and Organization and Materials and Methods of Health Education, and supervise student practice field work. Starting salary \$3,800 for 9 months, extra pay for Summer School. Man preferred. Write: Dean, Springfield College, Springfield, Mass.

Sanitation Engineer, foreign location; experienced man to handle general work in tropics for well established plantation. Will supervise sanitation problems, mosquito control. Splendid 2 year contract for qualified man. In reply give age, education, experience, and salary expected. Write: Box A-24, Employment Service, A.P.H.A.

Public Health Nurses needed in Nevada. Permanent positions in rural counties and local county health unit. **Junior Public Health Nurses:** (salary range \$2,160-\$2,640 annually); minimum of 6 months' postgraduate public health nursing training. **Senior Public Health Nurses:** (salary range \$2,340-\$2,940 annually). One academic year of postgraduate training in public health nursing plus satisfactory experience in official agency. Mileage allowance 7½¢, if nurse owns car. Write: Nevada State Department of Health, Division of Public Health Nursing, Reno, Nev.

Associate Director who can in time succeed Director of Midwest City Department with better than average budget, program and staff of 70, Civil Service benefits. Preference to training and/or experience in M.C.H. or Tuberculosis. Salary to \$7,000 as Associate and \$10,000 as Director. Write: George Hays, M.D., Director, Dept. of Public Health, P. O. Box 28, Flint, Mich.

Sanitary Engineer in a well organized County Health Department in the choice section of Illinois. Twenty staff members including 2 sanitarians. Salary to depend on training and experience, liberal travel allowance. Population of County 72,000. Apply: McLean County Health Dept., 1009 North Park St., Bloomington, Ill.

Qualified Public Health Nurses for attractive rural area on coast of Northern California. Generalized Public Health Program. Population 60,000, State Retirement Plan. Car furnished. Salary range \$3,000-\$3,600. Apply: Director, Humboldt County, Department of Public Health, 805 Sixth St., Eureka, Calif.

The Denver City-County Health Department has several vacancies for Public Health Nurses with training and experience and interested in field teaching. Beginning salary \$245.00 per month plus mileage. Generalized program except for

public school services. Recent Visiting Nurse Association merger. University field program. Write: Mrs. Mary Emberton, Director, Visiting Nurse Service, Denver Health Department, Denver General Hospital, Denver, Colo.

Opportunities in Colorado

The Weld County Health Department in Greeley, Colorado, announces the following openings: Public Health Nurse III, salary approximately \$3,000, Nutritionist, \$2,760, Health Education Director, \$4,200, Psychiatric Social Case Work Supervisor, \$3,600, Public Health Sanitarian or Engineer, \$4,000 to \$5,000 depending on background and experience. Apply Director, Weld County Health Department, Court House, Greeley, Colo.

Opportunities for Physicians in Wisconsin

The Wisconsin State Board of Health announces a number of vacancies for qualified public health physicians and medical specialists. Attempts to revise upward the salary scale for these positions have recently met with success. The following are the most important medical vacancies and the new monthly salary scales:

Medical Specialist I (Obstetrics and Gynecology) \$545-\$645 per month.

Medical Specialist I (Pediatrics) \$545-\$645 per month

Medical Specialist I (Psychiatry) \$545-\$645 per month.

Public Health Physician I (District Health Officer) 4 vacancies, \$545-\$645 per month.

Public Health Physician II (Ass't Chief M.C.H.) \$625-\$735 per month.

Public Health Physician II (Tuberculosis) \$625-\$735 per month.

Public Health Physician II (Venereal Disease and Epidemiology) \$625-\$735 per month.

Write: Personnel Officer, State Board of Health, Madison 2, Wis.

Opportunities in Minnesota

	<i>Salary Range</i>
Public Health Engineering Aide	\$2,568-\$3,048
Public Health Engineer I	3,480- 4,080
Public Health Engineer II	4,332- 5,052
Public Health Engineer III	5,232- 5,952
Public Health Engineer IV	6,024- 6,864

All applicants must have graduated from a university of recognized standing with specialization in engineering and various requirements of graduate training and experience. Write: Minnesota State Civil Service Dept., 122 State Office Bldg., St. Paul 1, Minn.

POSITIONS WANTED

Health Agency Executive — considerable experience in community organization, voluntary health agency administration and health interpretation desires similar position in East or Middle West. Interested in health or educational agency or industrial organization concerned with planning and promotion of health services and education program. Write Box C-1, Employment Service, A.P.H.A.

Health Educator, male, Negro, M.A., M.P.H., 10 years of health education and teaching in school systems and colleges, 20 months' community health education in a metropolitan area. Interested in community or school health education. Write Box HE-4, Employment Service, A.P.H.A.

Health Educator, Negro, Male, 39. M.S.P.H. (Columbia), 4 years' experience

in official health agency. Interested in community health education or health education in schools. Write Box HE-5, Employment Service, A.P.H.A.

Recent Graduate Veterinarian (KSC '47) with B.S. degree in bacteriology desires employment. Some experience as a sanitarian. Write Box V-5, Employment Service, A.P.H.A.

Physician, woman, considerable experience in practice of pediatrics and school health administration, consultant to professional and voluntary agencies, desires interesting position part or full time in greater New York area. Write Box Ph-6, Employment Service, A.P.H.A.

Physician, Woman, M.P.H. 1948; 3 years' internship and residency experience; 1 year college health work. Interested in epidemiology, health education, school health, teaching. Write Box Ph-7, Employment Service, A.P.H.A.

Graduate Veterinarian, experienced in disease control work and private practice, desires position in industry and/or public health field. Write Box V-4, Employment Service, A.P.H.A.

Biological and Physical-Chemist, Ph.D. available soon, for Research or Teaching, extensive experience in pharmacology, pharmaceuticals, biologicals, bio-assays. Former university professor, former head, development department of large pharmaceutical manufacturer; 60 publications, many in medical research; books. Executive ability and experience. Age: 35; married; children. Seeks responsible position, educational institution or hos-

pital laboratory. New York Metropolitan area preferred. Answer Box L-2, Employment Service, A.P.H.A.

Sanitary Engineer—6 years' experience in the field of public health engineering with Sanitary Corps, Federal and private agencies. M.S. degree in Sanitary Engineering. East preferred. Write Box E-5, Employment Service, A.P.H.A.

Health Educator, B.S., M.A., Ed.D.; 10 years' experience with public schools and colleges. Now doing teacher training in large state university and acting as consultant to school administrators and teachers. Seeks opportunity in public school health program or combination of health and physical education in either public schools or college teacher-training. Write Box A-25, Employment Service, A.P.H.A.

Public Health Administrator, M.D., Dr.P.H. Twelve years' experience in teaching of public health and preventive medicine in various medical schools. Experience as director of school health in a public school system. Eight years' experience in official and voluntary agencies and armed forces. Midwest preferred. Currently employed, but seeking challenging position. Write Box C-2, Employment Service, A.P.H.A.

Dentist—Thirty years' experience in clinical and 5 years' experience in public health hospital administrative work. Interested in dental opening (South and Southwest preferred) with or without clinical responsibilities. Write: Box D-2, Employment Service, A.P.H.A.

Advertisement

Opportunities Available

WANTED—(a) Public health administrator; residential town of 65,000; competent organizer required; Middle West; minimum \$7,500. (b) Public health dentist; administrative position; voluntary health agency supported by Community Chest with children's dental clinics located in different parts of city and suburbs; Eastern metropolis. (c) Public health physician for position with preventive medicine department of large industrial company; East. (d) Two student health physicians and, also, dentist, to join staff of student health department, university having enrollment of 12,000 students; West. (e) Young woman physician; student health department, young women's college; New England. (f) Director of school health service; metropolitan area; East; \$8,000. PH8-1 Medical Bureau (Burnice Larson, Director), Palmolive Building, Chicago 11.

WANTED—(a) Statistician to direct division of vital statistics, state department of health; \$5,100.

(b) Bacteriologist, M.S. degree with two years' experience in public health laboratory work required; municipal department of health; Middle West. (c) Health educator; newly created position, municipal health department, middle western town of 150,000. (d) Sanitary engineer; division of engineering and sanitation; county department of health serving population of 300,000. (e) Superintendent of sanitation; city health department; 150 employees; Southern city, 200,000. (f) Health educator to work with colleges and educators; preferably one who has taught health education in a teachers college; willing to travel; East. (g) Sanitary engineer to direct department serving population of 7,000,000; experience in water and malarial control required; M.A. degree and public health background essential; South America. (h) Sanitary engineer qualified to handle malaria control work; training in bacteriology required; operation of large industrial company in Africa. (i) Instructors; department of public health and bac-

teriology; opportunities for research; state university; West. PH8-2 Medical Bureau (Burneice Larson), Palmolive Building, Chicago 11.

WANTED—(a) Orthopedic nursing consultant; duties consist of developing and organizing adequate consultation service in orthopedic nursing; degree and graduate training in public health nursing required; university medical center; Mid-south. (b) Supervisor of public health nursing; county health department; generalized program; headquarters in city of 45,000; East. (c) Coordinator of public health nursing; duties consist of directing public health program for student nurses; university appointment; East. (d) Student health nurse;

young women's college; duties consist of taking charge of boarding school group of approximately 60 students and 15 faculty members; no responsibilities in connection with day school of 300 students except in matters of consultation; program directed by school doctor; well equipped infirmary; university medical center; opportunity for continuing studies. (e) Public health supervisor; generalized program; Pacific Northwest. (f) Public health nurses of supervisory caliber for executive positions in Latin America; knowledge of French, Spanish, or Portuguese desirable; interesting appointment. PH8-3 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

Advertisement

Opportunities Wanted

Physician well qualified as health educator; B.S., M.D., and Master of Health degrees; several years, director of university health service where he has carried a rather heavy teaching load; recommended as an exceptionally fine teacher, clear thinker about problems of education and student welfare, able to stimulate students to high degree of activity; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Dentist experienced in public health work; several years, private practice limited to children's dentistry; past six years public health dentistry; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Sanitarian; Degree in Civil Engineering; five years, sanitary engineer, county health department; six years, director, rural sanitation, state department of health; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Statistician; M.S. in Mathematical statistics; M.S.P.H. in public health statistics; year's research

experience; five years, statistician with public health organization; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Health educator; B.S., M.S., and Ph.D. degrees; several years, instructor in biology, bacteriology and health; state university; three years, public health educator, city and county health department; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health nurse executive; M.S. degree, health education and public health; six years, executive secretary, county tuberculosis association; seven years, director, metropolitan public health nursing association; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health physician; degrees, Eastern schools M.P.H. Johns Hopkins; twelve years' administrative experience in public health medicine; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

NEWS FROM THE FIELD

NATIONAL LOCAL HEALTH UNITS PROGRAM TAKES ANOTHER STEP

On June 30, in New York, a newly appointed 16 member Interim Steering Committee of the National Advisory Committee on Local Health Units met for an all day conference to plan the program of the body for the coming months. The Chairman of the meeting was Philip R. Mather, President of the National Health Council, which is furnishing the secretariat and operating expenses for the National Advisory Committee.

As indicated in earlier issues of the Journal,¹ this National Advisory Committee grew out of the Princeton Conference when for the first time a large body of citizen and voluntary health agencies picked up the ball that had up to then been carried by the A. P. H. A., with the support of the American Medical Association and the Association of State and Territorial Health Officers.

Among the facts brought out at the June 30 meeting were that the National Advisory Committee now includes representatives of 45 national agencies, 25 of them citizen agencies such as Parent Teacher Associations, Lions, and National Grange, and 20 of them voluntary or professional health agencies; that 8 Bulletins on Local Health Units have been sent to a mailing list of some 450 agency executives, representatives, and house organs, state health officers, and a selected list of interested individuals, libraries, and publicity media. The 5-State Regional Conference² recently held in Indiana was also reported on, as were many of the current developments in the various states—the newly organized state-wide public health committees of Washington and Wisconsin for example, the organization of the new multi-county units in Colorado and In-

diana, the very active campaign of the Lions International, which includes a half-day forum on local health units at the annual international meeting of this organization in New York, July 26-29; excellent material published in such journals as the *Junior League Magazine*, the *Lion*, the *Bulletin of the National Congress of Parents and Teachers*, and others. Activities of such varied organizations as County Medical Societies and their Woman's Auxiliaries, the American Association of University Women, the League of Women Voters in Virginia, Utah, Colorado, Iowa, and many other states, were reported.

The favorable action of the House Committee on Commerce and Labor on the PTA sponsored Public Health Services Bill of 1948 and the bright hopes for its passage in the special session of the 80th Congress, if called, or in the first session of the 81st, were also reported. These activities were reviewed by the agency representatives and by John W. Ferree, M.D., Associate Director of the National Health Council.

Haven Emerson, M.D., whose study, *Local Health Units for the Nation*, published in 1945, started this activity, pointed out the significance of the resolutions of the National Health Assembly³ and of the National Conference on Family Life⁴ in furthering the aim of covering the entire populace with full-time medically directed local health departments.

Reginald M. Atwater, M.D., Executive Secretary of the American Public Health Association told the committee that only through local community recruitment of public health workers could present personnel shortages be overcome.

The discussion of problems and the program for the future was under the

chairmanship of James Stone, Director of Program Development of the National Tuberculosis Association. Among the interim activities planned for the future were:

A meeting of the entire National Advisory Committee in the fall of 1948 to organize on a permanent basis and to develop a long term program.

A five State Rocky Mountain Regional Conference in Salt Lake City in October.

Continuation of the *Bulletin on Local Health Units* as an activity of the National Advisory Committee and in a more attractive format. Its primary purpose is to serve as a medium of information and of ideas for committee member agency house organs or journals.

Preparation of a pamphlet that would tell in brief and simple form what a local health department is, what benefits a community may expect from it; and how a community organizes itself to secure a unit or to make its existing one more effective.

The members of the Steering Committee are:

American Cancer Society, Edith M. Gates, Health Education Specialist

American Medical Association, A. J. Chesley, M.D., Minnesota State Health Commissioner

American National Red Cross, Ruth B. Freeman, R.N., Administrator of Nursing Services

American Public Health Association, Haven Emerson, M.D., Chairman, Subcommittee on Local Health Units

Association of State and Territorial Health Officers, Vlado A. Getting, M.D., Massachusetts State Health Commissioner

Congress of Industrial Organizations, Leo Perlis, National Director, CIO Community Services Committee

Lions International, Lee A. Rademaker, M.D., International Director

National Congress of Parents and Teachers, Mrs. L. W. Hughes, President

National Council of Negro Women, Mrs. Bertell Collins Wright, Health Education Secretary, Essex County (N. J.) Tuberculosis League

The National Grange, Lloyd C. Halvorson, Economist

National Health Council, John W. Ferree, M.D., Associate Director

National Organization for Public Health Nursing, Dorothy Rusby, R.N., Assistant Director

National Social Welfare Assembly, David H. Holbrook, Assistant Director

National Tuberculosis Association, James G. Stone, Director, Program Development

Young Mens Christian Association, National Council, H. T. Friermood, Secretary, Health and Physical Education

Mr. Mather was elected Chairman pro tem. of the National Advisory Committee and Martha Luginbuhl, Research Assistant of the Subcommittee on Local Health Units, Secretary pro tem. They will hold office until the organization meeting of the National Advisory Committee.

1. *A.J.P.H.*, Nov. 1947, p. 1502; Jan., p. 109; Mar., p. 456; and Apr., p. 603, 1948.

2. *A.J.P.H.*, June, 1948, p. 903.

3. *A.J.P.H.*, June, 1948, p. 858.

4. *A.J.P.H.*, July, 1948, p. 1047.

NURSES CONSIDER ONE NATIONAL ORGANIZATION

Nurses marked a milestone recently in their search for a form of organization that will best serve both nurses and "consumers" of nursing. The effort had its beginnings in 1939, and has gone through several phases, including a major study in 1946.* In November, 1947, 6 national nursing organizations† formed the present Committee on the Structure of National Nursing Organizations to recommend new structure.

This committee, comprising 60 leading nurses from all over the country chosen by the 6 organizations, in the spring produced a "Tentative Plan for One National Nursing Organization"‡ which was widely circulated among nurses with a request for study and further development.

The plan recognized that nursing

* See "Report on the Structure of Organized Nursing," by Raymond Rich Associates, *American Journal of Nursing*, October, 1946.

† American Association of Industrial Nurses, American Nurses' Association, Association of Collegiate Schools of Nursing, National Association of Colored Graduate Nurses, National League of Nursing Education, and National Organization for Public Health Nursing.

‡ Printed in May, 1948, *American Journal of Nursing* and available in reprint form from Committee on Structure, Room 201, 1790 Broadway, New York 19, N. Y.

faces a dual task: (1) providing better nursing service to the people of the United States, and (2) promoting and protecting the interests of the members of the nursing profession.

While there is no clear line of demarcation between the two tasks, obviously non-nurses, the "consumers" of nursing service, have a vital interest in and responsibility for seeing that adequate nursing services are available. Many purely professional questions, on the other hand, would need to be settled by nurses alone. This dual nature of organized nursing activity is one reason why separate organizations have grown up. Thus the American Nurses' Association is made up of nurses only, while the National Organization for Public Health Nursing, with its focus on community service, and the National League of Nursing Education, which concentrates on education, admit to membership both nurses and non-nurses.

The "Tentative Plan" attempted to reconcile the two approaches by setting up divisions within the one organization to deal with service and education questions. The plan proposes that individual non-nurses, schools of nursing, and nursing services be offered full participation in division activities.

First major commentary on the plan came during the Biennial Convention of the ANA, NLNE, and NOPHN in Chicago in early June.

The ANA House of Delegates, voting on questions placed before it by its board of directors, approved:

1. One national nursing organization
2. Local, state, and national units for the new organization
3. Inclusion of non-nurse members in a single organization

A fourth question as to whether or not non-nurse members should have the right to vote and hold office was referred back to the Committee on Structure for further study.

The NOPHN decided to refer the question of approval of one organization to a vote of its entire membership. Members at the convention approved principles stating that:

"1. A satisfactory organization for the advancement of nursing should include nurse and non-nurse participation with equal rights as members, except in specified areas which should be under the control of professional nurses.

"2. Provision should be made for the membership of agencies engaged in nursing service and nursing education.

"3. Public health nursing, as one of the specialties, should have sufficient autonomy to define standards for service and qualifications for practitioners for its own field, as well as the responsibility for interpreting and effectuating its program."

The NLNE voted that, "Citizens, including members of related professional organizations, should have voice and vote in planning for nursing service and nursing education."

CANADA'S NEW DEAL IN HEALTH

At the recent meeting of the Canadian Public Health Association in Vancouver, B. C., the Honorable Paul Martin, Canadian Minister of National Health and Welfare, declared that "a new era has opened for public health in Canada." He referred to the statement of the Canadian Prime Minister to the Parliament on May 14 as "a memorable occasion in the history of public health in Canada. . . . Remote objectives have now become proximate and possible."

On that day the Prime Minister announced a three-point program to marshal financial resources of the nation in support of the health services of the Canadian Provinces.

The three items for which federal grants are now provided are: (a) grants for health surveys totalling \$625,000, (b) grants for health services of \$17,000,000 in the first year and rising

eventually to \$22,000,000, and (c) grants for hospital construction of \$13,000,000 a year for 5 years, with probably \$6,500,000 annually for the 5 years thereafter.

Beginning in 1949 the Canadian federal government will make available more than \$30,000,000 for health services, more than four times what it is currently spending, and about half of what the provinces are now spending and almost twice municipal health expenditures.

The survey grants are made to the provinces so that they may study their existing needs and plan the machinery for extending hospital care and organizing hospital and medical care insurance.

The health grants are in eight areas; for general public health services 35 cents per capita, rising the fourth year to 50 cents per capita, and totalling \$6,500,000; tuberculosis control, \$3,000,000 to \$4,000,000; mental health care, \$4,000,000 to \$7,000,000; venereal disease control, crippled children's services, and professional training, each \$500,000; public health research, \$100,000 to \$500,000; cancer control, \$3,500,000. The grants for hospital construction are expected to provide more than 40,000 hospital beds.

The Minister of Health indicated clearly the direction the Dominion Government is taking when he said, "When the present program is well under way, it will then be possible to proceed with the implementation of a national plan for hospital and medical care insurance. . . . It prepares the way for Health Insurance by putting into effect those steps that are the essential prerequisites to any adequate national plan."

The new program takes full account of primary provincial responsibility for health under the Canadian Constitution. Mutually acceptable conditions govern-

ing grants will be worked out coöperatively between federal and provincial governments; administration will be entirely under provincial jurisdiction. Said the Minister of health, "The provinces have built modern and efficient health services for their peoples—the National Health grants will permit them to extend their programs and to do the sort of job all who work in the public health field have long wanted to get ahead with."

The Prime Minister's statement of May 14 carried forward further the national health program included in the Dominion Proposals to the Provinces in August, 1945, after study of the Canadian health scene. At that time a National Health Insurance Scheme was already a definite goal. Since 1945 a special Division of Health Insurance studies has been working on foundation plans for the formulation of health insurance legislation.

FIRST INTER-AMERICAN SANITARY ENGINEERING CONGRESS

The first Congress of the Inter-American Association of Sanitary Engineering was held early in April in Santiago, Chile. More than 250 members of the Association from nineteen of the American Republics were present, with particularly large delegations from Argentina, Brazil, Peru, and Venezuela. The Congress was opened by the President of Chile, Mr. Gabriel Gonzalez Videla. The officers elected for the ensuing year were: President, Clarence I. Sterling, Jr., Director of Health and Sanitation Division of the Institute of Inter-American Affairs; Vice-President, Alberto Ortiz Irigoyen, Chief, in Charge of Construction, Secretaria de Recursos Hidraulicos, Mexico; Secretary, Donald L. Snow, Sanitary Engineer, Pan American Sanitary Bureau.

The next Congress of the Association will be held in Mexico City in 1949.

FIRST RESEARCH CLINIC TO STUDY MULTIPLE SCLEROSIS

In March the first of a projected series of research clinics in multiple sclerosis was opened in Boston and operated jointly by the Beth Israel and the Boston State Hospitals. This was made possible through a grant from the National Multiple Sclerosis Society which hopes to open another such clinic at the Albany Hospital, Albany, N. Y., in the near future. Others will be opened in leading cities as funds permit.

The Boston clinic and others to be opened will be devoted to research into the causes of multiple sclerosis and the means of control. Red Cross coöperation in Boston is providing ambulance service to bring home-bound patients to the clinic.

Another recent activity of the National Multiple Sclerosis Society was the distribution to about 76,000 physicians in the United States of a manual of information on the diagnosis and treatment of multiple sclerosis prepared by the Society's Medical Advisory Board. With this was a letter asking the number of multiple sclerosis patients being treated by the physician. An extensive survey of the incidence of the disease by the Society's Statistical Committee, is now being planned with the coöperation of the U. S. Public Health Service, under the chairmanship of Lawrence C. Kolb, M.D., of the Service.

HEALTH ADVISORY COMMITTEE TO UAW-CIO

The health and welfare activities of the United Automobile Workers-CIO have been coöordinated in a Social Security Department which is under the direction of Harry Becker, formerly of the U. S. Children's Bureau.

In order to have medical guidance in developing the program that is contemplated in the Union's negotiations for a health and welfare fund, a health and medical care advisory committee

has been appointed by the Social Security Department. The members of this committee are: George Baehr, M.D., President of the New York Academy of Medicine; Dean Clark, M.D., Medical Director of the Health Insurance Plan of Greater New York; Basil C. MacLean, M.D., Director of the Strong Memorial Hospital, University of Rochester, Rochester, New York; John Peters, M.D., Professor of Medicine, Yale University College of Medicine; Ernest Stebbins, M.D., Director of the School of Hygiene and Public Health, Johns Hopkins University; F. D. Mott, M.D., Chairman of Health Services Planning Commission, Department of Public Health, Saskatchewan, Canada; Dr. Frank Weiser, Director of Education and Research at Grace Hospital, Detroit, Mich.; Katherine Faville, M.Sc., Dean, College of Nursing, Wayne University; and Ethel Cohen, Director of Medical Social Services, Beth Israel Hospital, Boston.

DALLAS MUSEUM INITIATES ANNUAL AWARD

Robert L. Sutherland, M.D., Director of Mental Hygiene of the Hogg Foundation of the University of Texas, received the first annual award of the Dallas Health Museum on April 28 in connection with the first public meeting of the Texas State Medical Association in Houston. The award, in the form of a plaque, was made for Dr. Sutherland's contribution to mental health in Texas, particularly in stimulating acceptance of local responsibility in mental health education. The presentation was made by Haven Emerson, M.D.

ANNIVERSARY OF THE DISCOVERY OF RADIUM

At an American Cancer Society dinner in Philadelphia March 31, commemorating the 50th anniversary of the discovery of radium by Pierre and Marie Curie, their daughter Mlle. Eve

Curie, French author and journalist, received a \$10,000 grant for the work of Dr. Antoine Lacassagne of the Radium Institute in Paris. Mlle. Curie said that the money would be used to buy an infra-red spectograph for the Institute.

RURAL MEDICAL STUDENT LOAN FUND

A revolving loan fund to be known as the "Fund for the Encouragement of Medical Practice in Rural Areas" has been created by the Michigan Foundation for Medical and Health Education. A hundred man State Campaign Committee was recently formed with a goal of "\$50,000 in Five Months," for the rural practice project. Announcement was made at a Foundation breakfast March 11 at Detroit.

RESEARCH FELLOWSHIPS—THE AMERICAN COLLEGE OF PHYSICIANS

The American College of Physicians announces that a limited number of Fellowships in Medicine, with a stipend from \$2,200 to \$3,200, will be available from July 1, 1949, to June 30, 1950. These are designed to provide opportunity for research training either in the basic medical sciences or in the application of these sciences to clinical investigation. They are for the benefit of physicians in the early stages of preparation for a teaching and investigative career in internal medicine. Assurance must be provided that the applicant will be acceptable in the laboratory or clinic of his choice and that he will be provided with the facilities necessary for the proper pursuit of his work.

Application forms, available from The American College of Physicians, 4200 Pine Street, Philadelphia 4, Pa., must be submitted in duplicate not later than November 1, 1948.

WHO MAKES A MOVIE

"The Eternal Fight" is the title of WHO's first documentary film which is being produced by Madeleine Carroll

Films, Inc., for the UN Film Board. It will show the work of WHO, particularly in epidemic control. The film will be shot at Lake Success, Geneva, Paris, and Egypt, and dramatizes the growth of international coöperation in epidemic control. The danger of epidemics has been increased due to ever-increasing speed of transportation, while the means of controlling them have been developed by medical and public health men all over the world.

To be completed late in the summer of 1948, the film, about 20 minutes in length, will be available in 35 mm. and 16 mm. It will be distributed by the United Nations through theatrical and non-theatrical distributors in member countries.

MENTAL HYGIENE FELLOWSHIPS

The U. S. Public Health Service has announced a limited number of mental hygiene research fellowships. These are open to psychiatrists, psychologists, social workers, anthropologists, sociologists, and others with proper qualifications. A pre-doctorate research fellowship carrying a stipend of \$1,200 a year is available to those with a bachelor's degree, of \$1,600 for those with a master's degree or its equivalent in graduate work. For those with dependents the stipends are \$1,600 and \$2,000 respectively. Tuition will also be paid. Medical students who have completed one or two years of medical work may also apply.

A post-doctorate research fellowship, to be awarded to qualified individuals holding a doctor's degree in medical or related fields, carries a stipend of \$3,000 (\$3,600 for doctors with dependents), but not including tuition. Also offered is a special research fellowship to those who qualify for a post-doctorate fellowship and in addition have demonstrated outstanding ability or possess specialized training. This fellowship does not carry a set stipend,

the amount being determined in the individual case. Additional information may be obtained from Division of Research Grants and Fellowships, National Institute of Health, Bethesda 14, Md.

COURSES FOR SUPERVISORS OF STUDENT HEALTH

New York University in its School of Education's Department of Physical Education and Health has completed the first year of a new curriculum designated as "Courses for Supervisors of Student Health." The course, leading to a bachelor's or master's degree, is designed to prepare graduate registered nurses and other qualified students for positions as supervisors of student health in colleges and schools of nursing. Its first class included seven students.

The courses and promotional work were planned by a committee of ten, representing the university faculty, official and voluntary health agencies, schools of public health, and colleges.

The program has been made possible through a grant of funds from the Helene Fuld Health Foundation. It is in charge of Ella F. Harris, M.D., assistant professor in the Department of Physical Education and Health. She should be addressed at New York University, Washington Square, New York, for information as to the program for 1947-1948.

CUTTER DEXTROSE SOLUTIONS BACK IN DISTRIBUTION

The June *Journal* (p. 819) printed the Cutter Laboratories' telegram recalling all its dextrose solutions. On June 21 the following statement was released, indicating that these solutions are again being distributed safely:

"We are now ready to resume shipment of Cutter solutions in Saftiflasks from our Berkeley and branch warehouses.

"We wish we could tell you that the cause of the contamination is now defi-

nitely known. We cannot truthfully do so. In the six weeks since we recalled our solutions, hundreds of thousands of flasks have been critically examined. Every piece of equipment and every instrument was meticulously checked. There was no evidence of equipment or instrument failure, and we could not definitely confirm closure failure or any other cause.

"We can assure you, however, that not a single bottle which was clear on visual inspection has been found to be contaminated, and that we will continue to do everything in our power to assure the safety that has been the cornerstone of our existence and growth for over fifty years."

MIDDLE STATES HEALTH EDUCATORS MEET

On May 14 and 15, the second annual conference of the Middle States Region Health Educators was held at Des Moines, Iowa, with 94 persons representing Indiana, Illinois, Iowa, Kansas, Michigan, Minnesota, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin in attendance. There were fruitful discussions on training, school health, health councils, and the responsibilities of health educators. Discussion indicated that health education is penetrating two new fields—industry and hospitals.

A third conference is planned for the spring of 1949.

ENVIRONMENTAL SANITATION REFRESHER COURSE

A one week in-service training course, designed specifically as a practical refresher course for qualified public health personnel, interested in environmental sanitation will be held September 13-17, 1948, at the University of Massachusetts. This training program is intended for but not limited to residents of Massachusetts.

The program is sponsored by the uni-

versity Department of Bacteriology and Public Health, in coöperation with other university departments and federal and state agencies. There will be one day sessions on each of the following subjects: Milk Sanitation, Industrial Sanitation, Restaurant Sanitation, Water and Sewage Sanitation, Rodent and Insect Control.

For application forms, apply to the Director of Short Courses; for details, to the Department of Bacteriology and Public Health, University of Massachusetts, Amherst.

WEST VIRGINIA PUBLIC HEALTH ASSOCIATION

The West Virginia Public Health Association held its 1948 Annual Meeting in Huntington on May 27 and 28. Over three hundred persons attended this meeting, making it the largest gathering of West Virginia public health workers.

An Industrial Hygiene Section and a Clerks' Section were established and meetings were arranged for these and other groups within the Association.

The American Public Health Association was represented at the meeting by Roscoe P. Kandle, M.D., Field Director. New Officers for 1948-1949 are as follows:

President—L. A. Dickerson, M.D., Charleston.

1st Vice-President—Charlotte McLoughlin, Charleston.

2nd Vice-President—H. B. Wise, M.D., Weston.

Exec. Secy.—Annette King, Charleston.

DR. CHESLEY HONORED BY MINNESOTA STATE MEDICAL ASSOCIATION

On June 8 at the meeting of the Minnesota Medical Association, the House of Delegates unanimously voted that the Distinguished Service Medal of the Association be awarded to Dr. Albert Justus Chesley "in recognition of his nearly half a century of outstanding service in the field of public health and social hygiene, not only in Minnesota

but elsewhere in the United States and abroad; and for his rare insight and fine understanding of the private practice of medicine to which, as one of its most ardent advocates, he has given unfailing coöperation at all times."

UTAH PUBLIC HEALTH ASSOCIATION

The Utah Public Health Association held its Annual Meeting in Salt Lake City May 25 to 27 and elected the following new officers at that time:

President—L. P. Gebhardt, M.D., Salt Lake City.

President-Elect—J. P. Kesler, M.D., Ogden.

Vice-President—W. F. Bulkley, D.D., Salt Lake City.

Secretary—Dean A. Anderson, Ph.D., Provo.

Treasurer—Lena Besendorfer, Salt Lake City.

NEW ENGLAND HEALTH INSTITUTE MEETS IN AMHERST

A session of the New England Health Institute, in combination with the annual meeting of the Massachusetts Public Health Conference, was held at the University of Massachusetts, Amherst, under the sponsorship of the Massachusetts Public Health Association, the University of Massachusetts, and the Massachusetts Department of Public Health, June 16-18. About 600 persons were registered, including representatives of New England states, both official and voluntary, for the three day session.

The opening address was presented by Ira V. Hiscock, Sc.D., Professor of Public Health at the Yale School of Medicine, New Haven, on "The Scope of a Health Program." Other features included panels on "Improvement of Local Health Services," "Chronic Illness—A Challenge to Public Health," "Citizens' Committees: How to Develop and Keep Them Active," laboratory and environmental problems, a panel on "Community Nutrition Services in Action," and another on "Health Needs of the Child."

Featured speakers included Warren F. Draper, M.D., American Red Cross, Washington; Martha M. Eliot, M.D., President, American Public Health Association; Vlado A. Getting, M.D., Commissioner, Massachusetts Department of Public Health; Franz Goldman, M.D., Harvard School of Public Health; Hugh R. Leavell, M.D., Harvard School of Public Health; Leonard A. Scheele, M.D., Surgeon General, U. S. Public Health Service, Washington; V. A. Van Volkenburgh, M.D., New York State Department of Health, Albany; Charles F. Wilinsky, M.D., Beth Israel Hospital, Boston, President, Massachusetts Public Health Association and President-Elect, American Public Health Association.

HEALTH NEWS FROM HAWAII

The Public Health Committee of the Chamber of Commerce of Honolulu has recently announced an appropriation of \$18,000 to be used in the establishment of a diagnostic and treatment clinic for cancer.

According to Ray G. Nebelung, Dr. P.H., Executive Director, the committee has also established two scholarships in the amount of \$2,500 to be made annually to local individuals already in public health or planning to enter the field. The first recipients include one student of health education at the Yale School of Medicine, New Haven, and another who will spend 15 months in Boston and New York in sight conservation.

In September, the Public Health Committee is sponsoring a sanitation week at which time Professor Walter Mangold from the University of California School of Public Health will conduct an intensive in-service training program for the Board of Health personnel. In connection with this activity business and civic leaders are planning in coöperation with health department officials to undertake an activity pro-

gram to emphasize the importance of sanitary environment and to offer the citizens an opportunity to learn what services are provided and what part they may play in improving conditions from a sanitary standpoint.

The Oahu Health Council has been active in preparing a program of proposed health legislation to be sponsored in the next session of the legislature.

During the last three years studies have been under way on eight areas of post-war interest in public health. The report is shortly to be released.

U. S. CONGRESS ENACTS LEGISLATION ON HEART DISEASE

In early June the U. S. Congress completed consideration and approved a national program to curb cardiovascular diseases by stimulating research, professional training, and public control measures. The initial appropriation is about three million dollars and, according to the *Washington Report on the Medical Sciences*, more than half is earmarked for research grants in aid to universities, hospitals, laboratories, and other institutions, as well as to individuals whose projects may be approved. Briefly, the new law establishes a national heart institute which will be housed in the forty million dollar clinical research center to be erected in Bethesda, Md., create a national advisory heart council composed of federal medical service representatives and twelve prominent citizens divided equally between scientific authorities and laymen, provide for fellowships, and directs the Surgeon General to assist state and local governments in setting up diagnostic and control programs. This legislation has had the consistent support of the American Heart Association, a member of the National Health Council, but the National Heart Committee formed recently with headquarters in New York has issued a statement claiming for

itself credit for being the spearhead of the drive.

During the same week the American Foundation for High Blood Pressure with headquarters in Cleveland announced that it had allocated \$75,000 for research in hypertension, arteriosclerosis and associated conditions.

DR. BERGSMAN APPOINTED NEW JERSEY COMMISSIONER OF HEALTH

Daniel Bergsma, M.D., M.P.H., took office as State Commissioner of Health in New Jersey on June 1, having been nominated by Governor Driscoll and approved by the State Senate. Dr. Bergsma's appointment is the first as State Commissioner of Health under the revised statutes of New Jersey which reorganized the State Department of Health under the new Constitution.

Joining the New Jersey State Department of Health in 1938 as a medical assistant, Dr. Bergsma served as Chief of the Bureau of Venereal Disease Control from 1940 until 1942 when he entered the Army Medical Corps. A native of New Jersey, Dr. Bergsma was born in 1909, and is a graduate of Oberlin College and Yale University School of Medicine. In 1946 he received the M.P.H. degree from the University of Michigan.

Dr. Bergsma advanced through the Medical Corps from the entering rank of Captain and was promoted to Colonel in 1946. During the war he was assigned to the Headquarters of the Eastern Defense Command and First Army and later at Headquarters in the Caribbean Defense Command in the area covering troops in Central America and the countries of northern and western South America, with assignment as Assistant Theater Surgeon. He is a recipient of the Legion of Merit, Headquarters Caribbean Defense Command. Dr. Bergsma is a Fellow of the A.P.H.A., and is Vice-President of the

New Jersey Health and Sanitary Association.

ARMY SYPHILIS RECORDS

The Veterans Administration has in its custody the majority of syphilis records of those Army personnel who were treated for this disease while in active service, and in many instances can procure informative data from the syphilis records of other than Army personnel. It is thought that many physicians treating veterans for syphilis as private patients would find a résumé of the syphilis record useful since the details of treatment, results of spinal fluid examinations, and blood serologies are incorporated in the records.

Résumés of these records are available to physicians who are treating such veterans provided authorization for the release of the data is given by the veteran. Requests for the résumés accompanied by an authorization for the release of the data, dated and signed by the veteran, should be addressed to the Dermatology and Syphilology Section, Veterans Administration, Munitions Building, Washington 25, D. C. It is most important that the veteran's Service Serial Number and other identifying information, such as the date of enlistment, the date of discharge, rank, and organization be included.

Ordinarily, the résumés can be furnished in approximately two weeks from the date of the receipt of the request and signed authorization.

ILLUMINATING ENGINEERING SOCIETY

ELECTS L. E. TAYLER PRESIDENT

Lee E. Tayler of the Detroit Edison Co., Detroit, Mich., has been elected President of the Illuminating Engineering Society to take office October 1, 1948.

Other officers elected are: General Secretary, A. H. Manwaring, Philadelphia Electrical & Mfg. Co., Philadelphia; Treasurer, E. M. Strong, Cornell

University, Ithaca, N. Y.; Vice-President, Walter Sturrock, General Electric Co., Cleveland, Ohio; Directors, Myrtle Fahsbender, Westinghouse Electric Corp., Bloomfield, N. J.; Hoyt Steele, Benjamin Electric Mfg. Co., Des Plaines, Ill.

DRS. TAUSSIG AND BLALOCK RECEIVE PASSANO AWARD

The 1948 Passano Foundation award was presented to the Taussig-Blalock team which developed the operation popularly known as the "blue baby operation." Presentation of the \$5,000 cash award was made June 23 at the Palmer House, Chicago, during the Annual Session of the American Medical Association. Since this operation was first undertaken in November, 1944, more than 600 patients drawn from all parts of the world have been operated on at Johns Hopkins Hospital alone. Dr. Helen B. Taussig is Associate Professor of Pediatrics and Dr. Alfred Blalock is Professor of Surgery at Johns Hopkins University School of Medicine.

The Williams & Wilkins Company of Baltimore established the Passano Foundation in 1944 to aid in the advancement of medical research, especially research which promises clinical application.

CANADIAN PUBLIC HEALTH ASSOCIATION

The following are the new officers of the Canadian Public Health Association as elected at the 36th Annual Meeting in Vancouver, May 17-20, 1948:

Honorary President:

The Hon. F. R. Davis, M.D., Halifax N. S.

President:

Allan R. Morton, M.D., Halifax, N. S.

President-Elect:

John T. Phair, M.D., Toronto, Ont.

Vice-Presidents:

Elizabeth Russell, R.N., Winnipeg, Man.

George D. W. Cameron, M.D., Ottawa, Ont.

S. Stewart Murray, M.D., Vancouver, B. C.

Honorary Treasurer:

William Mosley, M.D., Toronto, Ont.

Editor, Canadian Journal of Public Health:

Robert D. Defries, M.D., Toronto, Ont.

Executive Director:

J. H. Baillic, M.D., Toronto, Ont.

WHO TRAINS TUBERCULOSIS FELLOWS IN DENVER

Four fellows, appointed by the Interim Commission of the World Health Organization from various countries, on July 1 began 6 months' free instruction in methods of tuberculosis prevention, control, and treatment at the National Jewish Hospital, Denver, Colo. Beginning January 1, 1949, the World Health Organization will send annually twelve who will receive instruction at this hospital, the University of Colorado School of Medicine, Fitzsimons General Hospital, and other Denver institutions. Traveling expenses will be financed by the organization. Living expenses will be contributed by the International Foundation for Medical Research and Education.

ROUTINE CHEST X-RAY OF HOSPITAL ADMISSIONS

Beginning early in May, Morrisania Hospital, one of New York's municipal hospitals, began routine chest x-ray examinations of all incoming patients. The x-ray machine and technicians for the project are being furnished by the Bronx Committee of the New York Tuberculosis and Health Association. It is expected that the demonstration will be so effective that it will be installed in other municipal hospitals of the city.

NEW HOME FOR CHICAGO TUBERCULOSIS INSTITUTE

The Tuberculosis Institute of Chicago and Cook County has acquired its own building in an effort to keep pace with a rapidly expanding program. Since its founding in 1906, the Institute had rented space at 5 different locations, moving into larger quarters as public support of the program increased. The building, ideally suited to the Institute's tuberculosis eradication program, is sit-

uated in the area with the greatest tuberculosis incidence in the city. Last year 532 cases were reported in the area.

The officers, staff, and directors of the Institute entertained approximately 500 persons at "Open House" at the new address, 1412 W. Washington Blvd., on April 16. A mobile unit was stationed at the front door and free chest x-rays were made of all visitors. Other features included exhibits on tuberculosis, pictorial displays of staff activities, and continuous showing of films and slides.

STONE-MARSHALL TEST PAPER CHANGES HANDS

Charles G. Marshall, President of the Chemiatric Corporation, Sparta, N. J., announces the acquisition from the Universal Chlorinator Company of all patent rights to the Stone-Marshall test paper, utilized for testing quaternary ammonium compounds used in the food, dairy, and allied industries. Samples of the test paper are available.

MR. BURRITT RETIRES FROM NATIONAL HEALTH COUNCIL

Bailey B. Burritt resigned as Executive Director of the National Health Council on June 30, 1948. Early in 1947, Mr. Burritt was induced to come out of retirement to devote himself to the National Health Council's new nation-wide health program until such time as a permanent director was secured. He had retired in 1944, as Senior Executive Director of the Community Service Society of New York after 30 years during which he was instrumental in bringing health services within the reach of thousands of New York families.

During the year and a half since Mr. Burritt became its Executive Director, the National Health Council has assumed renewed leadership among its

national public health agency members and has stimulated interest and action throughout the country in behalf of effective, forceful public health programs.

Commenting on Mr. Burritt's resignation Philip R. Mather, President of the Council said, "Mr. Burritt came to the National Health Council with years of fruitful service in behalf of the public already behind him. His seasoned judgment, wise counsel, and strong leadership have been invaluable in laying the foundation for the long range program of the Council. It was with greatest reluctance and in deference to Mr. Burritt's urgent request that the Board of Directors accepted his resignation at this time."

The work of the Council will continue under the administration of John W. Ferree, M.D., Associate Director since May, 1947, until a successor to Mr. Burritt is appointed. Working in close coöperation with Mr. Burritt, he has been engaged principally in helping local and state health councils to broaden the scope of their usefulness and in stimulating the organization of new councils to increase the effectiveness of the local health programs.

Dr. Ferree entered public health work in 1936 as Chief of the Bureau of Local Health Administration of the Indiana State Board of Health, and from 1940 to 1942 was State Health Commissioner of Indiana. He later served in the U. S. Navy, Division of Preventive Medicine, until 1945, reaching the rank of Commander. Before joining the National Health Council he was Director of the Division of Education of the American Social Hygiene Association, a member agency of the National Health Council.

BUILDING FROZEN FOOD LOCKER PLANTS

Recognizing the growing importance of frozen food locker plants, the Com-

mittee on Sanitary Engineering and Environment, Division of Medical Sciences of the National Research Council (Washington, D. C.) recently published a report entitled, "Control of Frozen Food Locker Plants." Possible health problems that may be found in these plants through design or operation are discussed. Recommendations for the construction and operation of frozen food plants are given as follows:

1. Operators who propose to build locker plants should have plans drawn up under the supervision of a competent engineer and secure the approval of the state health authority for these plans before construction is begun.

2. To prevent heat infiltration and thus encourage the maintenance of low temperatures, special attention should be given to the construction of floors, walls, and ceilings of cold rooms and to the conductance of building materials.

3. Separate compressors of the same make should be provided for the chill, sharp-freeze, and storage rooms. Each compressor should have sufficient capacity to carry the whole cooling load and should be installed so that it can readily be used for any one of the services.

4. Standby electric service should be provided wherever possible.

5. Locker plant operators should consider future developments such as operating slaughter houses, meat and food processing plants, kitchens, and bakeries.

6. Locker plant regulations should safeguard the public health, provide for sanitary operation of plants, but avoid unnecessary details that might obstruct individual initiative and progress.

The subcommittee preparing this report consisted of W. D. Tiedeman, V. M. Ehlers, and L. F. Warrick. The Chairman of the Committee on Sanitary Engineering and Environment is Dr. Abel Wolman.

PERSONALS

Central States

CHARLES H. MILLER, JR., M.D., has recently been appointed Health Officer for the newly established four-County Health Department, which includes Hardin, Johnson, Massac, and Pope counties, Illinois. Dr. Miller has served as District Health Superintendent and also in the State Department of Public Health.

Eastern States

MARTA FRAENKEL, M.D.,* formerly Research Associate with the Department of Preventive Medicine, Long Island College of Medicine, Brooklyn, N. Y., has become Research Director of the New York State Joint Legislative Committee for the Study of Cerebral Palsy in the Albany headquarters of the New York State Health Department.

MARIAN MCBEE, Executive Secretary of the New York Committee on Mental Hygiene, has been elected President of the American Orthopsychiatric Association for 1949-1950.

ANTONIO P. MILONE, M.D.† has been appointed Health Officer of North Adams, Mass., effective September. In addition to his private practice, Dr. Milone has served since 1946 as part-time school medical inspector in the Boston Health Department.

JAMES O. WAILS, M.D.,* retired as Health Commissioner of Worcester, Mass., on June 30. Before assuming his duties in Worcester in 1943, he was Director of the Nashoba Health District with headquarters at Ayer.

Southern States

C. H. BENNING, M.D.,* was named City Health Officer of Tulsa, Okla., effective May 1.

ABRAHAM GELPERIN, M.D., M.P.H.† was appointed Director of the Bureau of Communicable Diseases (includ-

ing venereal disease control) in the New Haven, Conn., Department of Health, as of May 17. Since 1946 he has been a member of the staff of the Johns Hopkins School of Hygiene and Public Health in Baltimore, Md.

EDGAR ERSKINE HUME, M.D., Dr.P.H.,* has been promoted to the permanent rank of Brigadier General in the U. S. Army Medical Corps. General Hume, during World War II, participated in the African, Sicilian, and Italian campaigns. He was Chief of Public Health in Sicily in 1943.

EDWARD F. KNIPLING, M.D., as Director of the Orlando Station of the Bureau of Entomology and Plant Quarantine of the U. S. Department of Agriculture during the war period, was awarded the Medal of Merit on May 20 by the Department of National Defense. The citation, signed by President Harry S. Truman, reads in part, "Dr. Knipling planned and directed investigations for the development of insecticides and repellents for the prevention of insect-borne diseases in the United States Army." Dr. Knipling is at present in charge of the Division of Insects Affecting Man and Animals, of the U. S. Department of Agriculture, Washington, D. C. He was notified early this year that he was also to be awarded Great Britain's highest decoration to civilians, The King's Medal for Service, for his part in the same investigations.

ABRAHAM J. KRELL,† has accepted a position with the Layne-Texas Company, Ltd., Dallas, Tex., in charge of the newly organized Water Treatment Division. He was formerly Sanitary Engineer, Technical Service and Sales Division of the General Filter Company, Dallas.

J. W. MARKLEY, M.D., was appointed

July 1 as Director of the recently created Bureau of Hospital and Medical Care, West Virginia State Department of Health.

R. G. MEADER, Ph.D., has been appointed Deputy Chief, Cancer Research Grants Branch of the National Cancer Institute, Bethesda, Md., effective June 1. Dr. Meader will be responsible for securing scientific review of applications for federal cancer grants, for maintaining contact with investigators in fields bearing on cancer research, for analyzing the grant-in-aid program of the National Cancer Institute in relation to programs of other agencies supporting cancer research, and liaison with those agencies.

I. O. POLLOCK, M.D., on May 1, became Director of the five-county Health Department which serves Adair, Cherokee, Delaware, Mayes, and Sequoyah counties in Oklahoma, with headquarters in Tahlequah.

Western States

DANIEL J. HURLEY, M.D.,† of Carson City has been appointed State Health Officer of Nevada. Dr. Hurley has been in private practice, and County Health Officer of Eureka County since 1928.

Other Areas

HELEN M. BAUKIN,* retired as Director of Dental Health Education, Department of Public Instruction, Territory of Hawaii on August 1. She organized the work in 1922 and has been Director since.

EIGIL JUEL HENNINGSEN, M.D., Deputy Chief Medical Officer of the National Health Service of Denmark, with headquarters in Copenhagen, left New York on July 1 after a 3 month's visit under a traveling Fellowship granted by the Rockefeller Foundation. Dr. Henningsen visited health departments and schools of

* Fellow A.P.H.A.

† Member A.P.H.A.

public health during his stay, and spent some time in the office of the American Public Health Association.

LEO KAPRIO, M.D., M.P.H., who has recently completed his course at the Johns Hopkins School of Hygiene and Public Health, Baltimore, Md., will return to Helsinki, Finland, to become Secretary of the Finnish Public Health Association, succeeding ERKKI LEPPÖ, M.D.

ERKKI LEPPÖ, M.D., of Helsinki, Finland, who has been Secretary of the Finnish Public Health Association, which has just completed its 10th year, has been appointed to a medical post in the World Health Organization staff in Geneva, Switzerland, in connection with the maternal and child health program.

MARION YANG, M.D.,* of the staff of the Chinese Ministry of Health, Nanking, has been elected a member of the Legislative Yuan and has left the United States, where she was traveling in a study of maternal and child health services, to attend the first sessions in Nanking.

Deaths

PHILIP E. BLACKERBY, M.D.,* Kentucky State Health Commissioner since 1943, died at his home in Louisville of a cerebral hemorrhage on June 24, at the age of 66. Dr. Blackerby was elected a member of the Association in 1933 and a Fellow in 1945. He was also a Fellow of the American Medical Association and Secretary of the Kentucky State Medical Society.

JAMES H. HEALD,† Laboratory Director, Southern Dairies, Winston-Salem, N. C., Elected Member of Engineering Section in 1919.

JULIUS A. HENE, M.D.,† New York, N.Y., was killed while a prisoner of war. He was elected as an unaffiliated member of the Association in 1940.

LESLIE A. SANDHOLZER, Ph.D.,* Bacteriologist in Charge, Fishery Technological Laboratory, U. S. Fish and Wildlife Service, College Park, Md. He was elected a member in 1940 and a Fellow in 1944 (Laboratory Section).

WILLIAM M. SMITH, M.D., M.P.H.,* Olean, N. Y., recently Acting State Health Officer of North Dakota. Elected a member in 1938 and a Fellow in 1943 (Health Officers Section).

GEORGE A. SOPER, Ph.D.,* 78, sanitation engineer responsible for the discovery of the famous "Typhoid Mary," died in Southampton Hospital, New York, on June 18. Dr. Soper became a member of the Association in 1895 and a Charter Fellow of the Engineering Section in 1922.

CONFERENCES AND DATES

American Association for the Advancement of Science. Centennial Meeting. Washington, D. C. September 13-17.

American Chemical Society. Three Sessions in Washington, D. C., St. Louis, Mo., and Portland, Ore. August 30-September 17.

American Dental Association. Chicago, Ill. Week of September 12.

American Dietetic Association. Boston, Mass. October 18-22.

American Hospital Association. 50th Anniversary Convention. Atlantic City, N. J. September 20-24.

American Occupational Therapy Association. Hotel Pennsylvania, New York, N. Y. September 7-11.

American Public Health Association—76th Annual Meeting. Boston, Mass. November 8-12.

American Public Welfare Association. Southwestern Region. Topeka, Kan. September 23-24.

American Public Works Association. Boston, Mass. October 17-20.

American Society of Planning Officials. New York, N. Y. October 11-13.

American Water Works Association:

Kentucky-Tennessee Section. Patton Hotel, Chattanooga, Tenn. August 23-25.

Michigan Section, Flint, Mich. September 22-24.

Minnesota Section, Winnipeg, Man., Can
September 1-2.
New York Section, New York, N. Y.
September 14-17.
Rocky Mountain, Cheyenne, Wyo. Sep-
tember 16-17.
West Virginia Section, Clarksburg, W. Va.
September 29-30.
Civil Service Assembly of the United States
and Canada. Ottawa, Canada. October 4-7.
Florida Public Health Association. Panama
City, Fla. October 7-9.
Indiana State Medical Association. Indian-
apolis, Ind. September 26-29.
International Congress on Mental Health.
London, England. August 11-21.
National Association of Housing Officials.
Seattle, Wash. October 13-16.
National Pest Control Association. Royal
York Hotel, Toronto, Canada. October
18-20.
National Recreation Congress. Hotel Font-
nelle. Omaha, Nebr. September 26-Oct-
ober 1.
National Technical Conference of the Il-
luminating Engineering Society. Hotel Stat-
ler, Boston, Mass. September 20-24.
New York State Association of Milk Saniti-
arians. Buffalo, N. Y. September 22-24.
Ninth International Congress of Industrial
Health. London, England. September 13-17.

North Dakota Public Health Association.
Minot, N. D. October 28-29.
Public Works Congress and Equipment Show
of American Public Works Association.
Boston, Mass. October 17-20.

**INTERESTING AND USEFUL MEDICAL
STATISTICS—\$6.50.** Contains thousands of
vital tables and statistics appearing in leading Med-
ical Journals during the past 10 years—compiled
by William H. Kupper, M.D. All material cross-
indexed for easy reference. Invaluable for Public
Health officials. Study for 10 days and if not
satisfied your \$6.50 refunded.

WILLIAM C. BROWN COMPANY,
Publishers, Dubuque, Iowa

KILLS RATS
Harmless
to Humans, Animals & Food
BIOCERTA CORPORATION
303 FIFTH AVENUE NEW YORK 16, N.Y.

Publications of the A. P. H. A.

An Appraisal Method for Measuring the Quality of
Housing: A Yardstick for Health Officers, Housing
Officials and Planners. Part I. Nature and Uses
of the Method. 1945. 71 pp. \$1.00.
A.P.H.A.-Year Book 1947-1948. 112 pp. \$1.00.
Part II. Appraisal of Dwelling Conditions. Director's
Manual; Field Procedures; Office Procedure (1946).
\$5.00.
Basic Principles of Healthful Housing. 2nd ed. rev.
1946. Report of the Committee on the Hygiene of
Housing. 34 pp. \$4.00.
Control of Communicable Diseases, The. 6th ed., 1945.
Size 4 3/4" x 7 3/4". 149 pp. \$35.
Diagnostic Procedures and Reagents. Technics for the
Laboratory Diagnosis and Control of the Com-
municable Diseases. 2nd ed., 1945. \$4.00.
Diagnostic Procedures for Virus and Rickettsial Dis-
eases. 1948. 347 pp. \$4.00.
Health Practice Indices. A collection of charts show-
ing the range of accomplishment in various fields
of community health service. 1945. 87 pp. Free.
Membership Directory. 1946. (Free to A.P.H.A. mem-
bers). \$5.00.
Methods for Determining Lead in Air and in Bio-
logical Materials. 1944. 41 pp. \$75.
Occupation Lead Exposure and Lead Poisoning.
1943. 67 pp. \$75.
Panum on Measles. By P. L. Panum (translation
from the Danish). Delta Omega ed., 1940. 111 pp.
\$2.50.
Photographic Sediment Chart, 1947 ed., \$1.50.
Planning the Neighborhood. Committee on the Hygiene
of Housing. 1948. 89 pp. \$2.50.

Public Health: A Career with a Future. Rev. ed.
1948. \$15.
Public Health in Midstream. Papers presented at
the Special Sessions at Atlantic City. Supplement
to A.J.P.H., Jan. 1948. \$1.00.
Proceedings of the National Conference on Local
Health Units. Supplement to A.J.P.H., Jan. 1947.
160 pp. Covered, \$1.00.
Proceedings of the Princeton Conference on Local
Health Units. September 1947. \$50.
Shellfish and Shellfish Waters, Recommended Methods
of Procedure for Bacteriological Examination of.
1947. 12 pp. \$25.
Spanish Summary of 8th edition (1941) of Standard
Methods for the Examination of Dairy Products,
1945. 52 pp. Free to Latin American countries.
\$1.10 in the United States.
Standard Methods for the Examination of Water and
Sewage. 9th ed., 1946. 286 pp. \$4.00.
Physical and chemical examination of water and
sewage, microscopical examination of water and bac-
teriological examination of water.
Survey Form for Milk Laboratories. Indicating Con-
formity with Standard Methods for the Examination
of Dairy Products (8th ed.). May, 1944. Single
copies 10c; 50 copies \$1.00; 100 copies \$1.50; 1,000
copies \$10.00.
Swimming Pools and Other Public Bathing Places,
Recommended Practice for Design, Equipment and
Operation of. 1942. 56 pp. \$50.
Vital Statistics Directory. Compiled by the Vital
Statistics Section. 3d ed., 1945. \$75.

Check above the publications desired and mail this advertisement to us, together with your remittance to cover
(check, money order, or stamps). Members of the Association are entitled to 10% discount on the above.

Name.....Address.....

Order from the Book Service

AMERICAN PUBLIC HEALTH ASSOCIATION
1790 Broadway at 58th Street
New York 19, N. Y.

When writing to Advertisers, say you saw it in the JOURNAL

American Journal of Public Health

and THE NATION'S HEALTH

Volume 38

September, 1948

Number 9

Developments in Child Psychiatry in the United States*

FREDERICK H. ALLEN, M.D.

Director, Philadelphia Child Guidance Clinic; President, American Association of Psychiatric Clinics for Children

CHILD psychiatry is a development within the field of general psychiatry that has taken place in the last quarter century. As the science of understanding human behavior shifted from the laboratory to a study of, and interest in, the living person, it was inevitable that interest should focus on the childhood period and the influences shaping the early personality of the child. Out of this growing need to understand the child from his own experiences, rather than from the retrospective accounts of adults, emerged a clinical field patterned to deal with the unique characteristics of the period in question.

Early emphasis in the clinical programs established to give reality to this new field was on the prevention of adult maladjustments. The objective of the first clinics established in the history-making program sponsored by the Commonwealth Fund, was described as a program for the prevention of delinquency. Dynamic psychiatry pointed to the importance of the childhood

period, and adult disorders were traced back to traumatic influences operating in family and community which warped the child's early life. The earliest clinical efforts had a strong educational flavor and were aimed at educating parents to prevent disturbing influences affecting the lives of their children.

These were important objectives, and from this early period emerged a better understanding of the laws of psychological growth. Equally important was the emergence of a better understanding of how parents and children changed and how professional services could be developed to accelerate this process. It became clear that parents and children sought and needed help, not to prevent some later difficulty, but because of current anxieties and problems. These were the problems that were brought to the clinics and they required special therapeutic effort. While prevention remained as a general objective, it receded as one immediately attainable. The problems of children required skillful attention for what they were—then and there. New professional skills were called for, to help the parents and chil-

* Special Review Article prepared at the request of the Editorial Board.

dren who sought the services of psychiatric clinics. They needed more than good advice and well intentioned prescriptions which pointed out their weaknesses and the way to correct them. It became increasingly clear that they needed help to attain a better understanding of themselves and to arrive at a healthier set of values about themselves and their capacity for responsible living.

The clinical methods that have emerged in the quarter-century in which child psychiatry has flourished have been fashioned by the parents and children who have used the professional services of the psychiatrists, psychiatric social workers, and psychologists who have staffed these clinics. This is too important ever to be forgotten. Professional method has been carved by understanding how parents and children have effected changes in their relationship together, through and with the skillful direction provided by trained professional staffs. By seeking and using such services, parents and children have contributed vital quality both in theory and in clinical practice—child psychiatry has not developed in a vacuum of applied theory.

Another highly important aspect of this professional field concerns our changed conception of the child himself. In early clinical efforts, the child was examined and tested mainly to gain information about him, rather than to help him directly with his own emotional problems. The child was seen as a victim of conditions and not as a participant in them. He was studied more as a product than a dynamic factor in his own growth. There have been great changes in our conception of the child, and these changes have had a profound influence on clinical methods. He is an active participant in the helping process designed to bring about a better adjustment. Even quite young children are included in the thera-

peutic services available in our present-day clinics. No longer are they regarded just as automatons, reflecting unhealthy attitudes of others and incapable of change except as conditions under which they live are changed.

The inclusion of children in the therapeutic program has had profound effects on the nature and quality of the parents' participation in that program. The parents are respected for the part they must take in a clinical service if the child is to be helped. Concurrent interviews with parent and child focus the therapeutic process upon the relationship between parent and child, in which the whole problem is rooted. The characteristics of the childhood period require that this relationship be kept in the foreground in the therapeutic procedures designed to help the child.

Many of our child guidance clinics have learned, out of their experience, the importance of an initial planning period with one or both parents before the child is started on a therapeutic experience. The parent makes the first move to get help and in that first step learns what a clinic service is and how it operates, while sharing with a staff social worker the nature of the problem for which help is sought. In this first move, the parents can bring out the degree of their concern about their child and the part they can take in helping him. Then they have a chance to think it over. If one parent makes this first move, the other parent can be included in the steps they must plan together. The child will need to be told why they are seeking help for him, a step which may be a difficult one for the parents to take, particularly those who are very protective of their child and wish to save him from the anxiety that will be aroused when they tell him they are worried and are taking him to a clinic for help. In some clinics that have given a great deal of thought to this phase of therapy, a second planning

interview is arranged with the social worker who will be the one to go on with the parent. The time given to this has proved of great value for those parents who elect to make the fullest use of the clinic. In the long run, this slower intake process pays rich dividends, not only in helping parents to be together in their common concern, but also in furthering a new sense of value in regard to parental responsibilities. The fact that a clinic recognizes their importance in planning this service for their child, has real significance both for the parents and for the child.

The change toward healthier living needs to come from both child and parent. The burdensome responsibility placed on the parents becomes more realistic when they can be helped to understand that a child has capacity for responsibility, not only as a factor in a problem but as having an important part to play in its solution.

The basic feature of the child guidance clinic is the pooling of the professional skills of the psychiatrist, psychiatric social worker, and psychologist to provide a clinic service in which joint participation of parent and child is made possible. When parents seek the help of this type of clinic, they are helped to realize that it is not just bringing a troubled child to a psychiatrist to be made over and cured. They bring, as well, their own concern and anxiety about their relation to that child who is experiencing difficulties. The problem involves a vital relationship between parent and child. It is neither projected entirely on the child's behavior, nor on what the parents' influence has been in aggravating that problem. Important dynamic forces emerge in the move taken by the parent to seek help—when the clinic service provides both parent and child with the opportunity to participate in finding a healthier balance in their living together.

The collaboration between the pro-

fessional groups needed to build this service for children has been effectively developed in the child guidance clinic. The nature of the childhood period and the problems arising in it have required refinement. Practice varies in different clinics as to the most effective ways of utilizing the different skills of the psychiatrist and the social worker. My own experience has been in a clinic that has developed a clear differentiation between the psychiatrist's therapeutic role with the child and the role of the social case worker in his work with the parent. A parent who seeks the help of a children's clinic, by this choice elects to work on his parental relation to the child rather than on his own adult problems. Many parents who need help with their children do present neurotic problems in themselves. But the child guidance clinic must focus on the parent-child relationship and not get swept into the broader areas of the adult problem. By keeping the child in the central position in the clinic service, the adult as the parent to the child, can also be kept in focus in the help they need and receive. Using the psychiatrist with the central person—the child—and using the social worker's skill in working with the parent, helps to keep the function of the clinic in proper perspective.

Other clinics have developed a different procedure in which the roles of the psychiatrist and social worker vary according to the revealed needs of the parent or of the child. The more disturbed parent may be seen by the psychiatrist and the child by the social worker. It is generally agreed, however, that the social workers who carry such therapeutic responsibility with the child will need special training beyond that received in their basic case work training.

The demand for clinical services for disturbed children is increasing rapidly throughout the United States. The psychiatric clinic for children has become

an established and recognized resource needed by communities, both urban and rural. The structure and setting of these clinics varies and depends upon the relation they bear to other health, social, or educational resources in a community. The most frequent pattern is the child guidance clinic established as an autonomous clinical unit in a community, and having its own staff and administrative structure headed up in a board of directors. The services of such a clinic operate in close relation to schools, courts, health and social agencies, but with an intake policy that allows the clinic freedom in the selection of cases. For example, a court may refer a parent and the clinic would help that parent to assume responsibility for working out a way of using the clinic in accordance with his own need.

Clinics which limit their intake to children up to a certain age, e.g., 16 or 17, usually flourish in our urban communities and, in most instances, in the larger population areas. Other psychiatric clinics for children have developed in different settings to meet a more special need than those established as community clinics. Many public school systems have felt the need of more psychiatric help in strengthening their services relating to the problems of school children. A great many emotional problems grow out of the child's school experience. The schools must deal with these problems, irrespective of the concern a parent may have about the child. Some of our school systems have developed skillful counselling services and could make effective use of trained psychiatrists to strengthen their efforts to effect a better adjustment of the school child.

Some school systems, notably the New York public school system, have developed an extensive child guidance program within the school system. This program more nearly parallels the structure of a community clinic, and provides an extensive therapeutic service for the

referred children. Clinical teams work in different sections of the city and serve the public schools in their particular districts.

The public school psychiatric clinic has a strategic opportunity to help the classroom teachers to gain a broader understanding of their influence on the emotional development of the child. Helping them to become better teachers and to acquire more skill in dealing with the emotionally disturbed child in the classroom, is an important mental hygiene objective. Skillful counselling by trained people who include the teacher in their work, also achieves results in making for a healthier classroom atmosphere for all the children and especially for those having difficulty in adjusting to the school experience.

Development of counselling services in our public schools has been an effective way of strengthening school resources for dealing with a variety of emotional and behavior problems growing out of school life. A good example of this development can be found in the Philadelphia public schools where the personnel of this counselling service have been drawn from qualified teachers who have indicated interest and ability in this school service, and who are then given in-service training. One valuable feature of this program is locating the counsellor right in the school. He is as much a part of the school program as the principal and classroom teacher. These counsellors, in addition to carrying an important service helpful for both the school and the child, provide an important connecting link with essential community resources such as a child guidance clinic. They are in a position to help parents to take their children to the clinic. They provide a necessary channel for effective collaboration between school and clinic in their efforts to help the child to a better adjustment.

There are many who believe that the

child guidance clinic should be developed as an organic part of the school system. One assumption behind this belief is that such a clinic would be more accessible to parents and children and that they would be freer to use such a service than one set up as an independent entity. My own belief, which is shared by many experienced people, is that there is need for both types of service in our large urban centers. The school clinic is needed to strengthen the school in understanding the wide variety of problems growing out of school experience, and operates in close relation to the classroom teacher, the school administrator, and the medical and counselling services. The community clinic, unhampered by the natural authoritative influence of the school, is in position to help parents and children to use the service out of their own concern and need.

One of the most important developments in recent years is growing out of a closer relation between pediatrics and child psychiatry. The pediatrician is in the most strategic position to understand and help the parent and child in the early stages of the child's life. This opportunity grows naturally out of the normal function of the pediatrician who provides a significant psychiatric service without having to be a psychiatrist. His understanding of the fundamentals of the psychological growth process enables him to be extraordinarily helpful in dealing with many of the early anxiety problems of parent and child.

Pediatricians need to have this knowledge incorporated into their training. They need this type of training more than they need special psychiatric clinics in pediatric hospitals. The work being done in the Pediatric Clinic at Cornell is an excellent example of what is needed in every pediatric center, particularly in teaching centers. In this clinic an excellent pediatrician with

sound psychiatric training has woven into the clinic and hospital work and into teaching, his knowledge of what is important for the pediatrician if he is to be a real practitioner in his field.

There is a great need to train more pediatricians in the basic principles and practices of child psychiatry to enable them to assume teaching responsibilities in our medical schools and teaching hospitals. Here is the opportunity for real and positive preventive work. Frequently we hear the demand for more psychiatrists in well baby clinics, but it is my firm belief that a child psychiatrist has no valid place in such a clinic. This is a function belonging to the well trained pediatrician who has a natural opportunity to function effectively in helping parents to achieve a normal relation to their children. Placing psychiatrists in such clinics only serves to relieve the pediatrician of his true responsibility and, in the end, blocks normal progress in such services. Psychiatrists, well trained in child psychiatry, can serve a more important function in helping to train pediatricians to fulfil their natural roles, which require so much more than treating sick children.

Every child guidance clinic deals with some children who are so disturbed that they require special residential care. Providing such facilities with a well trained staff is expensive and can only be done under adequate subsidies. Some progress has been made in developing such facilities and a great deal is being learned about how to make such care effective. A good example of a carefully thought-out program combining good residential care with therapeutic work, is found in the Children's Service Center of Wyoming Valley, at Wilkes-Barre, Pa., which can provide residential care for about sixteen children. One important feature of this program is intake policy which requires a thoughtful planning with the family

for this care. It is important to maintain a working relation with the family in order that the child's gains are not achieved in isolation but in some relation to the family to which he will return. This thoughtful planning becomes a requirement for admission, even when parents live at some distance. This is a feature of residential care that needs to be refined, in all institutions whose primary function is to help the seriously disturbed child.

Other excellent examples of residential care for the disturbed child have developed in the Southard School in Topeka, Kan., at the Orthogenic School in Chicago, and at the Langley-Porter Clinic in San Francisco. The last is located in special quarters in a psychiatric hospital, while the Southard School is a separate part of the Menninger Clinic. All of these clinics provide psychotherapeutic service for the child and are important training centers for professional personnel.

The question frequently arises as to whether such residential facilities should be developed in our adult mental hospitals. My own conviction is that they should not. If they are developed there, it is essential that the quarters should be separate and that specially trained staffs be provided. The latter is difficult to provide because of the lack of opportunity to train adequately those who are charged with the responsibility of operating this service.

A somewhat different clinical service combining skillful therapeutic help with a nursery and kindergarten program is exemplified in The Children's Center of Roxbury, Mass. This clinic provides a group program for disturbed children up to the age of 6 years. The individual therapy is skillfully interwoven into the group program, and enables this clinic to work with many disturbed children who otherwise would require 24 hour care away from home. The parents take an active part in this

service, being a part of the group program and also having the opportunity to participate in the therapy by being helped to work through their own problems as parents. This type of clinic will have an important place in future developments and provides a pattern that could be utilized in our large urban clinics.

Other clinics have been developed to meet the special problems of our juvenile courts. This is a service needed by the court to help toward a better understanding of the problems it must handle. Such clinical services have been mainly diagnostic, and therapeutic only to the extent that the knowledge so gained is used to make disposition and probation more intelligent and effective. Having such a service in our courts does not diminish the need to have good therapeutic services available in the community. In fact, the need for such a clinic usually is increased since the presence of such a clinic enables the court to refer those parents and children who are ready to use services which cannot be provided by a court.

The greatest barrier in expanding psychiatric resources for children is the scarcity of adequately trained personnel. Today a great many communities are ready to develop child guidance clinics and are unable to proceed because of their inability to obtain qualified staff. Significant moves have been made during the past year to correct this serious situation. The most important step to broaden and improve professional training was taken by the federal government when the National Mental Health Act was passed. This Act empowers the U. S. Public Health Service to provide grants-in-aid to recognized and competent training centers to enable them to train more psychiatrists, psychiatric social workers, psychologists, and psychiatric nurses. These are the professional groups needed in developing the country's resources to

deal with mental health problems. In this program, child psychiatry is recognized as one of the important clinical fields to be developed through providing more trained personnel. The three professional groups needed in our psychiatric clinics for children are the psychiatrists, psychiatric social workers, and psychologists.

In addition to the grants-in-aid to qualified training centers, this Act provides for stipends for the students who are qualified to enter a training program in child psychiatry. Psychiatrists are required to have two years in basic psychiatry in a recognized training hospital or clinic before they are eligible to begin this specialized training for child psychiatry. This requirement is a recognition of the fact that child psychiatry is an integral and important part of general psychiatry. But this program also recognizes that training in adult psychiatry does not develop the special professional competence needed in psychotherapeutic work with the emotionally disturbed child.

A third important feature of the National Mental Health Act aims to develop more clinical facilities both for adults and children. To achieve this end, funds are made available to the various states on a matching basis. Each state is required to designate a central state agency administratively responsible for the mental health program, and requires that this agency draw up a program for expanding outpatient clinical facilities. When these programs are approved by the Surgeon General of the U. S. Public Health Service, allocations are made on matching formulae which have been developed.

This program will allow considerable expansion of clinical facilities for children, particularly in communities that have been unable to support a children's clinic. A large proportion of these new clinics will probably provide

a clinical service for both adults and children. The real barrier to the rapid expansion made possible by these federal funds, is the acute shortage of trained personnel in all professional groups, but especially in psychiatry. There is a real danger in this situation because of the temptation to start clinical services for children with personnel who have no qualifications for developing a valid and helpful clinical service for children. On the other hand, there is no prospect in the near future of meeting all these demands with well trained professional people. The present qualified training clinics are few in number and are needed to give the more refined training to meet the need for more teachers capable of assuming training responsibilities.

It is clear that training our professional personnel must be carried on at two levels. Our best training resources, found mainly in the larger communities in the well established psychiatric clinics for children, must be used to train well qualified child psychiatrists. This training program should cover a period of two years. But there is a larger number of psychiatrists who will head up the all-purpose clinics who will need and could effectively use a less intensive type of training. Here again we run into the unanswered question of how and where to provide this training.

The American Board of Psychiatry and Neurology has indicated the desirability of all psychiatrists having 6 months of training in children's work. There is considerable justification for this, but how the end is to be attained is a serious question.

In our efforts to find adequate answers to these problems of personnel, one fact must be kept in the foreground. Standards must be set up and maintained in our training programs, capable of turning out well qualified professional personnel. If these limited re-

for this care. It is important to maintain a working relation with the family in order that the child's gains are not achieved in isolation but in some relation to the family to which he will return. This thoughtful planning becomes a requirement for admission, even when parents live at some distance. This is a feature of residential care that needs to be refined, in all institutions whose primary function is to help the seriously disturbed child.

Other excellent examples of residential care for the disturbed child have developed in the Southard School in Topeka, Kan., at the Orthogenic School in Chicago, and at the Langley-Porter Clinic in San Francisco. The last is located in special quarters in a psychiatric hospital, while the Southard School is a separate part of the Menninger Clinic. All of these clinics provide psychotherapeutic service for the child and are important training centers for professional personnel.

The question frequently arises as to whether such residential facilities should be developed in our adult mental hospitals. My own conviction is that they should not. If they are developed there, it is essential that the quarters should be separate and that specially trained staffs be provided. The latter is difficult to provide because of the lack of opportunity to train adequately those who are charged with the responsibility of operating this service.

A somewhat different clinical service combining skillful therapeutic help with a nursery and kindergarten program is exemplified in The Children's Center of Roxbury, Mass. This clinic provides a group program for disturbed children up to the age of 6 years. The individual therapy is skillfully interwoven into the group program, and enables this clinic to work with many disturbed children who otherwise would require 24 hour care away from home. The parents take an active part in this

service, being a part of the group program and also having the opportunity to participate in the therapy by being helped to work through their own problems as parents. This type of clinic will have an important place in future developments and provides a pattern that could be utilized in our large urban clinics.

Other clinics have been developed to meet the special problems of our juvenile courts. This is a service needed by the court to help toward a better understanding of the problems it must handle. Such clinical services have been mainly diagnostic, and therapeutic only to the extent that the knowledge so gained is used to make disposition and probation more intelligent and effective. Having such a service in our courts does not diminish the need to have good therapeutic services available in the community. In fact, the need for such a clinic usually is increased since the presence of such a clinic enables the court to refer those parents and children who are ready to use services which cannot be provided by a court.

The greatest barrier in expanding psychiatric resources for children is the scarcity of adequately trained personnel. Today a great many communities are ready to develop child guidance clinics and are unable to proceed because of their inability to obtain qualified staff. Significant moves have been made during the past year to correct this serious situation. The most important step to broaden and improve professional training was taken by the federal government when the National Mental Health Act was passed. This Act empowers the U. S. Public Health Service to provide grants-in-aid to recognized and competent training centers to enable them to train more psychiatrists, psychiatric social workers, psychologists, and psychiatric nurses. These are the professional groups needed in developing the country's resources to

deal with mental health problems. In this program, child psychiatry is recognized as one of the important clinical fields to be developed through providing more trained personnel. The three professional groups needed in our psychiatric clinics for children are the psychiatrists, psychiatric social workers, and psychologists.

In addition to the grants-in-aid to qualified training centers, this Act provides for stipends for the students who are qualified to enter a training program in child psychiatry. Psychiatrists are required to have two years in basic psychiatry in a recognized training hospital or clinic before they are eligible to begin this specialized training for child psychiatry. This requirement is a recognition of the fact that child psychiatry is an integral and important part of general psychiatry. But this program also recognizes that training in adult psychiatry does not develop the special professional competence needed in psychotherapeutic work with the emotionally disturbed child.

A third important feature of the National Mental Health Act aims to develop more clinical facilities both for adults and children. To achieve this end, funds are made available to the various states on a matching basis. Each state is required to designate a central state agency administratively responsible for the mental health program, and requires that this agency draw up a program for expanding outpatient clinical facilities. When these programs are approved by the Surgeon General of the U. S. Public Health Service, allocations are made on matching formulae which have been developed.

This program will allow considerable expansion of clinical facilities for children, particularly in communities that have been unable to support a children's clinic. A large proportion of these new clinics will probably provide

a clinical service for both adults and children. The real barrier to the rapid expansion made possible by these federal funds, is the acute shortage of trained personnel in all professional groups, but especially in psychiatry. There is a real danger in this situation because of the temptation to start clinical services for children with personnel who have no qualifications for developing a valid and helpful clinical service for children. On the other hand, there is no prospect in the near future of meeting all these demands with well trained professional people. The present qualified training clinics are few in number and are needed to give the more refined training to meet the need for more teachers capable of assuming training responsibilities.

It is clear that training our professional personnel must be carried on at two levels. Our best training resources, found mainly in the larger communities in the well established psychiatric clinics for children, must be used to train well qualified child psychiatrists. This training program should cover a period of two years. But there is a larger number of psychiatrists who will head up the all-purpose clinics who will need and could effectively use a less intensive type of training. Here again we run into the unanswered question of how and where to provide this training.

The American Board of Psychiatry and Neurology has indicated the desirability of all psychiatrists having 6 months of training in children's work. There is considerable justification for this, but how the end is to be attained is a serious question.

In our efforts to find adequate answers to these problems of personnel, one fact must be kept in the foreground. Standards must be set up and maintained in our training programs, capable of turning out well qualified professional personnel. If these limited re-

sources are used for the more expedient type of training, to enable more communities to use federal funds, there would be a real danger of pulling all training down to this level and blocking the essential development of this professional field. Too many clinics have been started to offer help to a troubled parent and child and end up by offering very little real professional help. Parents and children needing skillful help have a right to expect good service, and the professional field suffers when it is not provided. Too many clinics started with a low level of professional competence have remained at the level at which they started, and have the effect of lowering the professional status of this clinical field.

Another important development in this field occurred with the forming of the Association of Psychiatric Clinics for Children. This Association grew out of the clinical field itself and represented a need to establish standards and assist established clinics and those being started, to maintain standards of service which the accumulated experience of our clinics indicates as essential. At the present time this Association has 39 active members and 7 associate members. This is an association of clinics and not of individuals, and membership is limited to those clinics which have trained staffs of psychiatrists, psychiatric social workers, and psychologists. Part-time clinics employing competent staffs have been included as associate members, while the clinics with a full-time staff are eligible for active membership.

This Association will play an influential role in maintaining standards for professional training and has, as one of its important functions, the evaluation of the training programs of clinics which are doing training and of those clinics asking for approval as training centers. The Association is in a strategic position to strengthen the

training resources of the United States and will be in a position to help those administering the National Mental Health program to select clinics that should be subsidized in order to broaden their training programs.

In 1922, when the Commonwealth Fund started its program to develop child guidance clinics, they turned over to the National Committee for Mental Hygiene the responsibility of providing professional leadership to this whole program. The Division of Community Clinics was established with competent leadership. The Association of Psychiatric Clinics for Children was the natural outgrowth of this work, and today the National Committee for Mental Hygiene provides the field work service for the Association. The Executive Assistant for the Association is on the staff of the National Committee.

The selection of qualified candidates for training in approved training centers is an important job. The final selection of the candidates must be left to the training center in which the fellow will receive his training. But the preliminary screening of the considerable number of psychiatrists desiring this training is being carried on by the Association and its Committee on Training. This is a big job that needs to be centralized. Candidates ready for assignment can be informed of available training resources and be given the opportunity to apply to the clinic of their own choice. This clears the way for the clinic and the student to work through a selection process that is satisfactory to both clinic and student. For students receiving National Mental Health Act stipends, the clinic must nominate the candidate and send these nominations to the Surgeon General of the Public Health Service for final action.

The future of this all-important field is one full of promise. The fact that there is a rapidly increasing demand for serv-

ice in every one of the established clinics, is an indication of the growing confidence that is emerging in our communities in their value. They have provided important clinical laboratories for the development and refinement of clinical method by which parents and children have been helped to a healthier way of living together. In these clinics, psychiatrists, social workers, and psychologists have learned how to pool their separate professional skills to build a clinic service that can be effectively used by parents and children. The nature of the childhood period requires this professional collaboration and our clinics for children have made effective use of this opportunity. Today, we find increasing emphasis on the need of the psychiatric team in all phases of a mental health program in our hospitals, adult clinics, and in our military service. The work done in

our child guidance clinics is, in a large measure, responsible for this refinement.

Advances in better understanding and application of psychotherapeutic principles have come from the work of these clinics for children. These principles are based on the respect for what a parent and child can do in effecting the changes necessary for healthier living. Psychotherapy must rest on this positive approach to human behavior which seeks to strengthen capacity for responsibility. Building on what parents and children have, rather than stressing their liabilities and mistakes, has been an approach that has been basic in working with parents and children. By their participation in a clinic service provided by trained clinic staff, they have built a clinical method that, today, is effective in restoring a great many parents and children to a healthier balance in their living together.

Yale Expands Cancer Control Training

A training program for cancer control officers will begin at Yale's Department of Public Health through a grant from the National Cancer Institute.

Developed to meet the needs of administrators of cancer programs, statistical epidemiologists, health educators, and public health nurses, the program will require at least one year. It will include basic courses in the principles of social science, public health, and medical care organizations as well as specialized cancer control instruction. With the rank of Associate Professor, Edward M. Cohart, M.D., Regional Cancer Consultant, U. S. Public

Health Service, will head the program.

Physicians with at least two years' practice or comparable experience, nurses and others with the Bachelor's degree and with three years' experience in medical care, dental care, or public health work are eligible for the training leading to the Master's or Doctor's degree in Public Health. Special students, not candidates for degrees, with appropriate training and experience may also be admitted. Apply Dr. E. M. Cohart, Cancer Control Section, Department of Public Health, Yale University, School of Medicine, 310 Cedar Street, New Haven 11, Conn.

Newly Proposed Staining Formulas for the Direct Microscopic Examination of Milk*

B. S. LEVINE, PH.D., F.A.P.H.A., AND L. A. BLACK, PH.D.,
F.A.P.H.A.

Senior Bacteriologists, U. S. Public Health Service, Cincinnati, Ohio

A PROCEDURE most satisfactory for staining milk films should make possible the counting of a maximal number of bacteria present in a given volume of the milk. In a previous publication reporting comparative studies of well known milk staining procedures, we pointed out that they all failed to yield such maximal bacterial counts consistently,¹ and emphasized the factors responsible for such failures. Based on the studies then reported, we expressed the belief that improved procedures for staining milk films could be developed. It is our further belief that only by following certain known and appropriate physicochemical principles can further progress be attained in the development of a procedure most satisfactory for staining milk films.

ADSORPTION IN STAINING MILK FILMS

In the investigations reported upon in the present paper, we assumed that the process of staining milk films generally follows the principles underlying the phenomenon of adsorption.^{2, 3} For the purpose of our investigations, we define adsorption as the physicochemical phenomenon consisting in the concentration or adhesion of the molecules of

the dissolved methylene blue dye, in their dissociated or undissociated state, at the surfaces of the solid bodies with which they are in contact, that is, at the surfaces of the milk proteins and of the various organized cells which have been fixed to the glass slide. The phenomenon of adsorption is characterized by certain generally accepted manifestations. Those which have a bearing upon our investigation are:

1. The substance adsorbed can be eluted and thereby regained in its original state. It is upon this property of the adsorbed dye that complete destaining of milk films depends. The eluted dye, if allowed to concentrate sufficiently, will stain milk films in the same manner as it did originally, thereby indicating that the dye has been regained in its original state.

2. In solutions of the same substance in different solvents, the greatest adsorption occurs in that solution whose solvent possesses the highest surface tension. Water has a surface tension of 72.75 dynes per centimeter at 20° C., which is the highest tension of all other solvents used in connection with the methylene blue dye as applied to staining milk films. This explains the observation recorded by us in a previous publication,¹ namely, that aqueous solutions of methylene blue readily give up the dye to the milk proteins of the

* From the Milk and Food Sanitation Laboratory, Water and Sanitation Investigations Station, Cincinnati, Ohio.

background, and cause frequent over-staining.

3. The amount of adsorption is conditioned by the extent and the nature of the surface exposed. It is reasonable to assume that with the difference in the size of bacteria, their species and ages, adsorption of the methylene blue dye at their surfaces, that is, the intensity with which they stain, should differ from only slightly darker than the intensity of the background to very dark blue. It is because of this principle of adsorption that we emphasize in the preceding paper¹ that strong staining contrasts are attained at the expense of the delicacy in color shades, which in turn results in the loss of visibility of numerous bacteria whose adsorptive power for the dye is only slightly greater than that of the milk proteins forming the background of the film. To this must be added the fact that the adsorptive power of the surface of many bacteria may be considerably influenced or completely masked by the layer of milk proteins covering them.

4. The adsorption concentration is also conditioned by the pressure or concentration of the adsorbate. Had this not been true in the case of methylene blue dye as a staining medium, that is, had the reaction been a true stoichiometric one, a definite maximum of the reaction would always be obtained, and no overstaining would take place, since the excess of uncombined dye molecules could be easily and completely removed by rinsing and washing, without any destaining effects.

5. At lower temperatures, the speed of migration of the molecules of the material in solution toward the adsorbing surfaces of the suspended solids is slowed up, but the ultimate concentration is higher. We found this to be true of methylene blue solutions in relation to suspended milk smears. Staining procedures were carried out at 20° C. and 4.5° C., and the results com-

pared. We found that in the cold staining, a higher degree of differential staining could be attained. If the slides were removed at just the proper time and rinsed, the milk proteins, not having attained the maximum dye concentration, remained somewhat lighter, while the organized cells stained darker than they did at 20° C. This is a point of interest which presents possibilities for further studies in milk film staining with methylene blue.

6. The ionization or non-ionization, or the degree of ionization of the dissolved dye, depending upon the nature of the adsorbing substance, determines the polarity or non-polarity of the reaction. While it is generally believed that in both polar and non-polar adsorption the exponential law expressed by the adsorption isotherm is valid, the original electrical balance of the dye solution may be affected. Methylene blue hydrochloride is strongly ionized in aqueous solution, and since, in the case of milk films, the insoluble adsorbents, represented by the milk proteins and organized cells fixed to the slide, adsorb only the cations of the dye, the chlorides tend to remain in the solution. The electrical balance of the original dye solution is thereby altered. This poses the question as to how long the same dye solution can be used and still be expected to produce the same results as the original solution. This theoretical consideration also points to the undesirability of mixing used and unused staining solutions. In this connection we found in our investigations that frequent changing to new dye solutions is desirable. This is especially true of dye solutions of comparatively low concentrations.

ACID AND WATER-FREE METHYLENE BLUE SOLUTION

From our previous studies¹ and the theoretical discussion presented in the preceding paragraphs, it appears that

the search for a satisfactory staining solution for milk films should be limited to simple solution systems, that is, solutions containing the minimum of chemical reagents, and that the solvent for the methylene blue dye should have a comparatively low surface tension in order that differential staining effects as regards intensity of staining may be best attained. This would at once exclude aqueous solutions of the dye, and dye solutions which contain high concentrations of acids and other chemicals. Ethyl alcohol as used in laboratories contains only 5 per cent of water, at 20° C., generally regarded as room temperature, its surface tension is only 22.3 dynes per cm., compared with 72.75 dynes for water. It was felt, therefore, that the solution to the problem might be found in the use of ethyl alcohol as the only dye solvent.

Accordingly, concentrations of the dye in alcohol, varying from 1.2 per cent down to 0.1 per cent were used for the staining of milk films. We found that a 0.6 per cent concentration of the dye in alcohol gave the best results. A number of milk films were defatted and stained for one minute. Under the microscope the milk proteins appeared evenly and only moderately intensely stained. The leucocytes stood out clearly and the bacteria adsorbed the blue dye in varying degrees. The tendency to overstaining did not manifest itself, and it seemed that such a dye solution presented a promising basis for the development of a staining process which would make visible and countable a maximal number of bacteria and other cells present in the milk.

The procedure consists of the following simple steps: The milk films were prepared and dried *thoroughly*. Films were next defatted as usual. Again, after *thorough* drying, films were submerged into an alcoholic solution of 0.6 per cent of methylene blue for one minute. They were then lightly rinsed

in tap water, *thoroughly* air-dried, and examined under the microscope. Comparative counts indicated that such a staining procedure yielded counts considerably higher than any of the staining procedures previously investigated.

To meet the need for a single-dip process, we tried to mix the alcohol with equal volumes of different well known defatting agents, such as xylene, ethyl ether, chloroform, and tetrachlorethane. We found xylene unsuitable because of its tendency to precipitate, to some extent, the methylene blue dye. Ether was given serious consideration because its low surface tension of 17.0 dynes per cm. at 20° C. was regarded by us as a desirable physico-chemical property. However, because of its high combustibility and rapid evaporation, it was soon eliminated. Chloroform was eliminated because its surface tension of 27.1 dynes per cm. at 20° C. is higher than that of alcohol, and also because of the rapidity with which it evaporates from its mixture with alcohol, constantly changing both the defatting properties of the original solution and the dye concentration. Tetrachlorethane, as we observed it, volatilizes from its alcohol solution at about the same rate as does the alcohol. It has a decidedly objectionable odor and is considered toxic if its concentration in the air is considerable and exposure to its vapors is prolonged. However, when the staining solution is used in its prepared form in a laboratory properly ventilated, and care is taken to keep the staining jars covered, the objections enumerated can be safely disregarded. Our further experiments, therefore, were limited to the study of a solution of the methylene blue dye in a 50-50 per cent mixture of 95 per cent ethyl alcohol and tetrachlorethane.

After many trials the following formula was adopted as the most suitable for further comparative studies:

EXAMINATION OF MILK

Vol. 38

Certified methylene blue powder.. 0.6 gm.
 Ethyl alcohol, 95%..... 50.0 ml.
 Tetrachlorethane, technical..... 50.0 ml.

This dye solution was shaken vigorously for 5 minutes, then allowed to stand overnight to enable the dye to go into complete solution. The solution was then again vigorously shaken for 5 minutes and filtered through high grade quantitative filter paper. The milk films were then immersed in this staining solution for 1 minute, gently rinsed in tap water and allowed to dry in the air thoroughly. Overstaining did not occur, even if the slides were left in the staining jar for a longer time. In fact, if the slides were left in the solution too long, the films began to lose some of their stain. This should not be allowed to happen, as the procedure of "doctoring" stained films, in our experience, never gave satisfactory results, no matter what staining procedure was applied. A certain amount of reddish iridescence appeared around the lighter stained bacteria upon continuous refocusing of the objective. The addition of 2.5 ml. of C. P. glycerol to 100 ml. of the staining solution eliminated this difficulty.

After this stain had been extensively tested and found capable of producing favorable results, a search of the literature disclosed that a similar type of staining formula was suggested for milk films by Erb, in 1929.⁴ Erb's formula is as follows:

Ether, sulfuric..... 50.0 ml.
 Alcohol, ethyl, absolute..... 50.0 ml.
 Methylene blue..... 0.59 gm.

It may be that if Erb's paper had been published in a journal more widely read by those engaged in milk work, his formula might have been better known. Our objection to the use of ether as the defatting agent has been stated before. The requisite of "Absolute" alcohol in work where 5 per cent of water would be absorbed in a very

short time, appeared to us more as a formality, as did the weighing out of 0.59 gm. of the dye instead of 0.6 gm. For these reasons we did not investigate staining by the formula of Erb.

COMPARATIVE COUNTS OF FILMS STAINED
 WITH CARBOLATED METHYLENE BLUE,
 THE NEWMAN-LAMPERT AND THE
 WATER AND ACID-FREE METHY-
 LENE BLUE STAINING SOLUTIONS

The technic employed in the preparation of the milk films was as follows: Good quality, non-corrosive microscopic slides were used. Triplicate 1 cm. squares were delineated on the slides by means of a diamond point and a specially prepared celluloid or metal gadget developed by one of us.⁵ After the samples were adequately shaken, the milk was measured with 0.01 ml. standardized pipettes. Bent needles were used as spreaders. Care was exercised not to allow the milk to spread outside the scratched delineations. The films were then dried on a covered drying plate, thermostatically controlled, at a temperature of 54° C.

In the 8th edition of *Standard Methods for the Examination of Dairy Products* no definite requisite is described for the selection of microscopic fields representative of the 1 cm. square area. Levowitz⁶ suggested the strip area procedure. Hanks and James⁷ suggested that microsampling be done along two median lines at right angles. With occasional exceptions, we followed the latter procedure. The number of fields counted were those stipulated in the 8th edition of *Standard Methods*.

Two sets of counts were made. In the first set, duplicate films, as previously described, were made of each of ten raw milk samples, stained by the Carbolated Methylene Blue and the water and acid-free procedure studied by us, and counted for the number of bacteria and leucocytes. The results are shown in Table 1. In the

TABLE 1

Comparative Counts of Bacteria and of Leucocytes in Raw Milks on Slides Stained by the Carbolated Methylene Blue and by the Proposed New Procedure

Series	Bacterial Clump Counts		Leucocyte Counts	
	Carbolated Methylene Blue	Water and Acid-free Stain	Carbolated Methylene Blue	Water and Acid-free Stain
1	528,000	1,176,000	3,120,000	2,532,000
2	576,000	828,000	3,444,000	1,148,000
3	720,000	1,040,000	5,352,000	6,120,000
4	768,000	1,728,000	3,456,000	3,024,000
5	1,644,000	2,136,000	1,524,000	1,692,000
6	1,680,000	3,204,000	1,068,000	588,000
7	2,364,000	2,652,000	4,128,000	3,612,000
8	3,108,000	6,060,000	2,040,000	1,584,000
9	8,610,000	27,610,000	No Leucocytes observed	
10	10,605,000	20,085,000	6,885,000	6,090,000
Average	3,006,000	6,672,000	3,102,000	2,639,000
Count Ratios	1.0	2.22	1.0	0.85

second set triplicate films were made of each of 13 raw milk samples, stained by the Carbolated Methylene Blue, the Newman-Lampert, and the authors' proposed procedures. The results are presented in Table 2.

The data presented in Table 1 indicate that the critical analysis of the difficulties inherent in the Standard Methylene Blue and in the Newman-Lampert stains previously discussed by us¹ appears to be essentially correct, and that the principles upon which the stain proposed by us is based are in accord with the varied affinities for the

blue dye possessed by bacteria of different species and most probably of different ages. The average bacterial count by the water and acid-free stain was 122 per cent greater than the average count by the Carbolated Methylene Blue stain. The leucocyte count showed an average of 15 per cent lower than by the Carbolated Methylene Blue. This reduction in the leucocyte counts by the new stain does not occur as a constant phenomenon, as is shown by the data appearing in Table 2. The data presented in Table 2 again show that remarkably close counts can be

TABLE 2

Comparative Counts of Bacteria and of Leucocytes in Raw Milks on Slides Stained by the Carbolated Methylene Blue, the Newman-Lampert and the Proposed New Staining Procedure

Series	Bacterial Clump Counts			Leucocyte Counts		
	Carbolated	Newman-Lampert	Water and Acid-free Stain	Carbolated	Newman-Lampert	Water and Acid-free Stain
1	500,000	600,000	540,000	1,824,000	2,200,000	1,740,000
2	636,000	780,000	1,600,000	1,476,000	2,160,000	896,000
3	750,000	768,000	1,044,000	5,316,000	7,560,000	6,888,000
4	756,000	1,044,000	1,240,000	3,120,000	3,036,000	3,480,000
5	780,000	840,000	1,664,000	2,884,000	2,472,000	2,268,000
6	792,000	612,000	1,080,000	2,560,000	2,676,000	3,238,000
7	1,240,000	1,416,000	2,700,000	4,860,000	4,704,000	4,260,000
8	1,260,000	1,800,000	4,176,000	4,445,000	4,608,000	4,176,000
9	1,464,000	1,872,000	2,160,000	4,200,000	4,300,000	4,256,000
10	1,600,000	1,092,000	2,052,000	1,740,000	2,204,000	1,740,000
11	1,704,000	1,356,000	3,312,000	1,380,000	948,000	1,416,000
12	1,932,000	2,000,000	3,348,000	1,200,000	1,932,000	1,464,000
13	3,300,000	2,916,000	4,056,000	3,180,000	4,200,000	3,984,000
Average	1,285,000	1,315,000	2,230,000	2,845,000	3,300,000	3,984,000
Count Ratios	1.00	1.00	1.66	1.00	1.16	1.03

made on duplicate films of raw milk stained by the Carbolated Methylene Blue and the Newman-Lampert techniques. This appears to apply equally to counts of bacteria and leucocytes. The leucocyte counts obtained from milk films stained by the authors' procedure were 15 per cent lower in one set and 8 per cent higher in the other, averaging only 9 per cent below either of the other two stains. The bacterial counts were 122 per cent higher in the first set and 66 per cent higher in the second set, with an average increase of approximately 94 per cent.

In another comparative study of a limited number of stained films, an average increase as high as 700 per cent was obtained for milks containing below 200,000 clumps by the carbolated methylene blue, and an increase of 100 per cent for milks containing over 1,000,000 bacterial clumps by the carbolated methylene blue. Inasmuch as the procedure outlined by us is basically simple and employs reagents easily obtained and well known to laboratory workers, it is believed that it merits serious consideration and further study on a broader basis of application.

The films appear under the microscope sufficiently stained, and the morphology of bacteria and other cells is clear-cut and unmistakable. The stained background shuts off enough of the light to lessen eye fatigue. The leucocytes appear the darkest. The bacteria stain in various degrees of intensity, and are distinguishable at all depths of the milk film, including the bacteria fixed immediately upon the surface of the slide. With this stain, therefore, probably more than with other stains, continuous refocusing of the objective is of utmost importance.

A POLYCHROME METHYLENE BLUE STAIN

At the time the material above reported was being typed in its final form for publication, a manuscript of a

paper by Anderson, Moehring, and Gunderson,⁸ describing the preparation and application of a polychrome methylene blue stain was received. From the viewpoint of adsorption this staining solution presents a complex heterogeneous system, since it contains sulfuric acid, potassium dichromate, disodium acid phosphate, methylene blue hydrochloride, a number of different and possibly variable polychrome methylene blues, plus some unknown intermediate chemical compounds resulting from the process of the polychrome production described. The discussion of the interplay of forces comprising such a system of adsorption would necessitate extensive experimentation and would lead into lengthy considerations. We were not prepared at the moment to devote time to such analysis, and limited our investigation of this staining solution to a study of bacterial counts obtained by this compared with other stains.

In the manuscript the authors stated that better results were secured when a 50-50 per cent mixture of ethyl alcohol and chloroform was used for defatting and fixing of milk films. The value of such a mixture was discussed by us earlier in this report and will be discussed in a later paragraph. The ingredients used in the preparation of the polychrome solution as given in the manuscript of Anderson, Moehring and Gunderson were as follows:

Methylene blue.....	0.5 gm.
Potassium dichromate.....	0.5 gm.
Sulfuric acid (1%).....	3.0 ml.
Water	500.0 ml.

We received from Anderson and Gunderson a quantity of this unbuffered staining solution prepared by them and used it in the comparative tests.

Triplicate sets of films of ten raw milk samples were prepared, stained by each of the procedures, and counted. The results are summarized in Table 3. Defatting and fixing with alcohol-

TABLE 3

Comparison of Bacterial Clump Counts of Milk Films Stained by Carbolated, Polychrome and Water and Acid-Free Methylene Blue Stains

Carbolated Methylene Blue Counts 200,000 or below				Carbolated Methylene Blue Counts 1,000,000 or over			
Slide No.	Carbolated	Polychrome	Water and Acid-Free	Slide No.	Carbolated	Polychrome	Water and Acid-Free
1	150,000	580,000	920,000	6	900,000	1,900,000	3,300,000
2	160,000	880,000	1,500,000	7	1,000,000	2,000,000	2,000,000
3	160,000	1,400,000	1,500,000	8	1,400,000	1,700,000	1,800,000
4	180,000	1,100,000	1,700,000	9	4,300,000	5,600,000	7,500,000
5	200,000	1,200,000	1,400,000	10	5,100,000	7,600,000	10,000,000
Average	170,000	1,000,000	1,300,000		2,500,000	3,800,000	4,900,000
Percentage increase over Carbolated		490%	660%			52%	96%
Percentage increase over Polychrome			33%				30%

chloroform produced a semi-translucent evenly fixed film. With the unbuffered solution, occasional peeling in spots occurred, but not frequently nor extensively enough to cause any difficulty. However, as previously stated, chloroform is rapidly evaporated from its mixture with alcohol and in a short time its concentration is diminished, reducing the defatting properties of the mixture. To anyone who prefers the use of chloroform as a milk film defattant, it might be recommended that it be used in a separate step, followed by fixing in alcohol alone. By the time the milk film is transferred from the chloroform-containing to the alcohol-containing jar, the chloroform completely evaporates, and no time is lost, and the defatting is more complete. The haziness of the film previously mentioned is not eliminated thereby.

The staining solution, commonly referred to as a "polychrome methylene blue," was first recommended by Singh, Jaswant, and Brattacher in 1944 for staining malarial parasites.⁹ Apparently their method of preparing the dye produced incompletely satisfactory results. Manwell in 1945 described a modification of the original method intended primarily for staining malarial parasites.¹⁰ He referred to it as the J.S.B. staining solution. Later Man-

well and Feigelson¹¹ further modified the procedure. In their last revised manuscript, Anderson, Moehring, and Gunderson¹² give the following ingredients to be used in the preparation of the polychrome methylene blue staining solution:

Methylene blue.....	0.5 gm.
Potassium dichromate, C.P. 5%	10.0 ml.
Sulfuric acid, C.P. 1%.....	3.0 ml.
Disodium hydrogen phosphate	1.0 gm.
Distilled water.....	990.0 ml.

Steps for the preparation of the staining solution are outlined in a mimeographed leaflet issued by the Rockford, Ill., Health Department October 7, 1947. We were rather surprised to find that the authors added disodium hydrogen phosphate to their formula, since in one of their personal communications¹³ Anderson and Gunderson stated: "We have found that buffer salts in the stain cause the film to wrinkle more or less around the edges," and in another personal communication¹⁴ they wrote: "We find they [phosphate salts] cause a marked distortion of the film." Anderson and Gunderson sent us some of the staining solution prepared as described in their mimeographed outline. We tested it on films of raw and pasteurized milk and experienced considerable difficulty with

extensive wrinkling and oftentimes complete washing off of the milk films. It appears reasonable to suppose, therefore, that further modifications may be proposed. At present the dye cannot be purchased commercially as a certified product, hence laboratories wishing to use it must go through the complex process of preparing it. Experience alone can indicate whether or not the procedure for the dye preparation described in the mimeographed outline will consistently produce identical results in various laboratories.

In malarial parasites the J.S.B. polychrome staining solution produces differential polychromic staining. In raw milk smears no polychrome effects are discernible. The milk proteins of the background of the films and the bacteria as well as any adventitious matter thus far observed all stain a bluish somewhat muddy violet. The differential effects are produced by differences in the amount of dye adsorbed by the background proteins, the leucocytes and the bacteria. The milk proteins stain the lightest, the leucocytes the heaviest, and the bacteria in varying degrees in between. The milk film appears evenly stained and no heavy cloud-roll effects, commonly encountered with the carbolated methylene blue staining solution, have been observed. The stained film appears slightly foggy but this does not seem to interfere with the recognition of bacteria. The background, as in the staining procedure discussed just previously, stains intensely enough to shut out excess light, and fatiguing of the eye is considerably lessened. As in slides stained by our water- and acid-free procedure, we found no need for the use of light filters. However, considerable difficulty was experienced when continuous refocusing of the objective was resorted to. The refocusing range with this type of polychrome methylene blue stain is confined to an extremely narrow range, beyond which

the bacteria and some of the leucocytes manifest a reddish iridescence which obscures their morphology.

The average increase in bacterial counts of two groups of five films stained with carbolated methylene blue, as shown in Table 3, was 490 per cent for a group of five films counting 200,000 clumps or less by the carbolated methylene blue, and 52 per cent for the group of five films of 1,000,000 clumps or over. Corresponding increases with the water- and acid-free stain proposed by us were 660 per cent and 92 per cent. Since the latter counts were greater than those yielded by the polychrome methylene blue, they must be considered as the present maximal counts. These increases in counts, in the light of experience accumulated through years of study of the direct microscopic count methods, may appear incredible and confusing. However, if corroborated in future studies, the results would call for an extensive discussion and reconsideration of certain heretofore established notions and practices now prevailing in bacteriological milk analysis.

SUMMARY

1. A theoretical discussion is presented of certain principles of adsorption as they apply to the study of staining procedures for the direct microscopic examination of milk.
2. In concordance with such principles a two-dip staining solution consisting of 0.6 per cent methylene blue dye dissolved in 95 per cent ethyl alcohol and a single-dip staining solution consisting of alcohol, tetrachlorethane and methylene blue hydrochloride have been developed, free from added water and acid.
3. The results presented indicate that such staining solutions are capable of yielding present maximal bacterial counts in milk.
4. A polychrome methylene blue solution similarly yielded materially higher counts than carbolated methylene blue.

REFERENCES

1. Levine, B. S., and Black, L. A. A Comparative Study of Commonly Used Staining Procedures for the Direct Microscopic Examination of Milk. *J. Milk and Food Tech.*, 11:139-148, 1948.

2. Getman, Frederick H. *Outlines of Theoretical Chemistry*. (6th Ed. by Farrington Daniels) New York: Wiley, 1937, pp. 220-224.
3. Porter, J. R. *Bacterial Chemistry and Physiology*. New York: Wiley, 1946.
4. Erb, M. M. A Rapid Stain for Direct Microscopic Examination of Milk Smears. *J. Lab. & Clin. Med.*, 14:61, 1929.
5. Levine, B. S. A Gadget for Marking Slides Used in the Direct Microscopic Examination of Milk. (To be published.)
6. Levowitz, D. Reproducible Data by Microscopic Method. *Bull. Assoc. Milk Dealer*. 36th year, No. 10, pp. 139-150 (June 13), 1944.
7. Hanks, J. H., and James, D. F. The Enumeration of Bacteria by the Microscopic Method. *J. Bact.*, 39:297-304 (Mar.), 1940.
8. Anderson, C. W., Moehring, R., and Gunderson, N. O. A New Method for Fixing, Defatting and Straining Milk and Cream Films. First manuscript (Sept. 1947).
9. Singh, Jaswant, and Bhattacharji, L. M. Rapid Staining of Malarial Parasites by a Water Soluble Stain. *Indian M. Gaz.*, 79:102, 1944.
10. Manwell, R. D. The J.S.B. Stain for Blood Parasites. *J. Lab. & Clin. Med.*, 30:1078-82 (Dec.), 1945.
11. Manwell, R. D., and Feigelson, P. A Modified Method of Preparing the J.S.B. Stain. Reference quoted by Anderson and Gunderson in revised manuscript.
12. Anderson, C. W., Moehring, R., and Gunderson, N. O. A New Method for Fixing, Defatting and Straining Milk and Cream Films. Second manuscript—revised (October, 1947).
13. Anderson, C. W., and Gunderson, N. O. Personal communication, Sept. 25, 1947.
14. Anderson, C. W., and Gunderson, N. O. Personal communication, Oct. 7, 1947.

"It is scarcely necessary to acknowledge our vast indebtedness to science in giving us the methods and patterns of research in human relationships. Every contribution of science to the problems of society is to be welcomed. But the enlightenment of science is bringing with it a tendency to reject the limitations of science. To expect that exact measurement and exhaustive definition will relieve us of the necessity of ethical inquiry, or that the meaning and values of human life will somehow or other crystallize as physics crystallized around the concepts of mass

and energy, is a form of superstition as deadly as any we have known.

"The issues of our time and of human destiny will be determined, not at the physical, but at the ethical and social level. Material power and dollars and military ascendancy may preserve us temporarily; but the dynamic tensions of our society can be relieved only by moral and social wisdom, and that kind of wisdom cannot be precipitated in a test tube nor can it be won by the brilliant processes of nuclear physics."—Raymond B. Fosdick, *Rockefeller Foundation—A Review for 1947*.

Bacteriological and Epidemiological Data on Typhoid Fever in Amsterdam

A. CHARLOTTE RUYS, M.D.

*Head of the Municipal Public Health Laboratories, Professor at the University
Amsterdam, Holland*

SHORTLY after World War I typhoid fever was one of the major problems in Amsterdam.* Epidemiological analysis showed that milk was one of the main sources of the infection. Many farms in the neighborhood of Amsterdam, which provided the city with milk, lay in a district where typhoid was prevalent and sanitation was poor. An attempt to combat the spread of the disease was made by the public health authorities in the following ways: An intensive search for carriers and a strict survey at the farms were instituted, carriers were forbidden to handle milk, the sale of raw milk from farms or houses with cases of typhoid was legally prohibited, the water supply at the farms was improved, and the public was educated not to use raw milk. These measures were followed by a rapid decrease in the number of typhoid cases and for many years after 1930 milk was seldom the source of typhoid in Amsterdam. There still remained each year several cases of unknown origin. Figure 1 gives the number of typhoid cases divided into groups according to the source of the infection. Figure 2 gives the number of carriers known to the public health authorities in Amsterdam and the number of carriers detected each year.⁴

The bacteriological examinations were made in the Municipal Public Health Laboratories. In earlier days only

Endo's medium was used; in 1927 it was combined with the tetrathionate enrichment broth of L. Muller. Kauffmann's enrichment medium did not appreciably improve the results, but when in 1936 the medium of Wilson and Blair was added, the number of positive findings increased very much. In an article in 1940¹ I could demonstrate that in one series the number of positive results rose from 165 to 222 by the use of Wilson and Blair's medium.

However, the greatest progress made was in the field of the examination of surface water. Before this, we never succeeded in tracing with certainty the source of typhoid infections to water. By means of Wilson and Blair's medium, we could demonstrate in several small epidemics and isolated cases in the surroundings of Amsterdam that contaminated water was the source of the infection. In the small fishing town of Volendam we isolated on 13 different dates typhoid bacilli from various parts of the canals.² In another village, we isolated typhoid bacilli from the ice covering a frozen canal, where three weeks previously a child had infected herself by sucking a piece of ice.³ However, in the city of Amsterdam surface water does not play an important part in the spread of the disease.

In the first years of the war typhoid did not increase very much; until September, 1944, the situation remained reasonable. The number of cases was fairly low, although the search for carriers yielded each year a few hitherto

* Amsterdam is a city with approximately 800,000 inhabitants. It is a large seaport with much traffic.

unknown ones. While the number of patients decreased the number of known carriers increased, as is shown in Figures 1 and 2. Some carriers were removed from the list as they became negative following the extirpation of the gall bladder, others moved to another residence and some died.

The total number of patients considered to be infected in Amsterdam during the last 20 years is given in Table 1.

In the hunger winter (1944-1945) there was a total collapse of preventive measures. All traffic became extremely dangerous, so that control at the farms and food control in the surroundings of Amsterdam was almost impossible. There was no longer any gas, electricity, or fuel to heat the food sufficiently.

In December, 1944, a severe typhoid

TABLE 1
Cases of Typhoid Infected in Amsterdam

Year	Cases	Year	Cases
1928.....	90	1938.....	15
1929.....	23	1939.....	10
1930.....	41	1940.....	12
1931.....	33	1941.....	8
1932.....	26	1942.....	19
1933.....	20	1943.....	17
1934.....	27	1944.....	133
1935.....	16	1945.....	576
1936.....	14	1946.....	60
1937.....	13	1947.....	11

epidemic broke out, which could be traced to the consumption of contaminated smoked eels. The fish had been kept alive for several days in the water of the harbor of the small fishing town. There they were contaminated by the sewage which flowed into the harbor. They could not be smoked immediately for lack of wood. Finally they were smoked, but insufficiently. The eel

FIGURE 1

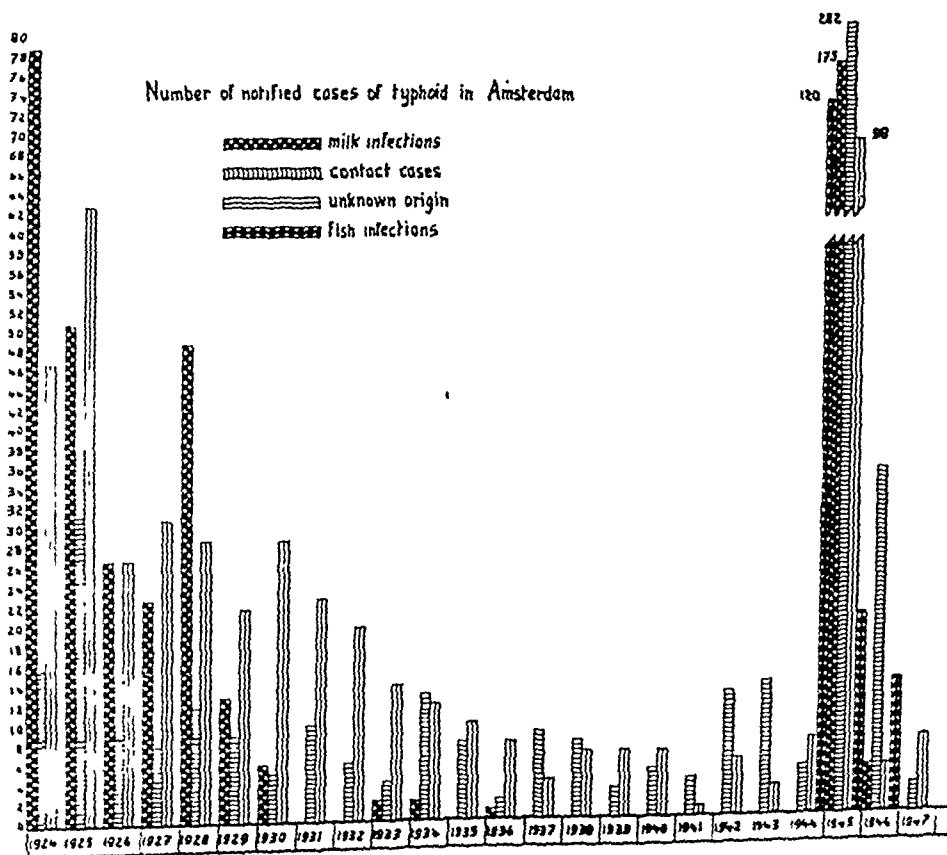
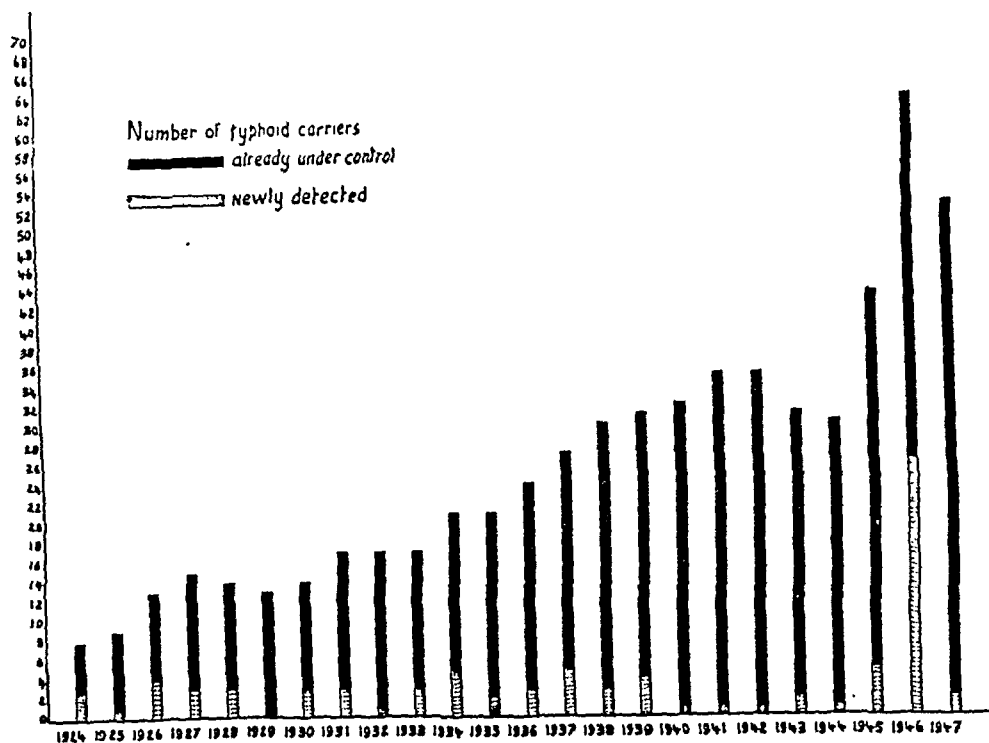


FIGURE 2



meat was officially discarded, but it found its way into the black market and the starving people were ready to eat even spoiled food. From this source 141 patients acquired typhoid and caused another 21 contact cases.⁴

After the liberation in 1945, thousands of prisoners and workmen came home from Germany, many of them in the incubation period of typhoid. Also people returned from various parts of the country where typhoid was prevalent. Many cases were not diagnosed immediately because the patients did not call a doctor for fear of being taken to a hospital after having returned to their homes so recently. Several members of their families were contaminated. There were 197 cases infected outside Amsterdam which are not registered in Figure 1 and Table 1.

In the summer of 1945 another epidemic broke out caused by milk which

had been contaminated in a large plant after pasteurization and before distribution. There were no bottles; there still was no gas, electricity, or fuel to heat the milk, which to a large extent was drunk in raw condition. We found a carrier working at the plant. The number of victims was 175. The absolute lack of soap, textile, toilet paper, hot water, and disinfectants favored the spread of the disease, and a high number of 282 contact cases was noted. Despite the absence of gas and electricity the laboratory kept working and the diagnosis was confirmed in all cases, bacteriologically or serologically.

At the end of the year the situation was in hand again but we were left with a large number of new carriers. The known ones are given in Figure 2, but we are sure there have been many more still unrecognized.

Soon after the liberation, the labo-

ratory received from friends in the United States and from Dutch friends abroad supplies of the various new media for the diagnosis of enteric infections.

We first compared the results of stool specimens on Endo, Leifson's desoxycholate-citrate (D.C.),⁵ Wilson and Blair's, and the selenite enrichment medium of Leifson,⁶ with the following results:

<i>Positive by means of:</i>		<i>Exclusively Positive</i>	
Endo	20	Endo	0
Desoxycholate-citrate...	52	D C	6
Wilson-Blair	48	Wilson-Blair	8
Selenite	66	Selenite	19
Total	82		

These figures show that it is not wise to rely on one or two media. Even the most selective ones sometimes fail to demonstrate the pathogens. In these series the selenite medium was exceptionally good.* A new sample of the same chemical from the same factory, however, was less satisfactory, and several samples from other factories never reached the standard of the first.

In another series we replaced the Endo by the S.S. plate of Difco. In this series the selenite medium fell below the D.C. plate. The S.S. medium gave approximately the same percentage of positive results as Wilson and Blair's.

Again we find that the larger the series of highly selective media, the larger the number of positive specimens.

<i>Positive by means of</i>		<i>Exclusively Positive on</i>	
S.S.	56	....	2
D.C.	70	....	3
Wilson-Blair	57	....	3
Selenite .	67	....	3
Total	94		

Since the introduction of these highly selective media in the routine examination of stools we have found some positive results in healthy people who could not be considered as chronic carriers. We did not find them among food handlers and other people from

healthy surroundings. They had always had a recent contact with typhoid cases but had not suffered from a disease resembling typhoid. By means of Wilson and Blair's medium alone we isolated typhoid bacilli from the stools of 2 contacts, who had not suffered from the disease and did not fall ill. In the following examinations they were negative and remained so on subsequent tests. Quite a number of unexpected positive cases were found in a survey with all our new media in September, 1946.⁷ In one of the large hotels a wedding party was infected with typhoid; in the course of 2 weeks 14 of the 17 guests fell ill. The stools of the whole staff of the hotel, 217 men and women, were examined and 2 were found to be suffering from typhoid. Five of the kitchen staff were excreting typhoid bacilli without being ill. None of them had suffered from the disease. Typhoid H suspensions were not agglutinated by their sera, typhoid O agglutination was positive 1:50 or negative. They showed a negative Vi-agglutination. Four of them were found positive only by means of the excellent sample of the selenite medium. All had been vaccinated against typhoid a year before. Several control examinations afterward were always negative. Four were reexamined 16 months later with negative results, but we were unable to make a culture from the duodenal gall.

Two guests of the wedding party who were not ill yielded positive stool cultures 4 weeks later. One of them suffered a light attack of typhoid 35 days after the infecting meal; she had been vaccinated a year before. The other gave negative stool cultures in two consecutive examinations, and then suffered a light attack of typhoid 3 weeks later, which was 2½ months after the wedding party. The source of the infection was found afterward to be outside the hotel. An epidemiological analysis of some

* We used mannitol instead of lactose following an English prescription.

other cases of typhoid pointed to a herring handler. In his home we found the stepmother to be a chronic carrier. She was ill and had moved into the home of the herring handler some weeks previously. Her daughter, who nursed her, probably infected a batch of salt herrings and the infection spread in the herrings during the 24 hours process of desalting. In a series of experiments I could demonstrate by means of the selenite medium that in this way salt herrings may become an excellent source of infection. All the patients and temporary carriers had eaten herrings from this handler, and the hotel received the herrings from his shop.

The five cooks resumed their work and no more cases occurred. The Vi-phage typing performed by Dr. Scholtens in the State Laboratories at Utrecht showed that the patients, the stepmother, and the temporary carriers all were infected with the same type (E₁).

On a large ship, where during two subsequent voyages several typhoid cases had been observed, the whole crew was examined. Two of the kitchen staff (Goanese people) and a Chinese carpenter yielded positive cultures. In none of them was there a history of typhoid or any serious illness. Repeated Vi-phage typing by Dr. Scholtens showed that the kitchen workers harbored different strains of Type A, one the ordinary type, the other, a maltose non-fermenting strain. Both proved to be chronic carriers, one with a positive Vi agglutination 1:20, the carrier of the variant strains with a negative Vi agglutination. However, the patients and the Chinese carpenter all were infected with a phage Type D₆ strain. The carpenter, who had been immunized some time before, agglutinated typhoid H suspension 1:250, typhoid O suspension 1:100, typhoid Vi negative. His stools were twice found positive but he did not fall ill. Two weeks later his stools were negative and remained so

on 4 subsequent tests, and again half a year and a year later. The last observation showed negative seroreactions and a negative gall culture. He remained on the ship and no more cases occurred. Most probably he was a temporary carrier and the source of the infection remained unknown.

DISCUSSION

The observations related above very strongly suggest that the finding of typhoid bacilli in contacts of typhoid cases may be an indication of a temporary infection of the intestinal tract which need not be followed by clinical symptoms of disease. In paratyphoid B, temporary infections in contacts without any clinical symptoms are even more frequent. When examining the contacts of 77 patients we found *Salmonella schottmülleri* in the stools of 16 people who did not develop the disease. All were found positive several times but lost their infection after a few weeks to several months. None remained a chronic carrier.

The question arises whether typhoid and paratyphoid bacilli may be less pathogenic than is generally assumed. This suggestion is supported by other epidemiological findings.

Known chronic carriers of typhoid and paratyphoid bacilli generally do not cause any more new cases after they have been recognized as carriers. Only very unhygienic people with dirty habits remain a constant source of danger. As a rule simple preventive measures are enough to protect the families. However, from the rapid and easy spread of dysentery in a family we know how large fecal contact may be, even in "hygienic families."

The repeated finding of enormous numbers of typhoid bacilli in some Dutch canals, the water of which is used extensively for traffic and household purposes, also suggests a rather low pathogenicity. The same is true

for the water in Batavia.⁸ Typhoid is present in these communities, but not on such a scale as one would expect from the intensive contact with the heavily polluted surface water.

SUMMARY AND CONCLUSION

For the isolation of typhoid bacilli a series of highly selective media should be used, for instance, selenite enrichment fluid and the Wilson-Blair, S.S., desoxycholate-citrate media and others. By means of these highly selective media several temporary carriers of typhoid bacilli were found.

During and after the war three large

epidemics of typhoid were observed; one caused by smoked eels, one by salt herrings, and another by milk contaminated by a chronic carrier in a dairy plant.

REFERENCES

1. Ruys, A. Ch. *Brit. M. J.*, 1:606, 1940.
2. Peeters, H., and Ruys, A. Ch. *Nederl. tijdschr. v. geneesk.*, 82:4171, 1938.
3. Ruys, A. Ch. *Antonie v. Leeuwenhoek*, 7:93, 1940-1941.
4. Peeters, H., and Ephraim, C. H. *Nederl. tijdschr. v. geneesk.*, Dec. 15, 1945.
5. Leifson, E. *J. Path. & Bact.*, 40:581, 1935.
6. Leifson, E. *Am. J. Hyg.*, 24:423, 1936.
7. Peeters, H., Ruys, A. Ch., and Ephraim, C. H. *Nederl. tijdschr. v. geneesk.*, 91:685, 1947.
8. Dinger, J. E., Marseille, A., and Tesch, J. W. *Geneesk, tijdschr. v. Nederl. Indië*, 79:2725, 1939.

Best Sellers in the Book Service for September

Alcohol, Science and Society. Haggard. 1948.....	\$5.00
An Appraisal Method for Measuring the Quality of Housing:	
Part I. Nature and Uses of the Methods. 1945.....	1.00
Part II. Appraisal of Dwelling Conditions. 3 vols. 1947.....	5.00
Communicable Disease Control. Anderson, 2nd ed. 1948.....	5.00
The Control of Communicable Diseases, 6th ed. 1945.....	.35
Diagnostic Procedures and Reagents, 2nd ed. 1945.....	4.00
Local Health Units for the Nation. Emerson. 1945.....	1.25
Preventive Medicine and Public Health. Smillie. 1946.....	6.00
Public Health Law. Tobey. 3rd ed.....	4.50
Standard Methods for the Examination of Water and Sewage, 9th ed. 1946.....	4.00
35 Year Index of American Journal of Public Health, 1911-1945. 1948.....	7.00

Order from the Book Service

AMERICAN PUBLIC HEALTH ASSOCIATION

1790 Broadway

New York 19, N. Y.

A New and Rapid Method for the Preparation and Standardization of *Brucella* Ring Test Antigen

RONALD M. WOOD

*Department of Bacteriology, The Johns Hopkins University School of Medicine,
and the Wilmer Ophthalmological Institute of The Johns Hopkins
Hospital and University, Baltimore, Md.*

THE titration of *Brucella* agglutinins in milk is of accepted diagnostic significance and is extensively employed by Cooledge,¹ Gilman,² Henry, Haring, and Traum.³

The agglutination is usually performed by either the slow tube method or the rapid plate method on whey obtained by treating the milk with rennet. In an attempt to avoid false-positive reactions caused by particles of casein or fat, use has been made of stained antigen with good results, Hermann.⁴ The author has found that the temperature at which clot retraction is allowed to occur in the preparation of whey has a marked effect on the titer subsequently obtained; thus, samples treated at 4° C. have occasionally been found which gave a titer of 4 times higher than the same sample treated at 56° C.

It is known that, in infected milk, *Brucella* organisms concentrate in the cream layer where they are as much as 50 to 100 times more numerous than in the underlying milk. If intensely stained antigen is added to milk having agglutinins, the concentration of the antigen in the cream layer will give a distinctive color to the cream. The same antigen added to a milk sample free of agglutinins will remain distributed throughout the milk leaving the cream layer uncolored. This

phenomenon is the basis of the Ring Test (known abroad as the Abortus-Bang-Ringprobe) discussed by Hermann⁵ and further studied by Darnell.⁶ The test for the presence of *Brucella* agglutinins based on this phenomenon is simpler and quicker to perform.

PREPARATION OF ANTIGEN

Previously described methods involve growing the organisms on agar for 3 or 4 days. This is objectionable because of the relatively small yield of antigen obtained, the time required, and the presence of both dissolved agar and particles of agar which oversensitize the antigen. I have modified the method as follows:

Since the Ring Test requires a larger quantity of bacterial cells than the slow tube agglutination method, massive growth of a smooth strain of *Brucella abortus* is obtained in 24 to 48 hours by the method described by Brown and Wood,⁸ using broth as a medium.

Pancreatic digest of beef heart, Brown,⁹ or Trypticase· Soy Broth (B.B.L.) have been found satisfactory. A typical yield has been 10 ml. of finished antigen from 100 ml. of broth.

The growth is harvested in a flask and sufficient 1 per cent phenol in 0.85 per cent sodium chloride solution is added to give a final concentration of

0.5 per cent phenol. After standing for 24 hours at 20° C., the phenolized antigen is distributed in well stoppered centrifuged bottles and immersed in the water bath at 60° C. for one hour. The bottles are chilled rapidly in cold running tap water and then centrifuged at 3,500 r.p.m. until sedimented. The supernatant is discarded and the cells are resuspended in distilled water and filtered through glass wool to remove any gross particles that may be present. After 2 more washings in distilled water, the volume of the sedimented cells is noted, then they are resuspended in 2 volumes of distilled water preparatory to staining.

STAINING METHOD

A well "ripened" solution of Delafield's Hematoxylin is employed, Kolmer and Boerner.⁷ Immediately before use, it is filtered and diluted 1:5 with distilled water. To the volume of packed cells previously noted, 25 volumes of stain are added with thorough mixing. After staining for 6 hours at 20° C., the bacteria are centrifuged down and repeatedly washed with distilled water until the supernatant remains colorless. Three washings are usually sufficient. After the final washing, the sedimented bacteria are resuspended in 6 volumes of 0.85 per cent sodium chloride solution containing 0.5 per cent phenol, preparatory to standardization.

STANDARDIZATION OF ANTIGEN

Using phenolized sodium chloride as a diluent, samples of antigen are set up in 5 tubes as follows: Undiluted, 1:2, 1:3, 1:4, 1:5.

Two rows of Wassermann tubes are set up in a rack. In one row, one ml. of known positive milk is added to each tube. In the other row, one ml. of a known negative milk is added to each tube. One drop of each dilution of antigen is added to a corresponding pair of a positive and a negative tube

of milk. The tubes are gently shaken to mix the antigen thoroughly and the rack is placed in a water bath at 37° C. for 30 minutes.

The optimum dilution of antigen is that which shows a distinct purple color throughout the cream layer of the positive sample with practically no color in the underlying milk. The same dilution of antigen in the known negative sample should show little or no color in the cream layer with an evenly distributed blue color in the underlying milk. If a known negative sample shows more color in the cream layer than in the underlying milk, the antigen is unsatisfactory and should be discarded.

The antigen is next checked for sensitivity. The whey titer of a positive milk sample is accurately determined by the slow tube method. The positive whole milk is then serially diluted with negative whole milk to beyond the end point determined by the whey titration, in such manner that the final volume in each tube is one ml. One drop of previously chosen optimum dilution of antigen is added to each tube with gentle shaking and incubated for 30 minutes at 37° C. in the water bath. The antigen is satisfactory if the last tube showing a positive ring corresponds to the same dilution in the whey titration at which the end point was found.

USES AND SENSITIVITY

Hematoxylin stained *Brucella* antigen may be substituted for the unstained antigen generally used in both the slow tube and rapid plate method of serum agglutinations. For these methods the antigen must be appropriately standardized by dilution so that known positive samples run in parallel; using stained and unstained antigen, give the same end point. Stained antigen in these tests gives a more easily read end point.

The Ring Test may be used for

skimmed milk or homogenized milk by adding 2 or 3 drops of negative cream to each ml. of milk. Tests on serum or whole citrated blood to which negative cream has been added have given encouraging results not only with *Brucella* antigen but also with others.

The antigen prepared as described above has been used in parallel with the standard whey agglutination test on a large number of milk samples. In no case was a positive obtained by the whey titration which was not also positive by the Ring Test. This is in agreement with the findings of previous authors using antigen prepared by other methods. The Ring Test method has been found by the author to be a reliable and rapid method, having fewer sources of error than the whey titration method, even when used as a qualitative rather than quantitative test.

SUMMARY

A method for the rapid production of large quantities of *Brucella* antigen with the complete absence of both agar particles and dissolved agar is described.

The antigen is satisfactory for use in the usual methods of testing as well as for the Ring Test.

The Ring Test has been found as sensitive as whey titration for detecting *Brucella* agglutinins in milk.

REFERENCES

1. Cooledge, L. H. Agglutination Test as a Means of Studying the Presence of *Bacterium abortus* in Milk. *J. Agri. Research*, 5:871, 1916.
2. Gilman, H. L. Relation of Milk Agglutination Titer to Elimination of *Bacterium abortus* from Udder of Cow, Further Studies. *Cornell Vet.*, 21:243, 1931.
3. Henry, B. S., Haring, C. M., and Traum, J. *Brucella abortus* Shedder Condition in 20 Cows. *Hilgardia*, 9:545, 1935.
4. Hermann, G. Ueber Herstellung und Erfahrungen mit einer Hämatoxylingefärbten Abortus-Bang-Testflüssigkeit zur Frischmilchagglutination. *Berl. Tierärztl. Wchnschr.*, 47:715, 1937.
5. Hermann, G. Beitrag zu Kenntnis der Abortus-Bang-Ringprobe (A.B.R.) sowie zur Herstellung eines Bunttestes mit Künstlich (schnell) gereiften Hämatoxylin. *B.M.T.W.*, 10:159, 1939.
6. Darnell, P. Abortus-Bang-Ringproven, dens Virkebetingelser og Fejlklider. *Meddelelser Fra Statens Veterinære Serumlaboratorium No. 236*. Copenhagen, August 28, 1945.
7. Kolmer, J. A., and Boerner, F. *Approved Laboratory Technic* (2nd ed.). New York: Appleton-Century, 1938.
8. Brown, J. H., and Wood, R. M. A Method for Obtaining Massive Growth of Bacteria in Fluid Media. *Science*, 107:402 (Apr. 16), 1948.
9. Brown, J. H. Media Prepared by the Pancreatic Digestion of Meat. *J. Bact.* 55, 6 (June), 1948.

Effectiveness of Compound G-11 in Reducing Pyogenic Skin Infections

JOHN R. FULLER, M.D., CHESTER A. NEWHALL, M.D.,
FREDERICK C. THORNE, M.D., AND EUGENE F.
TRAUB, M.D.*

Burlington, Vt., and New York, N. Y.

PREVIOUS investigations¹ had shown that the chemical compound 2,2'-dihydroxy-3, 5, 6-3'5', 6'-hexachlorodiphenyl-methane² (hereinafter termed G-11) when incorporated in a toilet soap to the amount of 2 per cent † and used daily in ordinary routine cleansing of the skin made it possible to reach and maintain an exceedingly low bacterial population on the skin of the hands and forearms. Seastone,³ working with the same compound, made observations on the use of G-11 in the surgical scrub. Also, Traub, Newhall, and Fuller have shown⁴ that 2 per cent G-11 soap produces a truly bactericidal rather than bacteriostatic action and does not form a film on the skin under which viable bacteria are retained in large numbers. The 2 per cent G-11 soap reduced both pathogenic and non-pathogenic organisms found on the human skin, and compound G-11 was found to be non-irritating to the skin as judged by more than 400 repeated patch tests. It was believed that exclusive use of soap containing compound G-11 should reduce the probability of infection following abrasions and superficial wounds of the skin, and it was suggested that the use of this soap would protect against cutaneous

infections such as hair follicle infections, etc.

METHODS

In a desire to put to practical use 2 per cent G-11 soap in reducing the incidence of skin infections on a large heterogeneous population, we selected as an experimental group the entire population of the Brandon State School, an institution caring for mental defectives ranging in chronological age from 6 months to over 50 years. During the 2 year period covered by the study, the resident population averaged 389 persons including 179 males and 210 females; most of these persons were resident continuously at the institution and therefore under constant medical supervision. The subjects represented a typical sample of idiots, imbeciles, and morons of all ages and clinical types.

It is believed that an institutional group of this type constitutes an ideal population for such an experiment because of the notoriously high incidence of pyogenic infections of the skin among mental defectives who live in a grossly contaminated dirty environment and possess insufficient intelligence to apply even the most rudimentary rules of cleanliness. This type of population is also desirable because their conditions of living may be rigidly controlled over long periods of time.

* With the technical assistance of Winston E. Cochran, B S.

† The soap used in these experiments were supplied by Givandan-Delawanna, Inc., New York.

Plan of Experiment—The basic plan of the experiment was to compare the incidence of all types of superficial and deep pyogenic infections of the skin during a control period extending from June 1, 1945, to May 31, 1946, in which no special medications or precautions were employed, with the results of a comparable 12 month period extending from June 1, 1946, to May 31, 1947, during which the entire situation was held constant except for the introduction of G-11 soap as the variable experimental factor. It so happened that comprehensive data concerning the incidence of skin infections during the control period had been collected as part of another experiment. The only change in the institutional procedure during the period of this study was the substitution of G-11 soap in the same quantities as had formerly been requisitioned of ordinary toilet soap. In order to avoid suggestion effects, increased incidence of washings or other artifacts, it was decided to keep the fact that an experiment was being conducted secret from both employees and inmates. Only the medical staff and the head nurse who made daily inspections of the population knew of the experiment. The remainder of the staff and the inmates accepted the G-11 soap without question and used it in the same manner as was common routine with ordinary soap.

Recording of Data — During the period of the experiment, the Brandon State School was subjected to a careful medical inspection to determine the incidence of skin infections of all types. The head nurse made daily rounds of the entire institution, routinely inquiring for cases needing treatment. All cases were subsequently observed by one of the medical staff for evaluation and treatment. A daily record of type, location, duration, and treatment of all skin infections was kept. For the purposes of this experiment, skin

infections were classified in the following groups:

1. *Carbuncles*—Acute pyogenic inflammations of the skin and subcutaneous tissues characterized by multiple foci of necrosis and sloughing of the superimposed integument.
2. *Large furuncles*—Acute circumscribed inflammation of a sebaceous gland or hair follicle, usually more than 2 cm. in diameter.
3. *Small furuncles*—Furuncles less than 2 cm. in diameter, and including pustules, pimples, and impetigo contagiosa.
4. *Styes*—Circumscribed infections of hair follicles of eyelid.
5. *Cellulitis*—Including paronychias, and felons.

Treatments — Routine methods of treatment were carried out by the same medical personnel during the 2 year period. Self-limited infections were treated with local applications of ammoniated mercury, sulfathiazole ointment, or ichthyol. Surgical incision was used only with cases presenting definite fluctuation. No special medications except the G-11 soap were introduced during the experimental period.

Bacteriological Controls—In order to provide an objective check of the *in vitro* germicidal effects of G-11 soap in this experimental group, control hand washing experiments according to the technique previously reported¹ were performed on a group of ten subjects. These subjects were chosen from the entire population because they had had the highest incidences of skin infections during the 12 month control period. It was felt that these subjects probably had the highest concentrations of virulent microbial flora because of repeated pyogenic infections during the previous year. The hand washing experiments with bacteriologic colony counts were performed at intervals of from 2 to 3 months during the experimental period.

The general method of hand washings and collection of samples as used in our previous investigations on G-11 soap was used except for the use of three instead of ten basins.

Ordinary tap water having a bacterial

large and small furuncles. During the control year (1945) there occurred 96 furuncles of all types, while during the experimental period the incidence was decreased to 72, or 25 per cent less. An alternative explanation is that the criteria of classification may have changed in the direction of minimizing the magnitude of the infection. In our opinion, this possibility may be discredited by the fact that during the experimental period there was extreme vigilance utilized in detecting and classifying lesions. In questionable cases, the diagnosis was confirmed by the school physician in addition to the medical director of the Brandon State School.

Particularly convincing in regard to the action of G-11 soap was the decrease in incidence of cellulitis from 81 cases in 1945 to 30 in the experimental period, or a decrease of 63 per cent. It is a long established fact that the severity of pyogenic skin infections in mentally defective populations is much higher than in the general population because of lowered systemic resistance, highly contaminated environment, and poor habits of personal hygiene. The data concerning styes indicated a slight increase during the experimental period; but this finding is not considered significant because there was no reason to suppose that G-11 applied to the skin would exert any effect on the conjunctival sac.

During the period of the experiment, none of the 389 subjects demonstrated any evidence of chemical irritation or sensitivity to the use of G-11 soap.

DISCUSSION

The results of this experiment are considered to be very significant due to the fact that medical opinion has generally regarded it as impossible to decrease the bacterial flora of the skin over long periods of time with chemical agents. The carefully regulated conditions of this experiment, in which the

only variable factor was the introduction of G-11 soap demonstrate that it is possible to control the high incidence of skin infections found in institutional populations. It seems important to emphasize that neither the staff nor the inmates of the institution knew that an experiment was being conducted, and that there was no change in the routine of personal hygiene. If anything, the observations during the experimental period were conducted more rigorously than during the control period because of the desire to lean over backward in assuring the validity of the results.

The results confirm that the incidence of pyogenic skin infections is closely related primarily to personal cleanliness rather than to systemic factors. The fact that the bacterial flora of the skin may be so conveniently decreased by the sole addition of G-11 soap with no other change in personal hygiene indicates that great improvements may be made in normal and institutional populations in the prevention of pyogenic skin infections.

SUMMARY AND CONCLUSIONS

An experiment has been performed for the purpose of observing the effect of continuing use of soap containing compound G-11 in reducing the bacterial flora of the skin and decreasing the incidence of pyogenic skin infections. The subjects of the experiment were 389 mentally defective inmates of the Brandon State School on whom detailed records concerning the incidence of skin infections were available for a control period of one year. During the experimental period, the only change in normal institutional routine was the substitution of G-11 soap for ordinary toilet soap previously used. Clinical results indicated a significant decrease in the number and severity of carbuncles, large furuncles, and cellulitis. Control bacterial colony counts performed at intervals during the experiment on a

group of ten inmates who had the highest incidence of individual skin infections during the control period indicated that a corresponding decrease of bacterial skin flora paralleled the clinical results. It is concluded that the continuous use of G-11 soap is of decided value in the prevention of serious pyogenic skin lesions in institutional or other populations.

REFERENCES

1. Traub, E. F., Newhall, C. A., and Fuller, J. R. Studies on the Value of a New Compound Used in

Soap to Reduce the Bacterial Flora of the Human Skin. *Surg. Gynec. & Obst.*, 79:205, 1944.

2. Gump, William S. U. S. Patent 2,250,480.

3. Seastone, C. V. Observations on the Use of G-11 in the Surgical Scrub. *Surg., Gynec. & Obst.*, 84:355, 1947.

4. Traub, E. F., Newhall, C. A., and Fuller, J. R. New Cutaneous Bactericidal Agent Used in Soap—Further Practical Studies. *Arch. Dermat. & Syph.*, 52:385 (Nov.-Dec.), 1945.

5. Udinsky, H. J. Reduction in Total Skin Flora by the Daily Use of a Soap Containing Dihydroxy Hexachloro Diphenyl Methane. *J. Med. Soc. New Jersey*, 42:15-17 (Jan.), 1945.

6. Clark, Donald G. C., Lockwood, John S., Lewit, Elizabeth. 2,2'-Dihydroxy-3, 5, 6-3', 5', 6'-hexachloro diphenyl methane (G-11) as an Antiseptic for Use in Surgical Scrubbing. *Surgery*, 22, 2:360-66 (Aug.), 1947.

July 5

Comment and Criticism, *The Manchester, (England) Guardian Weekly*, Thursday, July 8, 1948:

"On Monday the National Health Service Act came into force, and the passing of the milestone was hailed with a chorus of praise, some of it perhaps too complacent. We are in process of making a great move forward. But only the first step, the legislative part of the move, is now completed. The larger part of the task is to come. It is a moment of opportunity, not of achievement. The health service which now comes into being is only the ground floor of the building. The rest will come; but it still wants building, not by M.P.'s or civil servants in Whitehall but by doctors and nurses and opticians and many more, by members of the regional hospital boards and the local hospital committees. There is now something solid to build on. The Act puts the hospital

services as never before on a sound and rational base; the regional boards will be able to make the best use of what hospitals there are. But they know better than anyone that new and better planned hospitals (and many more nurses in them) will be needed before we can call the hospital services wholly satisfactory. The whole population becomes, for the first time, entitled to the medical services hitherto available only to insured workers; the scandal of "under-doctored" areas will slowly disappear. But the full fruit of these reforms will not be ripe until the system of health centres has had time to grow, and that growth would be gradual even if lack of bricks and mortar did not inhibit it at the start. One must think of the health service as a huge natural organism in process of growth, not as a creature of magic, called out of the void by the wand of the Minister of Health."

How Long Does Immunity to Diphtheria Last?

ELI EICHELBERGER, M.D.

Director of Health, Department of Health, York, Pa.

THE feeling of security imparted to parents following routine immunization procedures of their offspring, especially diphtheria immunization, is due for some critical reevaluation in the light of recent upsurges of this disease. Such protective inoculations have become accepted routine procedures among private physicians, pediatricians, and health authorities. Children are now offered immunization against diphtheria, whooping cough, and tetanus, either singly or all combined in one injection. On the basis of accumulated published reports most, or all, of these procedures offer a high percentage of immunity when measured in periods of 6 to 18 months following the initial immunization.

The U. S. Public Health Service¹ reported an increased incidence of diphtheria in the United States during the late spring of 1945, and this increase

continued on into 1946. During the calendar year of 1945, a total of 18,669 cases of diphtheria were reported, more cases than in any year since 1939. In 1946 there were 16,193 cases reported and 12,511 cases in 1947. Information regarding the age distribution of such cases was not available from the U. S. Public Health Service, since such figures are not furnished by the various state health departments. However, reports gathered from the State Health Departments of Pennsylvania, New York, Massachusetts, and California² regarding the age distribution of cases reported in those respective states during the years 1945 and 1946 are given in Table 1.

From these statistics it becomes apparent at once that no age group is immune to diphtheria. The figures from Pennsylvania reveal that 31.5 per

TABLE 1
Diphtheria Cases by Age Groups
1945-1946

Age Groups	Pennsylvania		New York *		Massachusetts		California.	
	1945	1946	1945	1946	1945	1946	1945	1946
Under 1 yr.	11	9	1	0	1	3	18	29
1- 4	128	183	24	9	37	111	331	271
5- 9	98	216	37	95	46	141	358	339
10-14	41	105	22	72	25	80	150	137
15-19	49	72	5	23	15	30	101	84
20-24	33	51	10	16	19	13	79	63
25-29	28	43	7	14	10	15	61	58
30-34	17	29	5	16	9	8	46	49
35-44	19	24	2	12	14	20	63	59
45-54	13	12	5	15	9	7	32	38
Over 55	4	9	3	10	9	11	40	31
Unknown	..	..	..	..	..	..	20	28
Totals	441	754	121	339	194	439	1,299	1,156

* Excluding New York City

cent of the reported cases in 1945 and 25.4 per cent of the cases in 1946 occurred among infants and children under 5 years of age. The New York State average in 1945 was 20 per cent but fell considerably below this figure in 1946. In Massachusetts, 20 per cent of the cases of reported diphtheria occurred in this preschool age group in 1945 and 26 per cent of the reported cases in 1946. California reported approximately 25 per cent to 27 per cent of diphtheria cases in this same age group in the years 1945 and 1946.

A survey conducted by the York City Department of Health in 1946 regarding diphtheria immunization among first grade pupils prior to entering school revealed the fact that, of 956 pupils enrolled, only 282 pupils or 29.5 per cent of pupils had received diphtheria immunization in preschool years. It is probably the general impression that a much higher percentage of preschool children would have been offered this protection much earlier in life. Such a startling low figure for diphtheria immunization in this critical age group shows that this community and probably many such communities are not "adequately" protected against diphtheria. It is not surprising then that the incidence of reported diphtheria is relatively high in this age group.

In evaluating the occurrence of diphtheria in the inclusive age groups from 5 to 19 years of age, it is found that in Pennsylvania 40 per cent of the total cases in 1945 and 52 per cent of the cases in 1946 occurred in this school age group. The figures for the same age group in New York State are 52 per cent of cases in 1945 and 56 per cent of cases in 1946. In Massachusetts, 45 per cent of the total for 1945 and 57 per cent of the cases in 1946 occurred in the age groups 5 to 19 years. Approximately 50 per cent of the cases reported in California for the years

1945 and 1946 occurred in this group.

In a further breakdown of these figures it is found that the incidence of diphtheria in the 5 to 9 year group in all the reported states was 26 per cent in 1945 and 29 per cent in 1946. In the 10 to 14 year group the incidence of diphtheria was 12 per cent in 1945 and 14 per cent in 1946. In the 15 to 19 year group, the diphtheria incidence was 8 per cent in 1945 and 7 per cent in 1946. Considering the total percentage in the age group from 10 to 19 years of age we find that 20 per cent of the cases reported in 1945, and 21 per cent of the total in 1946, occurred in this class.

From these figures it becomes obvious that diphtheria can no longer be considered a disease of infancy and childhood alone. Such statistics bear out the conclusions of an editorial in the *Journal* of the American Medical Association⁴ which concluded that diphtheria was increasing and that there was a tendency for the disease to become relatively more prevalent among the older age groups. It appears that our thinking regarding this disease will have to be revised, as well as our evaluation of the duration of diphtheria immunity. If a large per cent of adults are now susceptible, it must be assumed that they must never have been immunized, or if previously immunized, they must have lost their immunity. Consequently, one who thinks of diphtheria as a childhood disease may entirely miss the diagnosis in the adult unless facts regarding this disease are appreciated.

With this thought in mind, it was decided to evaluate the duration of immunity in a representative group of children who had been immunized artificially some years previously. For this program, Schick tests were offered, on a voluntary basis to the junior and senior high school students in the York City schools. These pupils had been pre-

viously immunized to diphtheria in either the preschool years or in the grade school immunizing program conducted yearly. The group tested included the seventh, eighth, and ninth grades in the junior high schools and the tenth, eleventh, and twelfth grades in the senior high schools. The age groups corresponding approximately to 12 and 14 years for the junior high school students, and 15 to 18 years for the senior high school students. In the group tested, an interval of 5 to 12 years had elapsed since the original diphtheria immunization, this depending upon the age and the grade of the individual tested. The results of the program are outlined in Tables 2 and 3.

TABLE 2

Schick Tests Among Junior High School Pupils

Grade	Total Tested	Schick-negative	Schick-positive	Per cent Positive
Seventh	414	355	59	14
Eighth	413	334	79	19
Ninth	423	316	107	25
Totals	1,250	1,005	245	20

TABLE 3

Schick Tests Among Senior High School Pupils

Grade	Total Tested	Schick-negative	Schick-positive	Per cent Positive
Tenth	308	245	63	20
Eleventh	393	322	71	18
Twelfth	418	348	70	17
Totals	1,119	915	204	18

Some of the teachers in the various grades wished to be tested, although this was not a scheduled portion of the program. However, the results of the Schick tests among the teachers revealed such a high percentage of reactors that the results of the survey are recorded as a by-product of the pupil survey (Table 4).

The results of this survey indicate that a relatively high percentage of pupils in the junior and senior high

TABLE 4

Schick Testing Among Teachers

Number Tested	Number Negative	Number Positive	Per cent Positive
43	21	22	51

schools have lost their immunity to diphtheria. An average of 20 per cent were Schick-positive among the 1,250 junior high school pupils tested and an average of 18 per cent of 1,119 senior high school pupils. All pupils with a positive reaction were given a "booster" dose of 0.5 ml. of alum-precipitated toxoid. No untoward reactions were encountered among the 449 pupils given this stimulating dose. A few pupils developed some soreness and redness at the site of injection for a day or so, but beyond that there were no other reactions.

While it is well known that adults do not tolerate alum-precipitated toxoid very well, the dose of 0.5 ml. can be considered a safe dosage in this particular age group. A much smaller dosage was administered to a few of the teachers who had a Schick-positive reaction. A dose of 0.1 ml. was administered and 2 teachers had a local as well as a generalized reaction. The local reaction showed redness and swelling at the sight of inoculation and the systemic reaction consisted of chills, fever, headache, and weakness which incapacitated for a day or two.

DISCUSSION

While Schick testing may be questioned as an inadequate measure of diphtheria immunity, it is still the most effective measure from the standpoint of ease of administration in any mass testing. It is generally conceded that an individual with 1/250 units or more of antitoxin per milliliter of blood will have a negative Schick test. In testing this group 0.1 ml. of the Schick testing toxin was injected into the skin of the

forearm and the readings were taken just one week later. A tuberculin syringe was used for accurate measure of the dosage and a platinum-iridium needle used since it could be flamed between each test to protect against infection in the testing. By reading the results of the Schick test one week after the initial test dose it was felt that false or pseudo-positive were less likely to be included. It was found that many pupils developed a slight local reaction at the site of the Schick test which persisted for 24 to 48 hours and then faded away. A positive Schick test persisted with some discoloration and desquamation at the site of the original test.

The results found in this group testing compare favorably with other reports in the medical literature. Bullock⁵ found that only 76 per cent of patients admitted to Willard Parker Hospital were effectively immunized by current routine procedures; 24 per cent of 200 previously immunized patients admitted for diseases other than diphtheria were found to be Schick-positive. Karelitz⁶ found that of 1,283 persons tested among Army personnel, 28.6 per cent were found to have a positive Schick test. Nevius⁷ reported on the study of 72 immunized children who were Schick-negative 1 year after the initial inoculation but who again were tested at the end of 5 years. Only 58 of the 72 children were still Schick-negative or 80 per cent of the group studied. Lyon and Mitchell⁸ reporting on the results of Dick and Schick tests in children previously immunized, found that Schick reactions in children of school age became positive at the rate of about 13 per cent after 1 year, and 16 per cent after 2 years.

Schwartz and Janey⁹ found that 22 per cent of 145 children tested reverted from a negative to a positive Schick reaction 6 to 7 years following the administration of toxoid. Bundesen,

Fishbein, and White¹⁰ found reversals in Schick tests in various classified groups ranging from 6.4 per cent to 18.9 per cent. They felt that the present type of inoculations being used throughout the United States could not be relied upon to produce permanent immunity. Schwartz¹¹ found 16 per cent of a group of children tested 3 to 5 years following diphtheria immunization were Schick-positive. For a group receiving toxin-antitoxin initially and retested 8 to 10 years later, 26 per cent were Schick-positive. For another group receiving initially 2 doses of toxoid, retesting 4 to 10 years later revealed the fact that 22 per cent had lost their immunity. In all, for 308 cases retested there was a loss of immunity in 20.8 per cent in from 3 to 10 years following the initial immunization.

An accumulation of such statistics in the medical literature tends to confirm the impression that diphtheria immunity is not a life-long immunity. Therefore, in order to protect susceptible children as well as adults, booster doses of diphtheria immunizing agents must be employed to protect a greater per cent of the general population. Certainly this procedure should be used immediately following any outbreak of diphtheria in a community. It is apparent from our studies that approximately 20 per cent of individuals immunized as children lose their immunity by the time they enter junior high school.

SUMMARY AND CONCLUSION

1. A review of the morbidity reports from the health departments of Pennsylvania, New York, Massachusetts, and California for a 2 year period reveals the fact that no age group is immune to diphtheria.

2. From these figures it becomes obvious that diphtheria cannot be considered a disease of infancy and childhood alone, but may occur at any age.

3. In a Schick testing program con-

ducted in three junior high schools and in a large senior high school in York, Pa., of previously immunized pupils it was found that 20 per cent of 1,250 pupils in junior high and 18 per cent of 1,119 pupils in senior high had a positive Schick test.

4. Booster doses of 0.5 ml. of diphtheria toxoid were administered to those found positive. This dosage was well tolerated by this school age group.

5. Loss of diphtheria immunity, as measured by the Schick test, compares favorably with other reported figures published in the medical literature.

6. Diphtheria immunity is certainly not a lifelong protection and approximately 20 per cent of individuals immunized as children will require a "booster" dose of toxoid to protect them adequately as adults.

REFERENCES

1. The Notifiable Diseases. *Pub. Health Rep.*,

U. S. Public Health Service, January, 1946, 1947, and 1948.

2. Personal Communication. Departments of Health of Pennsylvania, New York, Massachusetts, and California.

3. Eichelberger, E. Adequate Diphtheria Protection in a Community. *Pennsylvania M. J.*, Apr., 1946.

4. Diphtheria Mortality in Large Cities in the United States in 1945. *J.A.M.A.*, 131:1053 (July), 1946.

5. Bullock, J. G. M. The Frequency of Inadequate Anti-Diphtheria Immunization. *J.A.M.A.*, June 26, 1943.

6. Karelitz, S. Immunity to Diphtheria in Army Personnel. *War. Med.*, Oct., 1944.

7. Nevius, W. B. Duration of Immunity to Diphtheria Achieved by Toxin-Antitoxin and Alum Precipitated Toxoid. *Am. J. Dis. Child.*, June, 1940.

8. Lyon, R. A., and Mitchell, A. Graeme. Studies in Immunity. *Am. J. Dis. Child.*, 58:734-737 (Oct.), 1939.

9. Schwartz, A. B., and Janey, F. R. Need of Redetermining Schick Negativeness in School Children. *J.A.M.A.*, 110:1734-1744 (May 21), 1938.

10. Bundesen, H. N., Fishbein, W. I., and White, J. L. Diphtheria Immunity in Chicago. *J.A.M.A.*, 111:1919-1923 (May 13), 1939.

11. Schwartz, E. G. The Duration of Immunity to Diphtheria Following Immunization. *Texas State J. Med.*, Aug., 1941.

NOTE: Grateful acknowledgment is made to the school nurses and the health nurses for their aid in the collection of statistical data and in the actual testing program.

Mental Health Training Grants

Late in July the Federal Security Agency made public a list of institutions to which federal grants have been made for stipends to postgraduate students training in psychiatry. It includes 21 institutions in 13 states and the District of Columbia.

These grants go to universities, hos-

pitals, and clinics to support their training programs. The list of institutions receiving stipend grants, together with the address and head of the department can be secured by prospective applicants from Federal Security Agency, Public Health Service, Mental Hygiene Division, Washington, D. C.

The Relationship of Training, Sanitation Personnel, and Environmental Control

A Philosophical Approach

WILLIAM T. INGRAM, M.P.H., F.A.P.H.A.

Engineering Field Associate, American Public Health Association, New York, N. Y.

SANITATION: What is the job? How is it done? Who does it? How much and what kind of training is needed? Materials for an approach to these questions have been drawn from the ideas of many persons. A list of basic disciplines was prepared by Dean Gordon Fair 10 years ago. Many engineers, sanitarians, and others in teaching and field positions have contributed.*

It has been necessary to use some subjective material for the sake of development of the approach. However, this, in itself points out the need of objective study. (Sound research to obtain objective data.)

FACTORS TO BE RELATED

Examine Chart 1, Integration of Training, Sanitation Personnel and Environmental Control. Look first at the Components of Environmental Sanitation. Controls are based on the factors of air hygiene; adequate and safe water supply; liquid and solid waste disposal; soil hygiene; food sanitation, including milk; control of insect and animal vectors of disease; and control of physical facilities of the living and working environment.

Look next at the Integrals of Knowledge. Basic knowledge of the chemical, physical, biological, and social sciences is required for efficient performance of work involving any one of the components of environmental sanitation.

Now look at the Disciplines. These are the basic disciplines of knowledge and are not to be confused with applications. Fair agreement on the disciplines prevails. The degree of use of disciplines does not enter into consideration at this point. It is sufficient to determine that as fundamentals they are or are not needed in carrying on work involving the components of environmental sanitation.

Between knowledge and the application of knowledge stands the individual who is expected to work in some capacity on environmental control. This individual must have some degree of Aptitude and Ability for his work. He must have certain specific intellectual and personality characteristics, certain physical ability, and certain skill to be able to carry on his work successfully.

The character of the work and the individual responsibilities for successful performance must be determined by an evaluation of the job to be done. An evaluation of a specific position must consider field of work, responsibility, supervision, professional activities, and

* Constructive criticisms of a draft prepared October, 1947, and numerous discussions with the writer.

CHART 1
An Integration of Training, Sanitation Personnel, and Environmental Control

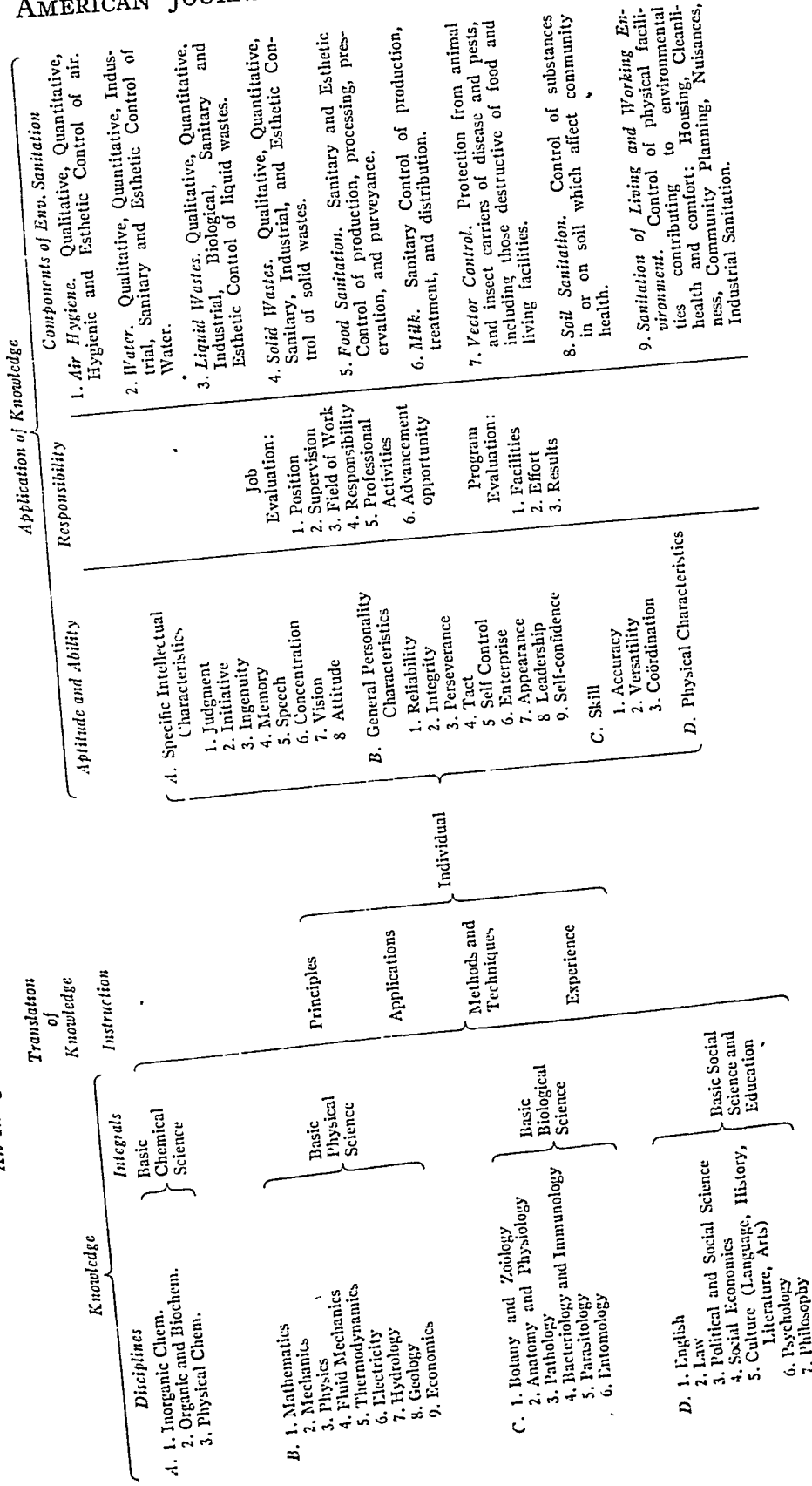


CHART 2

Position Requirements

<i>Responsibility Level</i>	<i>Knowledge Required</i>	
1. Field Man (under Immediate Supervision)	Technical	High school and Tech- niques.
		1. <i>A. Specific Intellectual Characteristics:</i> Memory, Speech Concentration, Attitude. <i>B. General Personality Characteristics:</i> Reliability, Integrity, Self-control, Appearance. <i>C. Skill:</i> Accuracy. <i>D. Physical Characteristics.</i>
2. Field Man (under General Supervision)	Subprofessional	2 yr. College or Technical Institute. Selected Principles, Basic Science, Education and Techniques.
		2. <i>A. Specific Intellectual Characteristics:</i> Memory, Speech, Concentration, Attitude, Some Judgment, Some Initiative, Some Ingenuity. <i>B. General Personality Characteristics:</i> Reliability, Integrity, Self-control, Appearance, Perseverance, Tact, Some Enterprise, Some Confidence. <i>C. Skill:</i> Accuracy, Versatility <i>D. Physical Characteristics.</i>
3. Supervisor (under Administrative Supervision)	Professional	4 yr. College. Principles, Selected Applications, Selected Methods, Techniques, Selected Experience.
		3. <i>A. Specific Intellectual Characteristics:</i> Judgment, Initiative, Ingenuity, Memory, Speech, Concentration, Vision, Attitude. <i>B. General Personality Characteristics:</i> Reliability, Integrity, Perseverance, Tact, Self-control, Enterprise, Confidence, Appearance, Some Leadership. <i>C. Skill:</i> Accuracy, Versatility, Coordination. <i>D. Physical Characteristics.</i>
4. Supervisor (under close direction)	Professional	College Degree, Graduate Work, Principles, Selected Applications, Selected Methods, Techniques, Selected Experience.
		4. <i>A. Specific Intellectual Characteristics:</i> Judgment, Initiative, Ingenuity, Memory, Speech, Concentration, Vision, Attitude. <i>B. General Personality Characteristics:</i> Reliability, Integrity, Perseverance, Tact, Self-control, Enterprise, Confidence, Appearance, Leadership. <i>C. Skill:</i> Accuracy Versatility, Coordination. <i>D. Physical Characteristics.</i>
5. Administrator (under general direction)	Professional	Graduate Degree, Principles, Applications, Methods, Techniques, Special Experience.
		5. <i>A. Specific Intellectual Characteristics:</i> Judgment, Initiative, Ingenuity, Memory, Speech, Concentration, Vision, Attitude. <i>B. General Personality Characteristics:</i> Reliability, Integrity, Perseverance, Tact, Self-control, Enterprise, Confidence, Appearance, Leadership. <i>C. Skill:</i> Accuracy, Versatility, Coordination. <i>D. Physical Characteristics.</i>
6. Administrator (under administrative direction)	Professional	Graduate Degree, Broad knowledge, Principles, Applications, Methods, Techniques, Broad Experience.
		6. <i>A. Specific Intellectual Characteristics:</i> Judgment, Initiative, Ingenuity, Memory, Speech, Concentration, Vision, Attitude. <i>B. General Personality Characteristics:</i> Reliability, Integrity, Perseverance, Tact, Self-control, Enterprise, Confidence, Appearance, Leadership. <i>C. Skill:</i> Accuracy, Versatility, Coordination. <i>D. Physical Characteristics.</i>

promotional opportunities. Subject to limitations of aptitude, ability, and responsibility the individual applies his knowledge to one or more of the components of environmental sanitation along coördinated, integrated lines. His knowledge is obtained through instruction gained academically and through in-service training. It is mellowed, seasoned, and supplemented by experience.

Translation of knowledge is accomplished by instruction in principles, applications, and methods or techniques.

JOB REQUIREMENTS

Turn now to Chart 2, Position Requirements. Observe the Responsibility Levels. There are various combinations of responsibility in environmental control work, but even so some fundamental classifications can be expressed according to the degree and kind of supervision. These classifications form the basis for establishing 3 directional levels and 3 supervisory levels of responsibility generally acceptable to personnel officers. The levels may also be grouped in professional terms keyed to the caliber of work expected from the individual. Thus, the last 4 grades are professional while the first is technical and the second is sub-professional.

The knowledge required is stated generally, because there is insufficient objective information available to correlate Knowledge requirements to Job Evaluation. One sees that at this point there is a necessity for an evaluation of programs and jobs which will lead to a sound determination of the kind and degree of instruction that is required for a given position.

TRAINING

Study Chart 3, Translation of Knowledge. Under the headings of Principles, Applications, and Methods and Techniques are listed details of the Disciplines of Knowledge which constitute

the training basis for sanitation personnel. It will be apparent that these still make no reference to an actual curriculum of teaching. Curricula should be established by specific academic institutions in keeping with the teaching facilities of such institutions and in accordance with the degree of understanding of the relationship between required knowledge and field practice utilizing that knowledge. The following should be noted: Principles acquaint the student with the fundamentals of the subject matter; Applications, with the means by which one or more principles are combined and utilized; Methods, with the manner in which one or more principles are applied; and, Techniques, with the style of doing a specified task.

Techniques can be taught with minimum background knowledge of principles and applications and lend themselves to in-service training or special short courses. Some Methods can also be taught with minimal supplementary explanation of principles, but, in the main, presume a wider background of knowledge than do techniques. Applications cannot be taught without concurrent and in many cases prerequisite knowledge of the principles involved. The teaching of principles and applications using carefully built foundations of instruction is limited almost completely to academic institutions. I would add that the teaching of complex methods involving several principles such as those listed under physical science is limited to academic institutions whenever thorough understanding is the objective. There is a wide gap between thorough understanding and the familiarity achieved in short training courses. In general, instruction can best be given in universities and in university sponsored field training.

The chart, Translation of Knowledge, can be used as a templet:

1. To explore the bases of knowledge to which the individual has been exposed.

CHART 3

Translation of Knowledge

<i>Primary Classification</i>	<i>Principles</i>	<i>Applications</i>	<i>Methods and Technics</i>
Chemical	<ul style="list-style-type: none"> General Chem. Organic Chem. Physiological Chem. Physical Chem. 	<ul style="list-style-type: none"> Qual. Analysis Quant. Analysis Toxicology Sanitary Chem. Food Technology Industrial Chem. 	<ul style="list-style-type: none"> Chem. laboratory procedures Reporting of results of field and laboratory analyses
Physical	<ul style="list-style-type: none"> Algebra Trigonometry Calculus Statistics Mechanics Fluid Mechanics Physics Thermodynamics Electricity Hydrology Geology Economics Sonics 	<ul style="list-style-type: none"> Graphics Surveying Analytical Geometry Descriptive Geometry Mech. of Materials Materials Analysis Analysis of Stresses Design of <ul style="list-style-type: none"> Water Systems Sewerage Systems Structures Ventilating Systems Lighting Systems Heating Systems Irrigation and Drainage Systems Ground Water Geology Eng. Economics Applied Mechanics Flow of <ul style="list-style-type: none"> Gases Fluids Vapor Metallurgy Illumination Meteorology Statistical Analysis 	<ul style="list-style-type: none"> Construction methods Reporting of result of field studies Operation of physical facilities Treatment methods <ul style="list-style-type: none"> Water Liquid Wastes Solid Wastes Air Pollution Investigation of physical facilities
Biological	<ul style="list-style-type: none"> Botany Zoology Anatomy Physiology Pathology Bacteriology Virology Parasitology Entomology 	<ul style="list-style-type: none"> Epidemiology Biometry Physiological Hygiene San. and Med. Bact. San. and Med. Entomology Limnology Mycology Immunology Ecology 	<ul style="list-style-type: none"> Biological laboratory procedures Vector control methods Reporting of data obtained from field and laboratory Field investigation of biological factors of disease
Social and Cultural	<ul style="list-style-type: none"> English Law Political Science Social Science Language History Literature Arts Psychology Philosophy Economics 	<ul style="list-style-type: none"> Composition Business Law Public Health Law Administration Speech Applied Psychology Economics Logic 	<ul style="list-style-type: none"> Administration Public Health Adminis. Public Speaking Management Education

2. To serve as a specific guide to the kind and degree of knowledge prerequisite to a given professional specialty.

3. To aid the graduate who has acquired some experience and an understanding of his knowledge deficiencies in the selection of graduate courses of study that will support his professional inclinations.

4. To provide vocational counselors and

advisory professors in universities a positive guide that will assure both counselor and student a balanced building of basic knowledge with proper emphasis on special professional inclinations.

5. To guide those building curricula in the selection of courses which will qualify students for the responsibilities that will be assumed in actual practice.

6. To provide a positive guide to those who have responsibility for determining accreditation of sanitary engineering undergraduate and graduate curricula.

7. To guide personnel officers in proper review of a candidate's academic ability to perform in designated positions.

8. To provide a basis of rubrics on which valid written examination material may be prepared for specific examinations.

Selective templates could be developed for every occupation dealing with environment. Certain principles and applications common to all would be the foundation for various combinations of training. Today the only means of obtaining the several combinations is through difficult and often accidentally acquired academic instruction coupled with years of experience. Would it not be better to arrange facilities so that orderly increments of guided instruction could be available to the student who seeks opportunities for moving forward to levels of professional responsibility compatible with his personal and intellectual characteristics?

University training can be obtained in stages, such as 2 years of junior college or lower division work, 2 years of upper division undergraduate work, and 1 or more years of postgraduate work. Experience may be gained between any of the above stages or during vacations. It is demonstrable, subjectively, that with a higher level of initial education to which nothing but experience is added, the time interval required to reach the higher levels of responsibility is markedly less. It is also demonstrable that in general, there are limits of rise in responsibility for those with fewer than 4 years of university education. It is exceptional to obtain adequate knowledge of the required disciplines in less academic time. There are indications that even individuals with 5 years of academic education may strike maximum professional levels below those ultimately open to

persons with 6 years of education and broad experience.

COMMENT

Visualize, if you will, the templates which might be constructed for these environmental control positions: Consulting Sanitary Engineer, Municipal Engineer, Public Health Engineer, Water Supply, Sewage Disposal or other Sanitary Engineer Specialist, Industrial Hygiene Engineer, Sanitarian Supervisor, General Sanitarian, Sanitation Aide, Municipal Utility Superintendent, Water Plant Operator, Sewage Plant Operator. Perhaps there are others I have neglected to mention. Couple these with programs of environmental sanitation which involve one or more of the components of environmental control. Recognize that there are jobs of many descriptions and levels of responsibility and return now and review the chart, Integration of Training, Sanitation Personnel, and Environmental Control in the light of the foregoing explanation.

It should be apparent that there is much to be done to consolidate objective information and to accelerate action on the particulars of (1) Program evaluation, (2) Job evaluation, and (3) Training. At least two major lines of action ought to be followed if fundamental progress is to be made: (1) Critical investigation and demonstration of such basic factors of sanitation administration practice as job evaluation and program evaluation; (2) Research, consultation and advice in training and education for personnel to be employed on sanitation work, including the establishment of professional concepts encompassing the entire series of functions within the scope of environmental sanitation.

Sanitation: What is the job? How is it done? Who does it? How much and what kind of training is needed? Do these questions have answers?

Medical Care Plans for Industrial Workers and Their Relationship to Public Health Programs

LEE JANIS, M.D., AND MILTON I. ROEMER, M.D.,
M.P.H., F.A.P.H.A.

Chief, Health Insurance Section, General Headquarters, Commander in Chief, Far East, Tokyo, Japan. Formerly with Industrial Hygiene Division, U. S. Public Health Service; Associate in Medical Care Administration, States Relations Division, U. S. Public Health Service, Washington, D. C.

THE war and post-war years have seen a great expansion of interest in health and welfare programs for industrial workers. Major negotiations between labor and management have hinged on the provision of various types of group insurance programs, most of which bear some relationship to the provision of medical services. Public health agencies have had little relationship to this entire movement, it being regarded as an aspect of collective bargaining—a matter between employers and employees. Frank appraisal of the health problems of industrial workers, however, must lead to the conclusion that public health agencies have a vital concern with the problems of industrial medical care.

The most elementary basis for this concern devolves upon an analysis of the composition of illness or absenteeism in industry. For if public health and particularly industrial hygiene is concerned with the health of industrial workers, we obviously must analyze how much illness may be controlled by preventive activities in the factory and how much requires other approaches.

COMPOSITION OF INDUSTRIAL ILLNESS

In 1938, Newquist¹ demonstrated a fact that many had suspected for a long time: "The average worker loses 15 times as much time from non-industrial injuries and illnesses as he does from industrial injuries." Even when occupational diseases are included, disabilities from "industrial" causes appear to account for only 6.3 per cent of total absenteeism from illness and injury in industry.

Since the distinction between occupational and non-occupational illness depends largely on compensation records, it has been claimed that the concept of occupational origin of illness is restricted by the relatively narrow definitions of workmen's compensation law. Many conditions now widely regarded as occupational in origin—for example, tuberculosis in miners or pneumonia in steel workers—were not so regarded a few years ago or are still excluded from compensability in some states. By the same token, many conditions now regarded as of non-occupational origin may eventually be traced to working conditions. There is surely some valid-

ity, therefore, to the claim that working conditions may have a greater influence on health than present absenteeism records appear to indicate.

It is probably wise to conclude, with Stern,² that the worker's health is "the result of a complex causal pattern involving not only inferior living conditions associated with low income, but also the working conditions of persons in the low income categories. Fatigue and excessive physical and mental tensions on the job, as well as exposure to hazardous materials, may sometimes lead not directly to industrial disability now compensable under the law, but may lower the powers of resistance of workers to communicable diseases and may aggravate chronic diseases." Much disability and death not now regarded as occupational, therefore, as well as that which is strictly occupational, may be reduced by effective programs of industrial hygiene, in the preventive sense.

The fact remains that the great bulk of illness and injury among industrial workers—probably close to 90 per cent in terms of days lost—cannot be regarded as reducible by a program of preventive services in the factory.³ Beyond the inroads on the problem that can be made by general public health activity in the community, it is evident that some approach to the better organization of medical care for non-occupational illness and injury is necessary.

Although not many public health agencies have in the past recognized this, labor and management groups have seen it perhaps more clearly than they have seen the value of preventive efforts. Absenteeism due to illness represents a financial loss, not to mention the human suffering, to workers and their families. To management it represents economic losses and complications in the production process.⁴ It is natural, therefore, that both labor and management in the United States should have been active for more than a century in set-

ting up various programs for organizing the costs of, or the actual provision of, medical services.

DEVELOPMENT OF MEDICAL CARE PROGRAMS FOR INDUSTRIAL WORKERS

The development of today's widespread interest in industrial medical care stems from a background of two main streams of activity: (a) efforts to indemnify workers for wage loss in illness and for the costs of medical services; (b) efforts to provide direct medical services as needed. Both types of activity have been sponsored separately by labor or management and jointly by both. Both types still operate side by side, although the trend, as we shall see, appears toward the cash indemnification type of program with joint labor-management administration.

Indemnification Programs—The earliest efforts to cushion the risk of sickness were made by workers themselves in the late 18th and early 19th centuries. They first took the form of mutual aid societies which paid cash benefits to the family, on the death of the breadwinner, for burial expenses and for general aid. Later cash benefits were paid in the event of prolonged sickness. The historic origin of these organizations is found in England's "friendly societies" or Germany's workmen's orders, although somewhat similar patterns are found even in antiquity.⁵ Some of these benevolent associations, like the Free African Society, later became insurance companies.⁶ Others gradually assumed "industrial" functions, like collective bargaining for wages and hours, and became labor unions in the current sense.⁷

Whether mutual aid societies became departments of unions or continued independently, their principal function became cash indemnification of workers for wage loss during periods of temporary disability due to sickness or injury. The course of these "mutual sick benefit associations" or the "sick bene-

fit funds" of unions was stormy. Rarely based on sound actuarial principles, they frequently got into financial difficulties.⁸ In the interest of improved personnel relations, employers gradually began to sponsor them, offering clerical assistance or even partial assumption of the risk to induce employees to join. Employers seldom made significant financial contributions, however, and workers frequently refrained from joining on suspicion of management's objectives.⁹

About 1912 private insurance companies entered the field of group temporary disability insurance.¹⁰ They were able to assume risks that individual employers did not wish to carry and could save the employer the administrative duties involved in operating such programs. As a result, commercial group insurance gradually came to replace both the mutual sick benefit associations and union sick benefit funds. From about the 1930's, commercial group policies began to indemnify against the major professional costs in serious illness, like hospital and surgical expenses, as well as for wage loss. The larger share of premiums was typically paid by the workers until the second World War, when the relatively tight labor market, combined with the government wage stabilization program, put labor in a favorable position to make special claims on management. In lieu of offering wage increases, therefore, management has come to assume a major share of the cost of these group insurance policies today.¹¹

Direct Service Programs—Concurrently with this development was another stream of activity in which organized systems of medical service were made directly available to groups of workers. In the mid-nineteenth century, when railroads were being cut through to the West, timberlands were being cut into, or mines were being opened, medical services were needed

for the isolated groups of men doing this work. Cash benefits would do little good under such circumstances; doctors and hospitals were the first need. Periodic wage deductions were an obvious device for assuring a fund to pay physicians and support facilities. Typically, medical personnel were on salary and the workers were entitled to service, as needed, without paying fees.¹²

In the early 20th century, this pattern of organized medical care plans spread to many parts of the country, although it has been set up chiefly in heavy industries. While financed in most instances entirely by employees, through wage deductions, the administration has usually been through management. One of the best known of these programs—and one of the few financed entirely by management—is at the Endicott-Johnson Shoe Corporation, Binghamton, N. Y. Among more recently developed medical service plans, perhaps the best known are the various Permanente Foundations for workers in the Kaiser shipyards on the West Coast.¹³ The bituminous coal agreement of 1946 elevated the entire question of so-called "contract medical practice" in the mine fields to a question of national concern. As a result of an extensive survey of the bituminous coal industry,¹⁴ plans are now under way to reorganize medical services for some 400,000 miners and their dependents on the basis of employer contributions to a trust fund.

A further development in direct service plans has been the effort, here and there, of organized labor itself to provide medical care for its own ranks. The first of such projects was undertaken in 1916 by the International Ladies' Garment Workers Union in New York City, with the establishment of the Union Health Center, still operating and now offering ambulatory medical care to union members.¹⁵ Another was set up about 1940 by the United Auto-

mobile Workers in Detroit for limited diagnostic service. The most comprehensive of such plans has recently been launched in St. Louis under the auspices of the United Retail, Wholesale and Department Store Employees. Here medical personnel on full-time or part-time salary render complete care to union members and their dependents in the Labor Health Institute. Unlike other labor-sponsored plans, this one is financed entirely by management.¹⁶

A final type of medical service plan providing benefits for industrial workers may be mentioned. This is the type of *prepayment plan developed by groups* outside of industry, controlled by neither labor nor management, in which workers may be enrolled along with other groups. Most important of this type of program have been the plans for hospitalization insurance starting in 1929 and now known generally by the Blue Cross emblem. In some states, like Michigan or California, the largest share of membership in these plans is made up of industrial workers. Still more recently, the medical societies have organized prepayment plans, typically for surgical services in the hospital, in which many industrial groups are enrolled. New York City has become the site of a unique prepayment plan, sponsored by many community agencies and rendering service through group practice units, in which a number of labor unions are enrolling their members.¹⁷

PRESENT COVERAGE

With these various streams of development, the present picture of organized health services in industry is quite complex. Expressions of the several different lines of organized action are all to be found today. There are still some mutual aid associations indemnifying workers for wage-loss and medical expenses. There are abundant group insurance policies for temporary disability and medical costs carried by commercial

companies. There are many organized medical services offering direct care under the sponsorship of management and a few under labor control. There are numerous non-industrial medical care prepayment plans in which factory groups happen to be enrolled.

It is difficult to give exact statistical data on the coverage of the various types of plans reviewed above. Much of the information on one type of coverage overlaps with data on other types, so that a reliable total figure cannot be cited. The most recent studies, nevertheless, yield the following information: *In 1945 there were about 115 organizations providing direct medical service of relatively comprehensive scope to about 1.5 million workers and dependents.*¹⁸ Cutting partly across the lines of these were the 600 mutual benefit associations providing cash indemnification for temporary disability and usually for surgical and hospital expenses to about 1.5 million employees.¹⁹

From the point of view of the present rate of growth, the most significant type of industrial program today is the cash indemnification plan under commercial insurance companies. By 1947, it was reported that 10,548,000 workers and dependents had indemnity protection for hospital costs, under such auspices; 7,916,000 had indemnity for surgical costs; and 615,000 had medical indemnity benefits in hospitalized illness.²⁰ (These figures cannot be added since there is considerable overlapping of the same persons in the different policies.) Many of the workers covered by these indemnity policies receive the protection as a result of "health and welfare" provisions in labor-management contracts, concluded through collective bargaining.²¹ It is estimated that in 1947 some 4 million workers were encompassed under such health and welfare clauses.²² These contracts usually provide for various combinations of group life insurance, accident and sick-

ness (weekly wage-loss indemnity) insurance, accidental death and dismemberment insurance, hospitalization expense insurance, surgical expense insurance, and sometimes medical (non-surgical) expense insurance.

Finally, there are the approximately 26,000,000 persons covered by Blue Cross group hospitalization and the 6,500,000 covered by medical society plans for surgical and obstetrical care as of January 1, 1947.²³ Very likely a majority of these represent employed workers, covered by virtue of their belonging to a factory group, but exactly how many cannot be stated.

EVALUATION

It is easy to understand why cash indemnification policies have pleased both labor and management and have grown rapidly. For one thing, they have meant indirect wage increases for labor, in so far as costs have been borne by management. From management's point of view they have promoted good personnel relations and they have been an agreeable form for allowing wage increases (since they do not constitute a raise in base pay, by which overtime rates are computed). From the point of view of both labor and management, they have been administratively simple, since most of the technical details are handled by the commercial carrier. There has been no organizational task involving delicate relationships with professional groups, hospitals, and other providers of service, as called for in the establishment of medical service programs of all types.

There is no question about the positive value of these group insurance programs. They have helped to cushion some of the heavy costs of catastrophic illness and to make it easier for the worker to obtain needed surgical and hospital care. The costs of protection have been considerably lower than for individual "health and accident" in-

demnity policies offered by commercial carriers. Still, certain questions have been raised about the entire indemnification pattern. Unlike the pattern of service plans (e.g., Blue Cross or many medical society plans), it does not assure the provision of services but rather gives a certain amount of cash to help defray costs. The services for which indemnification is offered are generally limited to the needs of serious illness, without protection for the costs of day-to-day home and office medical care, which has higher preventive value. Even in catastrophic illness, one study has shown that the average commercial policy indemnifies the worker for only about 50 per cent of the total charges incurred in his illness.²¹ Analyses by Professor Blanchard of Columbia University, moreover, reveal that only 62 to 75 cents of the premium dollar are returned to the workers in the form of benefits.²⁵

Despite these facts, group indemnity policies have undoubtedly been a step forward. The reluctance of both labor and management to embark on the organization of service plans has doubtless been, partly, because the issue has been narrowed often to a choice between indemnity insurance and that special type of service plan in which an organized staff of salaried medical personnel is employed. In industry, this has taken the form of debate concerning the extension of the usually accepted in-plant industrial medical service to include care for non-industrial illness. Opponents of "extended medical service," like Newquist and Hess, claim that "the purpose and license of industry is not to practise medicine. If for no other reason than a sense of fair competition, industry should go no further in the actual treatment of non-industrial injuries and illnesses than to give reasonable first aid and advice to those on duty."²⁶ Proponents like Wittmer or Lynch, however, state that "If the medical cost

for the treatment of occupational injury and disease is a proper charge against production, so also is the cost of the medical care for workers too sick to work, a proper charge against production, because workers prevented from working by sickness produce nothing for the profit of industry and nothing for themselves and their families . . . I recommend that industry generously and for profit arrange adequate medical care for the sick as well as the injured before compelled to do it, with the coöperation of organized medicine, without it if necessary."²⁷

Labor has been far from enthusiastic about programs providing actual medical service for other reasons. As for company-operated plans with salaried personnel, there has been the usual objection to so-called paternalistic practices. Workers have frequently been reluctant to entrust their personal problems to doctors who are responsible directly to management. But even labor-sponsored medical care programs have been few and far between. The main reasons undoubtedly have been organizational. It is not easy for trade unions—preoccupied in the field of wages, hours, and working conditions—to take on the additional complex task of organizing medical service programs. If completely organized projects, with centralized health center facilities, are to be launched, large capital investments are usually necessary. There has sometimes been opposition to such enterprises from professional groups and hospital facilities have sometimes been closed to the plans. Even organization of simple prepayment plans, with payment of individual practitioners on a standard fee-for-service basis, has not been easy. Labor's chief participation in service plans has, therefore, been to sign up its members in the existing prepayment plans for hospitalized illness (Blue Cross and medical society plans). Much the greater participation, however, has been

in group indemnification insurance with commercial carriers.

Although they are more difficult to set up, service plans undoubtedly have several advantages over indemnity plans, from both health and economic points of view. The American Hospital Association has recognized this in its formulation of basic policies regarding Blue Cross plans. Even when the scope of services is limited, the worker tends to be assured of the receipt of the service offered in time of need. (The limiting factor may be the availability of personnel or facilities in the area but not the system of payment.) There is considerably more opportunity in service plans to encourage preventive services and to stimulate high quality performance. Overall costs of medical care for the worker are more fully insured, since there is no question of supplemental expenses beyond an indemnified amount.

Among service plans there are various considerations that, in one instance, would make advantageous the establishment of a plan with fee payments to individual practitioners and, in another, the establishment of an organized group practice program with personnel on salary. That the latter pattern tends to be most economical has been demonstrated repeatedly; it is well known from the experience of welfare medical administrators,²⁸ of the farm labor health program,²⁹ and of industrial medical services.³⁰ The salaried pattern tends, of course, to be associated with loss of free choice of physician, which is regarded as important by some persons. In any case, the participation by both labor and management in the administration of plans gives assurance of maximum economy and health content. The ultimate effect of recent labor legislation on the management of health and welfare programs is not clear at this point.

It is of some interest that an estab-

lished management-controlled, direct-service, organized medical care program like that of the Southern Pacific Railroad has recently been brought under the collective bargaining agreement between the employees and operators of that enterprise.³¹ The same has happened, in effect, to the coal mine programs. It appears as though labor groups which have had experience with direct service plans of some type tend to press for the extension of this pattern, while others are promoting cash indemnification programs.

RELATIONSHIP TO PUBLIC HEALTH

The very complexity of this entire field of health activity suggests its relationship to public health. Medical care problems, so charged with the difficulties of labor-management relationships, not to mention professional relationships, are urgently in need of the impartial guidance of a public agency skilled in health matters.

It is of some historical interest that almost the first official act of the then newly created Office of Industrial Hygiene and Sanitation of the U. S. Public Health Service in 1914 was to study the health of garment workers in New York City³² and that a principal result of this was the establishment of the first direct-service union-sponsored medical care plan in the nation, referred to above. Issues today are much more complex. In no two communities and in no two plants are the problems exactly alike. The underlying fact is that both management and labor are today inclined to spend money on health and welfare provisions. The immediate question is: how can each available dollar be spent to bring the greatest health benefit to the worker? The answer to this question will almost necessarily provide an answer to the corollary question: what type of program will provide the best labor-management relations?—for the most effective and economical pro-

gram should best serve the needs of both employer and employee.

Studies might be conducted by public health agencies to determine the results of different types of industrial medical care plans in their community—results in terms of volume of health services rendered, costs, absenteeism, working efficiency, quality of care, all the factors entering into a determination of the "health value per dollar." On the basis of such studies, practical advice could be offered to both labor and management groups concerning possible modification of their present practices or the best lines along which new programs might be organized. Such counsel, after all, is given every day with respect to in-plant industrial hygiene services. It will be more eagerly sought in medical care, simply because problems in this field today are felt by unions and management to be more pressing.

A medical care program of any one of the variety of possible patterns would complement a preventive program and in many ways make it more effective. Case finding efforts of an industrial hygiene service in the plant and of a health department outside the plant would be assured of better follow-up. The hernia detected in a preemployment physical examination could be assured of prompt surgical correction or the diabetes discovered in a routine prenatal urinalysis could be put under prompt medical control. Likewise, in day-to-day medical service, conditions of special public health interest might be turned up and referred to the health agency. A medical care program would, moreover, strengthen the routine industrial hygiene services in a plant, which public health is eager to advance. The very operation of a plan for medical care will heighten the interest of both management and labor in effective in-plant preventive activities, if only in the in-

terest of economy in expenditures for treatment. Close contact between physicians in the industrial hygiene service and those rendering medical care will keep the latter conscious of the problems of occupational diseases, so often missed by isolated practitioners.

Participation in the planning of these programs should strengthen the general position of the health agency with management, labor, and professional groups. To management, the assistance offered can be of practical value in reducing absenteeism and making for a better satisfied work force; employers want advice in this field more than any other.³³ To labor, assistance in the development of programs for medical service to themselves and possibly their families is obviously appreciated. While there has been in the past some suspicion by labor toward the organization of medical services on their behalf, this attitude has doubtless been related to the total setting of labor-management relationships.³⁴ As organized labor has matured,³⁵ and as the approach of public bodies has changed, labor's attitudes have changed.³⁶ To professional societies trying hard to face the challenge of a better distribution of medical care, the impartial assistance of public health agencies can only be welcome. Relationships developed with all these groups—management, labor, and the professions—should pay dividends in the development of community support for the general program of the health department.

CONCLUSION

In the whole movement for improving the organization of medical care for the general population, there is no more important trend than that of industrial health plans. The largest component of our national population is made up of industrial workers and the largest number of persons now covered by any type of prepayment plan are in this

class.³⁷ Whatever may develop in the way of community-wide medical care planning—local, state, or national—the patterns of organized service in industry will undoubtedly play an important part.

It is widely recognized that public health agencies face increased responsibilities in medical care administration in the years ahead. Acquiring a knowledge of the complex field of industrial health plans will stand them in good stead for this eventuality. Application of this knowledge to the pressing problems of industrial medical care in their own communities will enable them to render an invaluable public service today.

REFERENCES

1. Newquist, M. N. *Medical Service in Industry and Workmen's Compensation Laws*. Chicago: American College of Surgeons, 1938, pp. 32-33.
2. Stern, Bernhard J. *Medicine in Industry*. New York: The Commonwealth Fund, 1946, p. 68.
3. Newquist, M. N. *Op. cit.*, rev. ed., 1946, pp. 54-55.
4. National Association of Manufacturers. *Industrial Health Practices: A Report of a Survey of 2,064 Industrial Establishments*. New York, October, 1941.
5. Ward, Cyrenus Osborne. *The Ancient Lowly*. Washington: Press of the Craftsman, 1889.
6. Freedman, Donald K., and Harvey, Elinor. Development of Voluntary Health Insurance in the United States. *New York State J. Med.*, 40:1699-1707 (Dec. 1), 1940.
7. Minkoff, Nathaniel M. Trade Union Welfare Programs. *Monthly Labor Review*, 64:201-214 (Feb.), 1947.
8. Baker, Helen, and Dahl, Dorothy. *Group Health Insurance and Sickness Benefit Plans in Collective Bargaining*. Princeton: Princeton University Press, 1945.
9. Brundage, Dean K. A Survey of the Work of Employees Mutual Benefit Associations. *Pub. Health Rep.*, Sept. 4, 1931.
10. Sayers, R. R., Kroeger, Gertrud, and Gafar, W. M. General Aspects and Functions of the Sick Benefit Organization. *Pub. Health Rep.*, 52:1563-1580 (Nov. 5), 1937.
11. Coleman, Bernard S. The Union Contract and Industrial Hygiene. *A.J.P.H.*, 37:1449-1454 (Nov.), 1947.
12. Williams, Peirce. *The Purchase of Medical Care Through Fixed Periodic Payments*. New York: National Bureau of Economic Research, 1932.
13. de Kruif, Paul. *Kaiser Wakes the Doctors*. New York: Harcourt, Brace, 1943.
14. U. S. Coal Mines Administration. *A Medical Survey of the Bituminous-Coal Industry*. Washington: Gov. Ptg. Office, 1947.
15. Glazer, Ruth. The Union Health Center of the International Ladies Garment Workers Union in New York. *Labor and Nation*, 3:49-50, 53 (Jan.-Feb.), 1947.
16. Richman, Elmer. Aims and Purposes of the Labor Health Institute. Address before the Inter-

Union Conference on Union Health Insurance Programs, New York City, May 25, 1946. Processed.

17. Dearing, W. Palmer. Medical Service Plans Across the Country. *A.J.P.H.*, 36:769-776 (July), 1946.

18. Klem, Margaret C. *Prepayment Medical Care Organizations*. U. S. Social Security Board, Bureau of Research and Statistics. Washington: Gov. Ptg. Office, 1945, p. 3.

19. Plumley, H. Ladd. *Budgeting the Costs of Illness* (Studies in Individual and Collective Security, No. 1). New York: National Industrial Conference Board, 1947.

20. American Medical Association, Council on Medical Service. *Newsletter*, Aug. 20, 1947.

21. U. S. Bureau of Labor Statistics. Health Benefit Programs Established Through Collective Bargaining, 1945. *Bull. No. 341*. Washington: Gov. Ptg. Office, 1945.

22. Work Security Next, Big Union Objective: 1. Health and Welfare Programs. *Factory Management and Maintenance*, Feb., 1947.

23. Reed, Louis. *Hospital and Medical Service Plans*. U. S. Public Health Service, 1947.

24. Brumm, John M. Health Insurance Plans Under Union-Management Agreements. *Labor and Nation*, 3:46-48 (Jan.-Feb.), 1947.

25. This does not mean that the insurance company necessarily retains the remainder of premium payments. A great part of the money not paid out in benefits is returned as dividends, but these are usually retained directly by the employer in partial compensation for his share contributed into the premium. Because the employer's contribution has usually been made, however, in lieu of a wage payment it represents, in effect, a payment from the worker's earnings. Even though these dividends are not kept as part of insurance company profits, the important point is that they seldom reach the worker. See: Blanchard, Ralph H. Survey of Accident and Health Insurance. U. S. Social Security

Board Bureau of Research and Statistics, *Memorandum No. 62*. Washington: Gov. Ptg. Office, Nov., 1945, Aug., 1946.

26. Newquist, M. N. *Op. cit.*, rev. ed., 1946, pp. 29-30.

27. Lynch, Dan (Medical Director, New England Telephone Company). Absenteeism, Analysis and Methods of Control. Public lecture, time and place not cited (c. 1945). Processed.

28. Goldman, Franz. *Public Medical Care*. New York: Columbia University Press, 1944.

29. Mott, F. D., and Roemer, M. I. A Federal Program of Public Health and Medical Services for Migratory Farm Workers. *Pub. Health Rep.*, 60:229-249 (Mar. 2), 1945.

30. de Kruif, Paul. *Op. cit.*

31. Personal communication from George Cucich, an official of the Railway Labor Executives Association, 1947.

32. Schereschewsky, J. W. *Studies in Vocational Diseases: I. The Health of Garment Workers*. *Pub. Health Bull. No. 71*. Washington: Gov. Ptg. Office, May, 1915.

33. Wittmer, J. J. Methods of Tackling the Absentee Problem, in *More Manpower Through Reduction of Absences*. Pittsburgh: Industrial Hygiene Foundation, 1942, pp. 41-45.

34. Welt, Louis G. Industrial Medical Services for Small Industries. *Yale J. Biol. & Med.*, July, 1942. See also Markuson, Kenneth E. Plant Conditions: To What Extent Should Official Findings Regarding Them Be Made Available to Workers. *Indust. Med.*, July, 1944. Also Sensenich, Roscoe L. Industrial Health and the Private Practitioner. *J.A.M.A.*, Feb. 4, 1939.

35. Cruikshank, Nelson H. What Labor Expects from Medicine. *Connecticut State M. J.*, 10:300-304 (Apr.), 1946.

36. Organized Labor, A New Ally for Public Health. Editorial, *A.J.P.H.*, 34:280-282 (Mar.), 1944.

37. Klem, Margaret C. *Op. cit.*

"It is idle, of course, to minimize the towering difficulties that confront us or the heart-breaking frustrations through which we shall live in the years immediately ahead. But we must push toward the ultimate goal of world unity with iron determination and fanatical patience.

"We must believe in it against all discouragements, against all fail-

ures, against all betrayals. There is indeed nothing else we can do. For the long pull there is no alternative. Or rather, the only alternative involves a price in terms of cosmic disaster which, unless the world is overwhelmed by a Gargantuan madness, it will not consent to pay."—Raymond B. Fosdick, *Rockefeller Foundation—A Review for 1947*.

Community Resources for Health Education—How Well Are They Being Utilized in the School Program?*

Discussed by a Voluntary Agency Health Educator

BERYL J. ROBERTS

Director of Health Education, Massachusetts Tuberculosis League, Boston, Mass.

THE community approach is receiving a great deal of emphasis today in many fields of work, and those of us who are interested primarily in health education hear much about the desirability and values of community-wide health education. Certainly one essential step in the development of any such program is the utilization of community resources by the school and the continuous interaction between the school and the rest of the community—a bringing together of the school and the public, the two component parts of the total health education picture.

While there are some few who feel that the schools are separated from the rest of the community by a firm barrier, most of us recognize today that there are many community resources which the school may call upon to assist in the organization and development of its health program. The voluntary health agency is one which has particular contributions to make. Why then, we may ask, is it sometimes overlooked? Perhaps first of all, because the agency itself is at fault in not having made its services known. However, it is difficult to imagine an organization staffed with

a trained health educator who has not had contact with the schools in the area and has not offered services, for one of the first functions of a qualified health educator working in any kind of agency should be to make herself and her agency's work known. It is easier to imagine this lack of contact between agency and school where no qualified health educator is employed.

Another reason why the voluntary agency is not used may be that the school, being an official agency, looks to the other official agencies for help and advice. More and more, however, schools are reaching out into the community and utilizing not only the official but also the voluntary agency which is today stepping up its educational program and increasing its service.

If we proceed on the premise that the voluntary agency and the school will meet for mutual benefit, we might consider the kind of contribution a voluntary agency is in a position to make. Unfortunately, many belittle this kind of organization as a resource to be utilized by the school, but this is perhaps unjustified and will be increasingly so as more voluntary agencies wake up, add trained health educators to their staffs, and subsequently improve their programs. Perhaps there are some small agencies which function in the school

* Presented before the School Health Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 10, 1947.

program only by channeling materials which may be used by the teachers in their classroom work, but many educators feel today that the growing and modernized voluntary agency has a much bigger job to do. Naturally, the amount of work it does will depend a great deal on the work the departments of education and health are already doing.

May I outline some of the ways in which the voluntary agency can be used as a resource by the school and mention those particularly which will enable the school to organize a total health program more rapidly and continue it more effectively than would perhaps otherwise be possible. These contributions are all of a practical nature since they have been tried by one voluntary agency or another.

1. Materials, of course, we recognize as a need in health education, not only to aid instruction and make it more "alive," but also to help inform teachers and administrators regarding the modern school health program in all its aspects. Teaching aids are not so available in health as in other subjects and many teachers turn to commercial materials. Several of our voluntary agencies now have teaching units, pupil materials, and various visual aids, which are sound, approved by educators, and useful. If teachers have not received such materials, they should request them. In addition to these materials, many voluntary organizations maintain libraries and loan folders which those associated with the school program may use in "self-education."

2. The voluntary agency may be utilized in a different way if the school wishes advice and consultation. Such service may be given personally by an agency educator trained in school or public health, or it may be brought in to the school from the outside. Local school departments, setting up or continuing school health programs, will

wish to use such consultant service if they find it available. It may be the only service of its kind available to the school or it may supplement that given by the official agencies in health or in education. Such help may consist merely of aiding the classroom teacher in working up a lesson or a unit of work, or it may involve a greater share in the program through membership on committees concerned with the total program.

3. The location of a qualified teacher is one of the difficulties encountered in setting up health instruction at the junior and senior high school level, where there is usually specialized teaching. In large schools, the establishment of a health instruction program requires the services of a full-time teacher trained in this field. Yet it is not easy to find such a teacher, and less easy to create a place for her. The employment of a health education teacher by the voluntary agency on a demonstration basis for a specified time and purpose can do much to "sell" her to the school itself and to the school committee who will ultimately decide whether or not she is a necessary addition. In smaller systems where a teacher already employed will assume health instruction as part of her teaching load, there is need not for a demonstration but rather for helping this teacher obtain additional training in health on a full- or part-time basis.

4. Teacher training has been and will be, of course, an interest of the voluntary agency. For some time, many have provided scholarships and fellowships. Now that school health programs are developing more widely throughout the country, our teacher-training institutions, both public and private, should consider their own health programs and offer more adequate pre-service training in health to teachers of all levels. Stimulating such institutions to do this and assisting them

in doing it well are functions of the health agency.

One of the basic lacks in teacher education is manifested by the new teacher's limited knowledge about the district or area where she teaches and about the community agencies and services. This lack is particularly felt by the teacher of health. If agencies can interest more of our teachers' colleges in training teachers to know the community, to understand and use what it offers—to have a community point of view—then our health instruction will profit immeasurably.

In this connection, the organization for which I work has been assisting one of the local teacher-education institutions during the past year by providing community field experience to teachers training in health education. This familiarizes the teacher with the health education program outside the school, acquainting her with agencies and groups which function in health education, and may be of value to her as a classroom teacher.

5. In addition to pre-service education, the organization of in-service training programs for personnel participating in school health work is also important. Workshops, informal conferences, institutes, and the like may be organized, not only locally but also on a regional and state basis. This provides opportunity for various school personnel to meet together and study with specialists, or to work in small groups on problems associated with pre-service and in-service training, or on the organization and continuation of a school health program. Voluntary agencies may be a stimulating force in helping to set up such study groups, their workers may participate as staff members, or they may aid financially. Tuberculosis associations have frequently worked actively in the school program in this manner.

6. Not the least contribution may

consist in providing students themselves with opportunities for active participation in the work of a community organization. This kind of personal experience can help to bring about an understanding of the functions of a voluntary health agency and at the same time develop an appreciation of the citizen's responsibility. The voluntary agency has been utilized too little in this manner.

While the community agency may be used mainly to enrich and expand the health instruction program, it can assist in other important phases of school health. Perhaps the greatest service in this respect will be through helping with training courses and possibly demonstrations.

Not to be omitted, is the aid the voluntary agency health educator may give in assisting the school in the education of parents, committees, and legislators. Health educators interested in the total community programs should have an area organized and ready for action in health education. This continuing organization of people and agencies may well be utilized by the school in interpreting its health work to parents and others.

The above are merely some of the ways in which the voluntary agency may aid the schools in their development in school health—the list is not at all inclusive. If you are a community health educator, you may be thinking of other ways in which you have served your schools; if you are a teacher or administrator you may be concerned with other types of service you would expect from your local health agency.

No one voluntary agency will perhaps be able to give all of the services we have listed, but each agency should give such help to the schools in whole or in part. The amount of service will vary, of course, with the size of the budget and staff of the community or-

ganization, and it will differ also according to the needs of the schools, the stage of development of the school program, and the kind and quality of service available from other sources. The voluntary agency should not duplicate contributions of the official agencies interested in health and education; they should, rather, supplement and enrich and, on occasion, demonstrate for a specified period.

Flexibility should be the keynote of the voluntary agency's school program. The type of service rendered should vary as need requires. It should change as the schools grow and expand in health education and as they develop a more permanent health program.

Some voluntary agencies have wondered, at the local level, whether they should be interested actively today in school health, whether or not school work, having been a part of their past program, is any longer an essential feature today. Certainly any agency interested in the total community health should maintain an interest in school health, for it is a necessary, basic part of a purposeful and continuing total program. Without it, community health education has no real roots and our efforts can hardly produce lasting results. Accordingly, any voluntary agency health educator should be alert to the needs of the schools and should recognize the school phase of community health education as a most important part of her work.

You may feel that there should be a more actively interested voluntary agency in your city or town. May I say here that if your local agency is not appropriately staffed, if it does not render adequate service to your school, then awaken that agency to its responsibility. As a resident of any given community, it is your responsibility and mine to stimulate voluntary agencies to employ good leadership and perform

the functions expected of them in the kind of health program accepted today.

The local voluntary agency most apt to have a health educator on its staff is the tuberculosis and health association, but there are several groups interested in and contributing to community health education and to school health as a part of it. While these latter groups may not employ specialists in health education at the local level, they may provide community resources for the school. These many agencies cannot all run in and out of the schools, as they will, with suggestions, ideas, and aids, separately and distinctly. There must be some co-ordination of effort between the groups endeavoring to serve the school. Integration of contributions of the several agencies may be simpler where the school program has leadership in the form of a health director. Perhaps a school health council could perform a real function in defining the needs of the school, locating community resources which can be of help, and arranging for the utilization of such resources in a sensible, efficient way.

In closing, I would like to emphasize the importance of the continuous interaction between school and community. Voluntary agencies outside the school have real contributions to make for the enrichment and growth of the developing school health program. They also bring to the school a knowledge of community health problems and facilities.

They *should* be used and *are* used by progressive schools which are today reaching beyond the school walls to the outside to an increasing degree. A close relationship between school and public education programs will enable us to achieve what is now our goal in health education—a well integrated program actively reaching all corners of our communities.

Community Resources for Health Education—How Well Are They Being Utilized in the School Program?*

Discussed by a Health Officer

GEORGE JAMES, M.D., M.P.H., F.A.P.H.A.

Commissioner of Health, Ulster County Department of Health, Kingston, N. Y.

The Health Officer Looks at School Health

Since the time when the "Divide and Conquer" rule was applied to the problems of public health, the health officer has been faced with an increasingly complex mosaic made up of the many units into which his work has been divided. Indeed, so complex have been these divisions, and so specialized their fields, that the mosaic at times has lost its total meaning. The trained observer can note much intricacy of pattern indicative of frenzied activity. He can see that trained experts in tuberculosis and cancer have developed independent programs of community service, while he notes that even the problem of child health has been divided into the categories of infant, preschool, and school.

Of course, this division of services into specialties has been an essential step in our battle toward a healthier world. Public health has progressed a long way from the days when communicable disease and sanitation were its only fields of effort. The progress of sanitary science has made the services of numerous experts necessary to the health program, if this program is to discharge its duty adequately to the citizen. Nevertheless, it is encouraging

that the present trend is toward co-ordination of all health effort, and it is the health officer who must accept the burden of this responsibility. It is up to him to see that every individual in the community is given an opportunity equal to his specific need, so that he may take advantage of modern progress in health during every stage of his life.

The health officer must recognize the preponderance of certain problems in particular age groups. He must be prepared to understand and utilize the health programs of other agencies, but he cannot ignore any large body of citizens because for a time they may seem temporarily beyond his immediate control. Such a group in some areas is composed of the school age children in the community. Regardless of which official agency, health or education, has been charged by law with the responsibility for school health, the health officer must accept the task of doing all within his power to integrate school health with the entire community health program which includes all age groups and problems.¹ He cannot ignore this opportunity to bring health knowledge to a member of virtually every family in his area, the chance to influence the personal health activities of the parents of tomorrow, and the last convenient opportunity to prevent or correct many future irremediable defects. He cannot throw his personal

* Presented before the School Health Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 10, 1947.

forces into the battle of preschool health without being concerned with the follow-up to his efforts which is part of the school health program.

It is, therefore, up to him to point out worth-while procedures to school administrators, to organize community health councils, to see that they have positive programs, and to make his facilities available to the school health programs. Naturally, the school administrator should cooperate in this work, should be eager to improve his health program, should seek active participation of his charges in community health activities. But whatever the extent of school authority, initiative, interest or cooperation, the fact remains that it is the fundamental responsibility of the health officer to exhaust all possibilities for furthering school health programs to the same degree that he accepts responsibility for those programs which may be more directly administered by him.

The Health Officer Looks at Health Education

Recently I read a symposium on health education in the *Journal*.² Most of the contributors stressed the fact that, in a democracy, health education is essential to secure good health practice and required public support for health programs. The 'difficulty with much of the health education effort today is that while attempting these goals it drives toward the specific. It makes us venereal disease conscious in February, it worries us about tuberculosis in December, and makes poliomyelitis seem like the world's greatest problem in January. Health departments mobilize for a huge diphtheria campaign in September and then train their big guns on some other program as soon as the desired effect is achieved.

Commercial advertisers have proved to us that it is the constant repetition rather than the brilliant campaign that

achieves lasting results. Health officers have realized that while campaigns aimed at achieving specific ends are worth while, there is a far greater need for an organized, continuous, and consistent health education program which covers not only all phases of health but reaches all groups in the community. There appears little doubt that this organized program can be carried out successfully in the public schools of our nation.

Coöperative Efforts Between Schools and Health Departments

A. *Introduction*—Coöperative efforts between school administrator, health officer, and all community health agencies now, will minimize sales resistance to health in the future. Health resources in the community must be made an integral part of the school health education program, if the school is to participate in such an organized community plan.

The health officer who is cognizant of the major health problems facing his community is in the best position to point out to school authorities where specific efforts in health education might be made. He is one official whose program cannot become static, his syllabus and curriculum are always changing. School administrators should look to him for suggestions in regard to our changing health needs, and for assistance in periodically revamping health education curricula.

B. *A Sex Hygiene Program*—In a small southern village we once thought of carrying out a venereal disease survey in a Negro high school. Realizing that most of the Negro adolescents did not attend high school we still felt that it would be interesting to see how much venereal disease we could find in this school group. In order to simplify follow-up work we attempted to secure a list of all the sexual contacts from the pupils in advance of evidence of ill-

ness, since we felt the incidence of venereal disease would be high. To this end, all pupils were interviewed by a physician or nurse of their own sex and confidence was established so that such contacts were obtained as well as the usual venereal disease laboratory tests. Our results were at first unproductive. True, we elicited much evidence of promiscuity, but only 4 per cent had a venereal disease despite the fact that the Negro draftee incidence rate was 20 to 25 per cent. However, our efforts were soon to be rewarded. Impressed by the interest, personal attention, and knowledge they had received, these pupils became the health missionaries in their community. Soon many other young Negroes came to us for similar conferences. In all, over a dozen infectious cases of venereal disease were found and placed under treatment. The misinformation on sex hygiene which was apparent was turned over to a state supervising teacher who made plans to correct these errors by both organized and individual instruction. What began as a school survey turned into a community project for health education, a program of the greatest importance to all citizens in the area.

This is an instance where a routine health department service contributed to an educational program and pointed out the need for additional steps in school health education. It demonstrated that the health officer, who knows the health facts in his area and controls community health resources, may frequently indicate the need for specific school health programs, which in turn play their part in securing worth-while community health activity.

C. Student Assistance at Clinics—We need no longer look on the school itself as the boundary of learning. Health department clinics, the county tuberculosis hospital, the local health council, the health department office, and the voluntary health agencies are all work-

ing laboratories for health education. We have arranged for high school students to assist with tuberculosis and child health clinics. Each session was followed by a conference where students discussed their observations and gave us the opportunity to stress the major health principles involved.³ Student assistance is an invaluable experience; the "learn through doing" principle is put into practice and youngsters may learn through concrete, purposeful activity which is far more meaningful than the textbook lesson. Such student help should not be looked upon merely as a youngster's contribution to community health, the health officer in turn must be available to answer questions, teach and lead discussions. Here is an unlimited opportunity to teach children to differentiate between good and bad health information—to lead them toward a lifetime habit of seeking approved sources for facts about health. If he can learn about his community health agencies, if he can understand what they are accomplishing, he will be in a better position to utilize their available health facilities for himself, and at the same time, he will recognize the need for supporting such activities.

D. Leadership Training Institutes—Frequently, the health officer may find ways of working through classroom routines to improve school health. In one county, we carried out health institutes^{3, 4} aimed at giving the parents and teachers the facts they needed to bring them up to date on the latest developments in the health field. Each session of these leadership training programs was preceded by several short talks given by members of the group regarding the utilization in their own schools and communities of the material covered during the preceding month. This resulted in better integration of health with other teaching and a greater appreciation of the common defects of school children and the need for their

correction. Where defect correction programs exist the teacher can be a potent force through her frequent contact with parents and the fact that she is in a position to see that poor academic work is often closely related to defects.

One of the high school principals in this same county participated in the U. S. Public Health Service malaria-training institute which was held in Memphis. Upon his return, he made his newly gained knowledge available to many of the schools and aided in setting up worth-while community projects in draining, oiling and spraying which became part of the intramural and extramural duties of the school children. These projects were of greater value to the practical teaching of malaria control than the preceding years of classroom recitation.

E. A Coördinated School and Health Department Nutrition Program—In the region concerned, it was discovered that there existed a great need for education in nutrition. Although predominantly an agricultural area, staple crops were the rule and home gardens rare. Under the guidance of the central planning committee which included representatives of the health department, schools, and other community groups, successful attempts were made to secure corrective action.^{3, 4} Home economics teachers arranged nutrition displays and games, children at school prepared and ate the nutritious though unfamiliar foods. The lesson was carried into the home, as nutrition experts prepared foods for entire families of children who appeared malnourished and whose diets were lacking in essentials. Grocers reported increases in the sale of whole wheat products and community home canning reached amazing proportions. The health officer noted a marked increase in attendance of parents at school examinations and a greater willingness to coöperate in the correction of defects.

Successful efforts with parents of the school age child were shown to be of immediate advantage to both the younger and older members of the family. The infant and preschool clinic loads were raised, immunizations at earlier ages became more frequent and adult interest in health problems became more apparent as evidenced by their increased financial support of health department programs.

F. Health Education through a Corrective Program—As you know, the health officer who works in upstate New York has a limited legal responsibility toward school health education. We have already stressed the fact that this should in no way influence his moral responsibility in this direction. At present, part of our county is acting as a control for the ten year fluorine dental caries preventive study.^{5, 6} Fluorine is being added to a total of one part per million to the water supply in an adjoining city, while the children of one of our own cities are being used as controls. Data collected by this state health department survey have revealed that even in an economically satisfactory area 58 per cent of the school children needing dental care have received none, 22 per cent have received only partial dental care, while a mere 20 per cent have obtained complete care. That this neglect of dental care is based on a poor understanding of its need has been proved in other areas, and appears to be our chief problem as well.^{7, 8} True, we can and did point out this fact repeatedly to school authorities who promised to step up the pace of dental health education. But in dental care the best educational response will follow in an active demonstration—a maxim already proved through our own efforts in the preschool dental program. Since the school authorities were unable to meet this need, the health department is coördinating the community resources to initiate action. Coöperating

dentists have been secured in one area which will serve as a demonstration project. The departmental dental hygienist was offered to the school on a part-time basis. Our health educator will assist in emphasizing the scientific facts involved. The Parent Teachers Association will help with arrangements and the local public health nursing committee will see that the results are brought to the attention of the community. But primarily, the program in itself will be valuable school health education. It will lead schools to break away from the old plan of giving care largely to the poorest children with the worst teeth—a never-ending process. We now expect to take each new beginning class, give the children complete dental care and follow through with continued care as they progress onward through the primary grades. The goal toward which we are striving is an entire school with perfect teeth. Such a program should prove more valuable to the dental health education of the county than all the years of hit-and-miss correction which have preceded this plan recommended by the American Dental Society.^{9, 10} Put into effect through the initiative of the health department and the co-operation of many local agencies, this project should lead to positive action on the part of parents and children toward voluntary correction of dental defects.

Conclusion

Energetic health officers are never satisfied with the health progress in their community. How well are community resources being utilized in the school program? With few exceptions the reply has been discouraging. But recognition of need is the first step toward positive action. In many health departments, health educators have been added to the staff to serve as liaison personnel between education and health. School administrators are realizing the untapped community resources avail-

able for teaching. At the state level, coöperation between the departments of health, education, mental hygiene, and social welfare is becoming more apparent as evidenced by the recent recommendations of a newly organized interdepartmental council in New York State.¹¹

All of us have realized that health education is our prime weapon for bridging the gap between health practice and available health facilities. Health departments are providing the facilities; their communities contain the laboratories for health demonstration. It is up to the health officers and school administrators to accept the challenge and employ these facilities to their fullest extent in a school health program. Let us deëmphasize the specific campaign as an instrument of health education in favor of a continuous, organized, and coöperative program for all ages. In this work the schools must play a prominent role.

REFERENCES

1. Wilson, Charles C. Improving School Health Problems. *Yale J. Biol. & Med.*, 19:603 (Mar.), 1947.
2. What Is Health Education? A Symposium. *A.J.P.H.*, 37:641 (June), 1947.
3. Family Life Program. *Am. J. Nurs.*, 46:6 (Jan.), 1946.
4. Union City, Tenn., Family Life Program. *Pictorial America*, Feb., 1946, p. 27.
5. Ast, David B. A Plan to Determine the Practicability, Efficacy and Safety of Flourinating a Communal Water Supply, Deficient in Fluorine, to Control Dental Caries. *Fluorine in Dental Public Health*, New York State Institute of Oral Pathology (Oct. 30), 1944, p. 40.
6. Finn, Sidney B. Second Annual Progress Report on Fluorine Investigations. *New York State Dent. J.*, 13:78 (Feb.), 1947.
7. Franzen, Raymond. Physical Defects: The Pathway to Correction. *Child Health Bull.*, 1934, p. 44.
8. Nyswander, Dorothy B. Solving School Health Problems. New York: *Commonwealth Fund*, 1942, p. 210.
9. Parran, Thomas. Dentistry as a Health Service. *Proceedings Dental Centenary Celebration*, American Dental Association, Baltimore, Mar. 13, 1940, p. 59.
10. *Dental Health Goals*. American Dental Association, Baltimore, Mar. 18, 1940, p. 59.
11. Van Volkenburgh, V. A., Chairman of the Sub Committee on the Coordination of School Health and Community Health Services of the New York State Interdepartmental Council for Health, Education, Mental Hygiene and Social Welfare. Personal Communication.

Presence of Neutralizing Antibodies of Newcastle Disease Virus in Human Sera

BEATRICE F. HOWITT, F.A.P.H.A., LINDSAY K. BISHOP,
M.D., AND ROBERT E. KISSLING, D.V.M.

*Bacteriologist; S.A. Surgeon; and Pathologist (Animal), U. S. Public Health
Service, Communicable Disease Center, Virus Branch and Laboratory
Division, Montgomery, Ala.*

IN 1926 a highly infectious and fatal disease of fowls was first recognized in the Dutch East Indies by Kraneveld,¹ and also by Doyle at Newcastle-on-Tyne, England. In 1927 Doyle² isolated a filter-passing agent that he designated as Newcastle disease virus (NDV). Similar outbreaks among poultry were soon described from various parts of the world with the exception of the United States. It was not until 1941 that Beach³ and in 1942 Stover⁴ both recognized a respiratory central nervous system disorder of chickens in California that became known as avian pneumoencephalitis.⁵ By means of the serum neutralization test Beach⁶ in 1944 established the serological similarity of this strain with that of the British Newcastle disease, and in the following year the same virus was recovered from fowls in a series of outbreaks in the eastern United States.⁷ Systematic surveys during the past three years have demonstrated the presence of the disease, either by virus isolations or serum neutralization tests, in all but four states in this country.⁸ Therefore it has become of major importance to poultrymen throughout the United States as well as other parts of the world. Beaudette⁹ has ably reviewed the literature on Newcastle disease

through 1943, while Brandly, *et al.*⁷ have summarized the more recent epidemiology of this poultry disorder.

Burnet and Ferry¹⁰ in 1934 were the first to propagate NDV in the embryonated hen's egg but it was not until 1942 that Burnet¹¹ demonstrated its ability to agglutinate chicken red-blood cells and thus place it with the respiratory group of viruses, such as influenza and mumps. The NDV has long been considered of primary importance for birds, yet in 1947 Reagan and coworkers¹² demonstrated its adaptability to certain mammalian tissues. They were able to make serial passages in the Syrian hamster¹³ and likewise infect a rhesus monkey¹⁴ by the intracerebral but not by the intranasal route. Mice, guinea pigs, and rabbits were relatively insusceptible.

Although much has been written about Newcastle disease in poultry, only four reports in the literature mention invasion of human tissues. All of these cases are concerned with eye manifestations. Burnet in 1943¹⁵ described a laboratory infection in Australia due to accidental entrance of live virus into the eye, followed by a conjunctivitis, headache, chills, and general discomfort. Newcastle disease virus was recovered from the conjunctival fluid and antibodies for

the latter were present in the patient's serum. In 1946 Anderson¹⁶ reported two other laboratory infections in Australia. Both patients developed conjunctivitis and NDV was isolated from the tears.

In 1946 Shimkin¹⁷ recorded a case of conjunctival hemorrhage in a worker at the Governmental Poultry Laboratory in Palestine. In the same year Yatom¹⁸ described a small epidemic of NDV infection among kitchen workers handling poultry in the Agricultural School, Mikveh-Israel, where an outbreak had recently occurred among the fowls. Seventeen people developed a conjunctivitis which disappeared in 10-14 days.

Although NDV was first recognized in California about 1941, it was not reported for the eastern states until 1944 and 1945⁷ which time would roughly correspond to the appearance of certain atypical human cases in Tennessee. The disease in fowls spread rapidly over the country after the first recognition, but was not recorded in Alabama and Tennessee until 1947,²³ although it may have been present earlier in an inapparent form. It was in 1948 and perhaps in late 1947 that infections in human beings in Alabama were found.

Except for these reported eye manifestations there has been no mention of any particular association between this disease in fowls and human infection among the general population. It is the purpose of this report to describe the accumulated evidence leading one to consider that the poultry disease has become of significance to man in the United States and that the human manifestations follow very closely those described for the avian disease; either respiratory or neurological symptoms, or a combination of both. Most of the evidence has been based largely on the results of serum neutralization tests because, so far, the virus has not been recovered from any human tissues. The

facts on which these considerations are based have developed in the following manner.

NEUTRALIZATION TESTS ON THE SERA FROM TENNESSEE

For several years outbreaks of a mild central nervous system infection have been occurring among children in middle Tennessee and have been associated with an influenza-like disorder in adults. There have been no fatalities. Serum neutralization tests had repeatedly been negative for viruses of the recognized summer encephalitides. In the milder cases, there was usually a sudden onset with fever, headache, malaise, occasional chilly sensations, and complete recovery in 24 to 48 hours. In other instances there was evidence of meningeal irritation with stiff neck and back and occasionally nausea and vomiting. Even in the more severe cases the temperature elevation rarely persisted for more than three days, and the duration of illness for more than five days.

Through the courtesy of Dr. Amos Christie and of Dr. J. C. Peterson* of the Department of Pediatrics at Vanderbilt Hospital, sera from many of their patients were sent to the U. S. Public Health Service Virus Laboratory at Montgomery, Ala. Collections were likewise made by members of the Virus Branch of the U.S.P.H.S., Epidemiology Division. All neutralization tests made with these sera were negative for the viruses of eastern and western equine encephalomyelitis and St. Louis encephalitis. Fecal specimens from a few of the cases when inoculated into monkeys were likewise negative for the virus of poliomyelitis. Because of both the negative serology and the repeated association of the cases with chickens on the premises, it was thought of interest to try the serum neutralization tests

* The clinical histories of these patients will be reported later.

against the virus of Newcastle disease which had now become of such widespread importance to poultry raisers in this country. This thought was further strengthened by the finding of sick chickens in the yard of one of the patients who had manifested the milder clinical symptoms. The two birds were obtained and showed not only the clinical manifestations of Newcastle disease but the characteristic gross lesions at autopsy. No virus was recovered from the tissues when inoculated into embryonated eggs, but the blood sera from both birds contained antibodies for NDV.

a. Methods

Through the courtesy of Dr. L. T. Giltner of the Bureau of Animal Industry, the California strain of pneumoencephalitis (Newcastle disease virus) was received and by permission of the B.A.I., it has been used for performance of the serum neutralization test in embryonated eggs. The technique employed has been essentially the same as recommended by the B.A.I.¹⁹ for the identification of antibodies in poultry sera, except that the method of virus dilution follows the standard recommended for neurotropic viruses in the U. S. Army *Laboratory Manual*.²⁰ By this method the undiluted serum is added in equivalent amounts to different tenfold dilutions of virus beginning with 1-5 and thus becoming 10^{-1} , 10^{-2} , 10^{-3} , etc. The LD₅₀ end point is obtained according to the method of Reed and Muench.²¹ If the virus titer is found in each test, then the neutralization index can be estimated. The result is considered negative if the index is under 10, equivocal if between 11 and 49 and positive if over 50.

In the present study the tests were performed in the following manner: Ten day old embryonated hen's eggs were inoculated into the allantoic cavity with 0.1 ml. of NDV and the allantoic fluids removed aseptically in 48 to 72

hours. The fluids with an LD₅₀ end point of at least $10^{-9.6}$ to $10^{-10.0}$ were then pooled, sealed in ampules, and stored in the dry ice refrigerator for future use. Sufficient virus was prepared to perform a large number of tests, thereby insuring a greater uniformity of results. Standard positive serum was obtained from immunized rabbits.

The tests were performed by preparing serial tenfold dilutions of the virus in buffered saline containing 10 per cent normal rabbit serum and adding 0.3 ml. of undiluted serum to 0.3 ml. of each virus dilution. These dilutions were spaced within a range that would give positive results at one end and negative at the other, in order to determine the LD₅₀ virus end point. The resulting mixtures were shaken and placed in the incubator at 37° C. for ½ hour and then removed to the cold room at 9-10° C. for another ½ hour. Ten day old embryonated eggs were inoculated with 0.1 ml. of each dilution into the allantoic fluid. As a rule, 4 eggs were used for each dilution. The inoculated eggs were then kept at 37° C. and candled every day for viability. A known positive serum was included with each test. The virus was titrated through 10^{-10} and an equal amount of 10 per cent normal rabbit serum in buffered saline was added to each dilution. In the absence of protection, the embryos usually died in 3 to 4 days. All live eggs were kept under observation for 6 days before they were discarded. The eggs with embryos that died within 24 hours were not included in the final computations. Any that died irregularly or out of the proper sequence were opened and the allantoic fluid was tested for virus by the hema-agglutination test. If there was sufficient material, the tests were repeated on all equivocal sera. Whenever possible an effort was made to obtain both acute and convalescent blood from each patient so as to compare any change in titer.

TABLE 1

Neutralization Tests Against NDV Using

Human Sera from Tennessee

Human Sera from Tennessee														
I. Newcastle Disease Syndrome					II. Encephalitis					III. Other Febrile Illnesses				
Case No.	Date of Onset	Date Bled	Neut. Index	Result	Case No.	Date of Onset	Date Bled	Neut. Index	Result	Case No.	Date of Onset	Date Bled	Neut. Index	Result
1	8- 3-47	10-28-47	67.7	+	4	12- 6-46	10-28-47	0	0	6	?	1-12-48	2.5	0
2	7-19-47	"	45.8	Wkly +	5	5-23-47	11- 3-47	100.0	+	8	?	8- 6-47	14.5	?
3	8- 1-47	"	458.0	+	7	5-22-47	5-30-47	0	0	9†	7-11-47	11- 3-47	458.0	+
10	8-10-47	"	148.0	0	19	8- 3-47	8- 5-47	0	0	16	?	1-23-48	0	0
11	8-25-47	"	3.2	0	23	?	4-28-47	0	0	20	?	4- 2-47	10	0
12	8-22-47	9- 4-47	0	+	27	4- 8-47	11-10-47	4.5	0	22	?	1-12-48	0	0
		9-12-47	458.0	?	29	8-16-47	9-12-47	0	0	24†	?	12- 2-47	6.1	0
		1- 8-48	14.5	+			11- 3-47	83.2	+	26	?	1- 8-48	0	0
		2-28-48	3170.0	+	31**		11- 3-47					11-22-47		

† — Neutralization test positive
 * — Symptoms of either mild encephalitis or of NDV
 † — Polymyositis-like syndrome—Slight weakness in right arm
 ‡ — Guillain-Barre syndrome
 ** — Contact of case No. 5 who had a severe encephalitis

b. *Results of the neutralization tests*

The results of the neutralization tests on the sera obtained from children in Tennessee during 1947 and the early part of 1948 are given in Tables 1 and 2. In Table 1 the cases are roughly

previously used for testing against other viruses before work was initiated on NDV. One very severe case of encephalitis (No. 5) and one having poliomyelitis-like symptoms (No. 9) showed the presence of antibodies. All other cases

TABLE 2
*Total Results of Neutralization Tests Against NDV
Using Human Sera from Tennessee*

<i>Type of Illness</i>	<i>No. Sera Tested</i>	<i>No. With Positive Neut. Index</i>	<i>No. Weakly Positive</i>
Newcastle disease syndrome (1947-1948)	15	9	3
Definite encephalitis (1947-1948)	6	1	..
Contact to encephalitis case (1947)	1	1	..
Polio-like illness, no definite paralysis (1947)	1	1	..
With paralysis	1	0	..
Other undiagnosed atypical illnesses (1947-1948)	7	0	..
Total for 1947-1948	31	12	3
Encephalitis (1945)	11	0	..
Cases of dysentery, enteritis, tetanus, diphtheria (1944-1945)	78	0	..
Total for 1944-1945	89	0	..

classified into three groups; those having (1) atypical illnesses showing what might be called the ND syndrome, (2) those having a definite or a severe encephalitis, and (3) those that did not fall into the other groups or from whom no histories were available. Table 2 summarizes the results of all the neutralization tests performed on the sera from Tennessee, including a large group kindly sent by Dr. J. C. Peterson from patients entering the Vanderbilt clinic during 1944 and 1945. Eleven of these children had encephalitis but the other 78 had come in because of dysentery, enteritis, tetanus immunization, or the like.

Of the 15 children placed in group 1 (ND syndrome), 80 per cent had antibodies for the Newcastle disease virus. Three sera, however, were only weakly positive. There were three instances (case Nos. 12, 14, and 28) in which the tests were negative on the first specimen but became positive on the second bleeding. It is unfortunate that many of the sera originally obtained had been

of encephalitis gave no protection against NDV including those seen in 1944-1945. The tests, however, were done on only one bleeding. All of the 78 sera kept since 1944 and 1945 were entirely negative for NDV antibodies.

NEUTRALIZATION TESTS ON THE SERA OF THE LABORATORY PERSONNEL

After receiving the NDV from the Bureau of Animal Industry early in December, 1947, work was started immediately for the performance of the neutralization test in eggs. No one in the laboratory, except perhaps one veterinarian, had had any previous known association with NDV. He had not been working with the virus itself.

On March 10, 1948, one of the laboratory staff (R.G.) developed an influenza-like illness mainly characterized by severe headache, pain in the chest, and general malaise. She remained home for several days and soon recovered. Blood was taken several weeks later. She had not been working with NDV but her serum protected against

TABLE 3

*History and Results of Serum Neutralization Tests on
Laboratory Personnel with a Mild Illness*

Name	Date of Onset	General Symptoms	Duration of Illness	Date Bled	LD ₅₀	Neutralization Index	Result
R.G.	3-10-48	Sore throat, cold(?), severe headaches, eyes hurt, pain in chest	About a week	7-14-47 4- 6-48 6-21-48	0 10 ^{-8.0} 10 ^{-6.74}	0 45.8 1820	0 Wkly + +
P.W.	3-10-48	Headache, fever for 2 days, nausea	2 days	7- 9-47 5-20-48	0 10 ^{-6.13}	0 3320	0 +
J.A.	3-18-48	Chills, malaise, vomiting, headache, fever, muscle pains, backache, generalized weakness	About 10 days	7- 9-47 3-23-48 4- 6-48	0 10 ^{-6.50} 10 ^{-4.52}	0 1450 139000	0 + +
	3-21-48	Conjunctivae injected		4-22-48	10 ^{-5.74}	18200	+
	3-26-48	Fever gone, weakness persisted 2 more days		5-17-48	10 ^{-4.01}	100000	+
R.K.	3-30-48	Fever, (103°), headache, dizziness, aches	12 hrs.	9-29-47 5-20-48 6-24-48	0 10 ^{-7.0} 10 ^{-5.21}	0 1000 28200	0 + +
U.B.	5- 3-48	Fever (100.6°), nausea, vomiting, stomach and backache, lower extremities ached	About 3-4 days	5- 4-48 5-17-48	10 ^{-5.0} 10 ^{-3.21}	100000 57600	+ +
R.F.	5-13-48	Fever (102°), nausea, malaise, generalized aching	About 3 days	5-17-48 6-24-48	10 ^{-5.74} 10 ^{-4.02}	18200 110000	+ +

the virus as shown in Table 3. There were no antibodies for influenza A and B viruses.

On March 18, 1948, one of the technicians (J.A.) who had been working with NDV complained of aches and pains and a feeling of malaise. She was at work for two days, then remained at home because of nausea, vomiting, fever, headache, and general weakness. This occurred over the week end and as no one realized her condition, she was not seen by the Medical Officer until Monday. Blood was taken and it was thought that she might have an influenza-like illness. Her temperature had become normal by March 26 and her condition rapidly improved, although the weakness persisted for two more days. Because she had been associated with the NDV her serum was tested for neutralizing antibodies against this strain. Anti-hema-agglutination tests were also run against the viruses of influenza A and B. The results were negative for the latter strains but positive for NDV. Blood was removed at successive intervals and the neutralization tests were progressively more positive as shown in Table 3.

Two more members of the laboratory personnel (P.W. and R.K.) developed milder but similar illnesses in March, while in May two additional people became ill with more pronounced symptoms (U.B. and R.F.). Sera from all of them contained neutralizing antibodies against NDV (Table 3) in high titer. After obtaining these first positive results, blood was removed from many of the laboratory workers. Likewise, it was fortunate that sera had been taken during the summer of 1947 from a large group of staff members, many of whom, however, had already left the laboratory.

The results of the neutralization test on sera of the staff taken both in 1947 and 1948 are summarized in Table 4. All tests were negative on the bleedings of 1947, while they were all positive on the sera of the group showing symptoms in 1948. Of the 11 people without symptoms 4 had definite antibodies against NDV. Two of these individuals had been inoculating eggs with NDV, while the other two had no direct contact with the virus but only contact with the staff members who had been sick.

Neutralization tests were done also

TABLE 4

*Total Results of Neutralization Tests Against NDV Using Sera from
Montgomery Laboratory Personnel*

<i>Year Bled</i>	<i>People with Symptoms in 1948</i>			<i>People without Definite Symptoms in 1948</i>		
	<i>No. Tested</i>	<i>No. Positive</i>	<i>Per cent Positive</i>	<i>No. Tested</i>	<i>No. Positive</i>	<i>Per cent Positive</i>
1947	6	0	0	13	0	0
1948	6	6	100	11	4	36.3

on the sera of 3 other persons, two of whom were clerical workers at the laboratory and the third the wife of one of them. These tests were not included with the others, because all three individuals had developed the same clinical symptoms of headache, fever, and general malaise before they arrived at the laboratory. Two had this illness in Atlanta, Ga., in February, 1948, and the third had similar symptoms during the last of August, 1947, before joining the laboratory staff. Unfortunately there were no early blood specimens from these people, but the results on the later sera were all strongly positive for NDV. It seemed evident that the development of these antibodies in the sera of the married couple must have occurred prior to residence at the laboratory because the blood was removed from the husband on arrival and the wife had no contact with the place. Likewise the third person, and also her husband, had been quite ill with similar symptoms before there was any connection with the laboratory.

From the results of the serum neutralization tests, it seems apparent that this febrile influenza-like illness had developed among the staff subsequent to the advent of the virus in the laboratory. One of the 6 persons with symptoms had worked with NDV, while four of the others were together in the same room. On the other hand, a similar type of disorder had been occurring throughout Montgomery for several months and these people may have acquired their infection from an outside

source. It is to be regretted that no virus was recovered from any of the laboratory personnel. Most of the individuals either had a transient illness that was not reported at the time or else became ill before the significance of obtaining material was recognized.

NEUTRALIZATION TESTS ON OTHER SERA FROM ALABAMA

Coincidental with the appearance of these illnesses among the laboratory personnel, a case of illness in a child was seen by one of us (L.K.B.) during April, 1948, in consultation with Dr. T. C. Marrs of Montgomery, Ala. The boy became acutely ill with symptoms similar to those mentioned for the children in Tennessee. There was early evidence of neurotropic disturbance with later recovery. Through the courtesy of Dr. Marrs, throat washings and both acute and convalescent blood were obtained from the child. The neutralization index for NDV was 21.4 for the early serum but rose to 17,800 for the sample taken 17 days later. No virus was isolated from the throat washings which had been treated with antibiotics and inoculated into hamsters and embryonated eggs. Because there had been association with chickens prior to his illness, blood was withdrawn from 12 of this flock. No antibodies for NDV were found in their sera.

Later in June, through the courtesy of Dr. D. G. Gill, the State Health Director of Alabama, Dr. L. R. Worcester of the State Health Department and U. S. Public Health Service, and Dr.

J. T. Grimes, the attending physician, blood, feces, and throat washings were obtained from a group of 8 children and 1 adult in a rural town of southeastern Alabama. All of the patients had poliomyelitis-like symptoms; headache, fever, vomiting, and certain neurological signs, but no residual paralysis. The fecal material was treated with antibiotics and inoculated into monkeys, hamsters, and eggs, while the treated throat washings were injected only into the two latter hosts. The virus of poliomyelitis was not isolated from the fecal specimens nor was any other virus obtained from the eggs or hamsters. The neutralization tests, however, were definitely positive against NDV on the sera of 7 children and equivocal on the other two patients. The results on a later bleeding have not yet been obtained. Because most of the cases had some previous association with chickens, blood was taken from poultry found on the premises of several patients. Of the 9 sera examined 5 have shown antibodies for NDV. Although the work in regard to this outbreak is still incomplete, and even though no virus has been found, there seems to be sufficient evidence from the results of the serum neutralization tests to indicate an association with Newcastle disease virus.

CONTROL DATA

Neutralization tests were negative on the sera of 97 children and adults who did not have these symptoms and from 19 of the laboratory personnel taken before working with this virus.

DISCUSSION

From the gradually increasing evidence, it is apparent that during the past 3 or 4 years a hitherto undifferentiated disease entity is beginning to be recognized, particularly in communities of the South. Because children are often affected and manifest certain poliomyelitis-like symptoms, the disease is often

reported as poliomyelitis. On the other hand, some cases may show pronounced meningeal irritations and be called meningitis. Still others may have pneumonitis complications. Although the clinical symptoms may not be quite uniform and may vary according to the individual physician's interpretation, yet in general all cases agree in showing a sudden onset, abrupt febrile course and rapid recovery without paralysis or other sequelae. An outbreak of this type, recognized as a meningo-encephalitis, was reported in 1947 by Humbert, Tucker, Mosley, and Bishop²² for Giles County, Tennessee. About 209 children and adults were seen with this acute disease, probably of viral nature, which usually lasted from 24 to 48 hours, although the fever, headache, and malaise might continue for 5 to 10 days. There were no fatalities.

Although conclusive proof is lacking without isolation of a virus, yet the results of the serum neutralization tests suggest that the virus of pneumo-encephalitis (Newcastle disease) of fowls is the etiological agent responsible for this varied syndrome. With exception of the people in the laboratory group, most of the cases from Tennessee and Alabama were associated with chickens. Chickens showing ND symptoms were found on the premises of one patient in Tennessee, while the sera of others in Alabama had positive neutralizing antibodies for this virus. The dates of recognition of NDV in fowls in these two states roughly coincide with those for the atypical human cases.

The disease of fowls is usually characterized by neurological symptoms in the immature birds, while respiratory manifestations predominate in the adults. A similar tendency has been observed in the human cases described; a relatively mild course, with meningeal or neurological symptoms more pronounced in children, more influenza-like manifestations in adults.

The data presented in this paper suggest that the virus originating with the fowl has subsequently spread to man, so that now in many instances it may be transmitted from man to man as well as from fowl to man. Poultrymen have long recognized the air-borne transmission of the virus, but it is only recently that DeLay, DeOme, and Bankowski,²⁴ by means of a special apparatus, have recovered NDV from the air of poultry houses containing infected birds. Because NDV is both air-borne and quite resistant to adverse conditions,²⁵ one could readily explain a rapid dissemination from fowl to man.

SUMMARY

1. Sera were received in 1947 and 1948 from various groups of children in Alabama and Tennessee suffering from a mild central nervous system infection of short duration and without sequelae. Because of the frequent association with chickens and the absence of antibodies for the common neurotropic viruses, serum neutralization tests were done against the virus of pneumoencephalitis (Newcastle disease) of fowl.

2. Of 15 sera from children in Tennessee with the ND syndrome 12 were positive to NDV. One case of encephalitis and one with poliomyelitis-like symptoms had antibodies for this virus, but all other sera were negative, including 78 that were taken from children in 1944-1945 without this atypical syndrome. Two chickens from the premises of one of the patients showed both the pathological lesions of Newcastle disease and the presence of neutralizing antibodies in the blood.

3. Of 10 sera from human beings in rural Alabama showing this mild central nervous system syndrome, 8 had definite neutralizing antibodies for NDV, while 2 were equivocal. Chickens with NDV antibodies were in association with several cases.

4. Subsequent to starting work with the virus in the laboratory, an acute influenza-like infection developed in 6 of the laboratory personnel. Antibodies in high titer against NDV were found in the sera of these 6 persons. Antibodies were also found in 4 out of 11 sera of laboratory personnel without symptoms. The sera taken from 19 people in 1947, before working with the virus, were negative for NDV antibodies. The blood of 3 individuals who had typical symptoms be-

fore association with the laboratory contained definite neutralizing antibodies for NDV.

5. All neutralization tests for NDV were negative on the sera of 97 children and adults who had not shown these atypical neurological symptoms.

6. Although no virus has been isolated, it seems probable from the evidence presented that the Newcastle disease virus of fowls is the agent responsible for many of the atypical central nervous system infections that have been reported in man during the past few years, and that, as in the fowl, the manifestations are neurological in young individuals and influenza-like in the adult.

7. It is suggested that NDV originating with the fowls has probably spread to man and that in many instances there is a man to man rather than a fowl to man dissemination.

ACKNOWLEDGMENTS: The authors gratefully acknowledge the interest and coöperation of Dr. Amos Christie and Dr. J. C. Peterson of the Department of Pediatrics of Vanderbilt University School of Medicine, and of Dr. C. B. Tucker, State Epidemiologist of the Tennessee State Health Department. Acknowledgments are likewise made to Dr. D. G. Gill, State Health Director of Alabama, to Dr. R. L. Worcester of the Alabama State Health Department and the U. S. Public Health Service, to Dr. J. T. Grimes and Dr. J. S. Du Bois of Enterprise, Ala., and to Dr. T. C. Marrs of Montgomery, Ala., for their interest and coöperation in the collection of material from different cases. We are also indebted to the laboratory personnel of the U. S. Public Health Service, Virus Laboratory at Montgomery, Ala., for allowing blood to be taken in the interest of this investigation.

REFERENCES

1. Kraneveld, F. C. Over een in Ned-Indië heersende Ziekte onder het Pluimvee. *Nederlandsch-Indische Bladen voor Diergeneeskunde*. Deel 38, Alf. 5, 448-450, 1926.
2. Doyle, T. M. A Hitherto Unrecorded Disease of Fowls Due to a Filter-Passing Virus. *J. Comp. Path. & Therap.*, 40:144-169, 1927 (Seven figures).
3. Beach, J. R. A Nervous Disorder in Chickens. *Nulaid News*, 18:13, 1941.
4. Stover, D. E. Respiratory Nervous Disorder in 8-month-old Pullets. *Am. J. Vet. Res.*, 3:239-241, 1942.
5. Beach, J. R. Avian Pneumoencephalitis. *Proc. 46th Ann. Meet. U. S. Livestock San. A.*, 203-223, 1942.
6. Beach, J. R. The Neutralization *in vitro* of Avian Pneumoencephalitis Virus by Newcastle Disease Immune Serum. *Science*, 100:361-362, 1944.
7. Brandley, C. A., Moses, H. E., Jungherr, E. L., and Jones, E. E. Epizootiology of Newcastle Disease of Poultry. *Am. J. Vet. Res.*, 7:243-249, 1946.
8. Report on Newcastle Disease. *Bull. Bureau of Animal Ind.*, Washington, D. C., July 1, 1948.

9. Beaudette, F. R. A Review of the Literature on Newcastle Disease. *Proc. 47th Ann. Meet. U. S. Livestock San. A. Dec. 2, 3, 4, 1943.*
10. Burnet, F. M., and Ferry, J. D. The Differentiation of the Viruses of Fowl Plague and Newcastle Disease: Experiments Using the Technique of Chorioallantoic Membrane Inoculation of the Developing Egg. *Brit. J. Exper. Path.*, 15:56-64, 1934.
11. Burnet, F. M. The Affinity of Newcastle Disease Virus to the Influenza Virus Group. *Australian J. Exper. Biol. & M. Sc.*, 20:81-88, 1942 (two tables).
12. Reagan, R. L., Lillie, M. G., Poelma, L. J., and Brueckner, A. L. The Response of Some Mammals to Newcastle Virus. *Am. J. Vet. Res.*, 8:427-430, 1947.
13. Reagan, R. L., Lillie, M. G., Poelma, L. J., and Brueckner, A. L. Transmission of the Virus of Newcastle Disease to the Syrian Hamster. *Am. J. Vet. Res.*, 8:136-138, 1947.
14. Reagan, R. L., Lillie, M. G., Hauser, J. E., Poelma, L. J., and Brueckner, A. L. Response of Monkeys to Poliomyelitis after Injection with Newcastle Disease Virus. *Proc. U. S. Livestock San. A., 51st Ann. Meeting, Dec. 1947.*
15. Burnet, F. M. Human Infection with the Virus of Newcastle Disease of Fowls. *Med. J. Australia*, 2:313-314, 1943.
16. Anderson, S. G. A Note on Two Laboratory Infections with the Virus of Newcastle Disease of Fowls. *Med. J. Australia*, 1:371, 1946.
17. Shimkin, N. I. Conjunctival Haemorrhage Due to an Infection of Newcastle Virus of Fowls in Man. *Brit. J. Ophth.*, 30:260-264, 1946.
18. Yatow, J. An Outbreak of Conjunctivitis in Man, Associated with the Virus of Newcastle Disease. *Harefuah*. N. 3, Feb., 1946.
19. The Diagnosis of Newcastle Disease. *Bull. Bureau of Animal Ind.* Washington, D. C., Aug. 15, 1946.
20. Simmons, J. S., and Gentzkow, C. J. *Laboratory Methods of the U. S. Army.* Philadelphia: Lea and Febiger, 1944.
21. Reed, L. J., and Muench, H. A Simple Method of Estimating Fifty Percent Endpoints. *Am. J. Hyg.*, 27(3):493-497, 1938.
22. Humbert, W. C., Tucker, C. B., Mosley, K. T., and Bishop, L. K. An Epidemic of an Acute Meningo-encephalitis in Giles County, Tennessee. *A.J.P.H.*, 37:564-569, 1947.
23. Bailey, W. S., Alabama Polytechnic Institute, Auburn, Alabama, and B. A. J. Report. Personal communications.
24. DeLay, P. D., DeOme, K. B., and Bankowski, R. A. Recovery of Pneumoencephalitis (Newcastle) Virus from the Air of Poultry Houses Containing Infected Birds. *Science*, 107:474-475, 1948.
25. Jungherr, E. Report of the Committee on Modes of Spread of Newcastle Disease. *J. Am. Vet. M. A.*, 112 (851):124-125, 1948.

Alaska Expands Its Public Health Program

C. Earl Albrecht, M.D., Commissioner of Health of the Territorial Department of Health, Juneau, Alaska, has announced that the budget for the Territorial Department of Health has now been fixed for fiscal 1949 in the amount of \$1,115,000.

Dr. Albrecht reports that Congress appropriated funds to expand the public health program in Alaska in all fields. An item of \$250,000 has been set aside for research. A sum of about \$6,000,000 has been set aside by Congress for the building of a second sanatorium in

the area near Anchorage, besides funds which were made available for at least 4 custodial units for the treatment of tuberculosis in isolated areas.

The Motorship Hygiene has been officially transferred from the U. S. Army to the Territory by an Act of Congress.

Dr. Albrecht has announced that a considerable number of vacancies in professional staff at good salaries now exist, and that information concerning the vacancies may be obtained from the office of the Territorial Department of Health in Juneau.

American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

September, 1948

Number 9

Editorial Board

REGINALD M. ATWATER, M.D.
Chairman, and Managing Editor

LEONARD GREENBURG, M.D.
PROFESSOR JOHN M. HENDERSON
RALPH S. MUCKENFUSS, M.D.

STUART MÜDD, M.D.
RAYMOND S. PATTERSON, PH.D.
GEORGE ROSEN, M.D.

C.-E. A. WINSLOW, DR.P.H., *Editor*

AUGUSTA JAY, *Editorial Associate*

THE CHILD GUIDANCE CLINIC

IT is probable that nearly every reader of this *Journal* knows what clinics for tuberculosis and venereal diseases are in operation in his locality, what organization directs them, and what services they render. We suspect that not all of our readers could pass an information test on the child guidance clinics which are available in the same areas. This is why we have asked Dr. Frederick H. Allen to prepare for this issue a brief review of the developments of child psychiatry in the United States.

The National Tuberculosis Association was founded in 1904, the National Committee for Mental Hygiene in 1909. The first of these fields has developed to an astonishing degree, while in respect to mental hygiene, we are just beginning to translate talk into action. The National Committee for Mental Hygiene told us in its last *Annual Report* that there were only 50,000 children served by guidance clinics in the United States while five times that number needed such assistance. The cost of clinic services of this type is considerable, since the procedures involved must, of necessity, be intensive and long-continued. In one New England city, recently studied by the writer, the cost of such a clinic was \$66 a year for each child under treatment. The lack of personnel, as Dr. Allen points out, is an even more serious handicap than the lack of funds.

Somehow, the obstacles to progress in this field must be overcome. We must not forget that mental and emotional maladjustment is almost as serious in its results as all other kinds of diseases and disability taken together; that adequate emotional adjustment attained in childhood will frequently establish a balance making all the difference between success and failure in after life; and that the ultimate saving in human efficiency attained by such adjustment compensates ten-fold or a hundred-fold for the cost involved. The National Mental Health Act opens the way to real progress in the provision of community services of this kind and in the preparation of personnel for such services.

What is your community doing to take advantage of these opportunities?

THE PROBLEM OF WHOOPING COUGH

THE figures cited below make it clear that pertussis has been less effectively controlled than any other of the acute communicable diseases of the United States.

	Deaths per 100,000		Per cent Reduction
	1900	1940	
Diphtheria	40.3	1.1	98
Typhoid Fever	31.3	1.0	97
Measles	13.3	0.5	92
Whooping Cough	12.2	2.2	82
Scarlet Fever	9.6	0.5	95

Since 1940, the same trend has continued. During the three years, 1943-1945 the combined death rate from diphtheria, scarlet fever, and typhoid fever was slightly less than that from whooping cough alone. This disease causes approximately 2,000 deaths a year in the United States.

A recent article by Mudd and Felton¹ on specific means of controlling pertussis is therefore of interest to the health officer.

These authors make three major points. They advocate as an aid in diagnosis, the cultivation of the organism from suspected cases by the use of nasopharyngeal swabs, and cultivation on Bordet-Gengou blood agar with a drop of penicillin solution to inhibit interfering Gram-positive organisms. This procedure, devised by Bradford, is considered superior to the use of cough plates.

Secondly, they point out that the use of hyper-immune human serum (prepared from suitable donors, treated with repeated inoculations of *H. pertussis* vaccine) is of established value in treatment and in the passive immunization of exposed children. This procedure has been accepted by the Council on Pharmacy and Chemistry of the American Medical Association; and appears superior to use of the rabbit sera provided by certain commercial firms. It is concluded that "human hyperimmune serum or globulin should be used in treatment of all infants who are seriously ill with whooping cough."

Finally Mudd and Felton lay stress on the importance of active immunization by the use of standard pertussis vaccine. Since almost half of all deaths from whooping cough occur within the first six months of life, vaccination should be performed early to be effective. With older children, the use of pertussis agglutininogen as a skin test for susceptibility is suggested, although its value is still in the stage of clinical trial. Studies on over a thousand individuals have shown only 1 per cent positive reactions in infants with no known clinical history; 82 per cent in children with a history of whooping cough; 84 per cent in vaccinated children; and 100 per cent in adult immunized blood donors.

An important contribution by J. A. Bell² has recently called attention to the value of an alum-precipitated mixture of pertussis vaccine and diphtheria toxoid for the simultaneous control of both the diseases concerned.

REFERENCES

1. *The Internist*, 14:165 (June), 1948.
2. *J.A.M.A.*, 137:1009 (July 17), 1948.

GALILEO WAS RIGHT

IN the fall of 1932, the Committee on the Costs of Medical Care presented its *Final Report* which included the two following major recommendations:

"I. The Committee recommends that medical service, both preventive and therapeutic, should be furnished largely by organized groups of physicians, dentists, nurses, pharmacists and other associated personnel. Such groups should be organized, preferably around a hospital, for rendering complete home, office, and hospital care. The form of organization should encourage the maintenance of high standards and the development or preservation of a personal relation between patient and physician."

"III. The Committee recommends that the costs of medical care be placed on a group payment basis, through the use of insurance, through the use of taxation, or through the use of both these methods. This is not meant to preclude the continuation of medical service provided on an individual fee basis for those who prefer the present method. Cash benefits, i.e., compensation for wage-loss due to illness, if and when provided, should be separate and distinct from medical services."

A group of 8 physicians and 1 clergyman, who were members of the Committee, presented a minority report, dissenting from these conclusions; and recommended only two practical measures for the wider provision of medical care, the expansion of government care of the indigent, and the development by state or county medical societies of plans for medical care.

The Journal of the American Medical Association, on December 3, 1932, compared the Committee report and the minority report and concluded that "The alignment is clear—on the one side the forces representing the great foundations, public health officialdom, social theory—even socialism and communism—inciting to revolution; on the other side, the organized medical profession of this country."

So much for 1932; now for 1948. At the request of a Senate Committee, the Brookings Institution of Washington presented a report last winter on *The Issue of Compulsory Health Insurance*. This report concludes that "The experience of the United States since 1932 seems to have demonstrated the wisdom of these recommendations of the majority of the members of the Committee on the Costs of Medical Care. It would seem unwise at this time to substitute for these developments a system of compulsory health insurance by national law which would have the unfortunate tendency to freeze policies and eventually retard medical progress."

Galileo was right. The world *does* move.

The quotation of the Brookings report with apparent approval in the *Journal of The American Medical Association* for June 5, 1948, and the attitude taken by the A.M.A. representatives at the recent meetings of the National Health Assembly seem to indicate that the Association has now moved on to almost the exact position taken by the Committee on the Costs of Medical Care, 16 years ago. What was "socialism and communism—inciting to revolution" is now accepted doctrine in the minds of such a highly conservative group as the Brookings Institution and appears acceptable to the *Journal of the American Medical Association*.

Public opinion necessarily moves slowly; but the ground gained in coöperative thinking is most encouraging. The fact that a successful program of medical care must be based on the broad principles of group practice and group payment is now generally accepted. The interval between the most extreme conservative thought and the most progressive thought on this matter has narrowed down to two—and only two—major issues. Shall prepayment be "compulsory" or "voluntary"? Shall compulsory plans be on a state-wide or on a national basis?

It will be recalled that the Committee on the Costs of Medical Care did not—

in 1932—recommend compulsory sickness insurance because its members believed that further experimentation with group practice was first desirable, although they did say that “such a step may ultimately be necessary and desirable in some states.” It is of interest to note that Dr. Haven Emerson and four other members of the C.C.M.C. dissented from the Committee’s emphasis on voluntary insurance as the basis for experimentation in 1932 and said: “We feel that the report should not emphasize or recommend voluntary health insurance over required health insurance, or vice versa, but that both plans or a combination of the two be equally recommended by the Committee for experimentation.” Today there are many other students in this field who would assent to such a proposition, since experience during sixteen years has greatly increased the knowledge at our disposal.

The term “compulsory” is a somewhat unfortunate one, since it has been used to imply that the medical profession would be “compelled” to do something, which is, of course, not the case. “Compulsion” applies to payments by employees (who ardently desire such a plan) and to employers (who have not opposed it). The real essence of such a program is that it is *contributory*; and that contributions come from the employer as well as the employee. This is the only way (short of universal state medical service, which no substantial group advocates in the United States) by which the family of moderate income, but above the level of indigence, can be provided with the medical care which it needs. The Health Insurance Plan of Greater New York most ingeniously provides service which is supported on a “contributory” but not a “compulsory” basis. Whether such a program could be used in other areas is doubtful but worth exploration. On a geographical basis, it is quite possible that the more economically fortunate states could develop compulsory plans such as that urged by Governor Warren in California. It seems certain that the less prosperous states could not.

It is heartening that the area of controversy has been limited by sixteen years of discussion to the two concrete issues cited above. We trust they may be considered in the light of factual data and the results of such experiments as the New York Health Insurance Plan, with avoidance of emotional propaganda and with that reverence for the truth which should be the conscience of the scientist.

LETTERS TO THE EDITOR

TO THE EDITOR:

I have read with interest the article by Justin Andrews, beginning on page 931 of your July issue. It is with much regret that I note he failed to give any credit to, or even mention, the anti-malarial work done by the U. S. Army during the war period.

For your information, I would like to point out that during 1941, 1942, and 1943, the following was *part* of the anti-malarial work done by the Army under my general direction in and around our camps in the Continental United States:

Oil and larvicide applied	4,250,000 gals.
Paris green applied	165,000 lbs.
Ditches dug	1,356 miles
Fill placed	5,480,000 cu.yds.

This does not include minor work, as ditch cleaning, ditch lining, etc. Nor does it include work done in 1944 and 1945, for which the figures are not immediately available to me. The data seem sufficient, however, to show that the work the Army did was sufficiently large to be a factor in the results shown in the chart on p. 936, which chart, incidentally, was prepared originally in my office.

W. A. HARDENBERGH
Pres. & Editor
Public Works Magazine
New York, N. Y.

July 14, 1948.

TO THE EDITOR:

I was much interested in the excellent editorial "The Science and Art of Health Administration" in the July, 1948 (Vol. 38, No. 7, p. 1008-9), issue of the *American Journal of Public Health*, as it expressed a view which I have long held.

As long ago as 1928 our Association became interested in the subject and in January, 1933, a Study was published by the Bureau of Educational Research, Ohio State University, entitled "The Duties of Ohio Health Commissioners." This Study was made by W. W. Charters, then Director of the Bureau, and Darwin A. Hindman.

I am sending you a copy of this Study

since it may contain some of the pertinent facts relating to the subject of the editorial. You may have seen it before but if not I trust you will find the Study of interest.*

ROBERT G. PATERSON
Director of Research
Ohio Tuberculosis and Health Association

July 20, 1948

* EDITOR'S NOTE: The document referred to by Dr. Paterson is an admirable pioneer study of exactly the problem presented editorially in our July issue. We strongly recommend it to our Health Officer readers and to faculties of Schools of Public Health.

Credit Lines

WHEN A CITY SPREADS BEYOND ITS BORDERS

In the July *Journal* (p. 986) Leonard M. Board and Herbert T. Dunsmore discussed some of the environmental health problems of what they call urban decentralization. Their paper, read at the American Public Health Association 75th Annual Meeting in Atlantic City, grew out of a study of Flint, Mich., made under the auspices of the Social Science Research Project of the University of Michigan. This study posed many of the problems that arise out of the hit-or-miss organization of local government in the United States, dating back to the days of sparse population settlements and what are now primitive forms of transportation.

The same problem, as related to Flint, is discussed in the April *Public Management* in an article, "Governmental Problems of Fringe Areas," by Victor Roterus and I. Harding Hughes, Jr., who were on the staff of the Social Science Research Project.

"When municipalities reach the stage of encirclement by a ring of incorporated satellites," say the authors, "no united action takes place on crime, health, planning, and other problems." Among a number of corrective actions suggested is annexation of fringe areas. That this is being increasingly done is indicated by a news item in the May *Public Management* reporting that 170 cities with populations of 10,000 or more made annexations of land area in 1947. The number annexing one-half square mile or more of land rose from 22 in 1945 to 30 in 1946 and 53 in 1947. April *Public Management* also reports on annexations in the San Francisco Bay area in an article by John C. Bollens on "Elements of Successful Annexations."

In Colorado Springs there is a movement on foot to annex new residential areas to the city proper before they incorporate as separate municipalities. Taking one such area of 3,000 population as an example, the city manager pointed out that the annual cost of supplying municipal services by Colorado Springs would be only about half the cost it would be if the area were to be a separate city. The initial capital outlay would be about one-third less.

Another corrective possibility not mentioned by the authors is the consolidation of city and county governments. With respect to public health services this has been done by many cities and counties, among the most recent consolidations being Seattle and King County, Washington; Charleston and Kanawha County, West Virginia; Evansville and Vanderburgh County, Indiana, and Buffalo and Erie County, New York. The Colorado Springs Health Department is a city-county department and thus does not have the problems of the new fringe areas that are concerning the city council in other matters.

TUBERCULOSIS RIDES WITH POVERTY

It has long been accepted that the solution of mass problems of tuberculosis control is in the foreseeable future. What still remains further from solution is the harder part, namely, focusing attention on the individual patient as a personality in a social environment, and making that social environment contribute to healthful living. *Life, Death, and Tuberculosis As Affected by Standard of Living* by Bailey B. Burritt is another chain in the evidence that tuberculosis is now at least as much a socio-economic as a medical problem.

Recently retired as Director of the

National Health Council, to which he was called for a year's special service after retiring from the General Directorship of the Community Service Society of New York, the author had long experience in dealing with the home problems of individuals and families in both the health and social fields. He says "The maintenance of a suitable standard of living means a great difference as to whether individuals and families will or will not acquire tuberculosis, and for those who may already have acquired this disease, it means a great difference in the chance of recovery and in preventing them from being the means of the development of new cases."

Then, in a brief attractive booklet, the author brings together significant and dramatic samples of the evidence linking tuberculosis and standard of living. This link has long been known but it bears frequent repetition because the knowledge is still far from perfectly acted upon.

Available from State Committee on Tuberculosis and Public Health, State Charities Aid Association, New York 28, N. Y., 5 cents.

HOUSING NEEDS MADE VIVID

A Housing Program for Now and Later makes the housing problem as real as the human beings who live in houses, or what often currently pass for houses. "Housing right now is doubling up and sharing the bath and cooking over a hot plate—it is the fact that you would love your old parents a lot more if they didn't have to live with you in a crowded flat. It is one reason why the farmer's wife grows old before her time and his children go away to the city, where at least they won't have to thaw out the pump on zero mornings."

Published by the National Public Housing Conference (1015 Fifteenth St., N.W., Washington 5, D.C.), under the editorship of Catherine Bauer,

Chairman of a Joint Committee of the National Association of Housing Officials and the National Public Housing Conference, it should be in the hands of every public health worker and also of everyone who thinks, with Representative Wolcott, that the public housing feature of the Taft-Ellender-Wagner bill should be eliminated. Twenty-five cents.

VIRGINIA HEALTH BULLETIN BACK ON THE SCENE

In May, 1948, appeared No. 1 of Vol. 11 of the *Health Bulletin* of the Virginia Department of Health. This had ceased publication with Vol. 10 in 1946. The new version is sprightly and attractively packaged. It starts with a "Know Your Health Department" article, gives some highlights of 1947, the 75th anniversary year of the State Board of Health, and has a "Did You Know That?" column which has a number of effective health education capsules. "Control of disease is not possible without the effective participation of Virginia's citizens" and "Write and tell us your reaction to the Bulletin" are two quotes that might be used elsewhere.

The present Virginia State Health Commissioner is Lonsdale J. Roper, M.D., who was appointed on August 7, 1946.

CARE OF ALCOHOLICS PAYS FOR ITSELF

In January, Welfare Commissioner A. E. Rose of Chicago reported on the first 6 months of operation of Portal House, Chicago's Treatment Center for Alcoholics. Patients are admitted to Portal House only if destitute and in need of public assistance. Of 102 admitted during 6 months all but 6 moved off public assistance, which leads the commissioner to note that the rehabilitation program has already more than paid for itself in savings of tax funds.

Two-thirds of the 102 patients have responded to treatment; 45 now being

handled as "outpatients" and 21 undergoing the first stages of treatment within the institution. The remaining one-third, 36 patients, failed to respond to treatment.

GONORRHEA AND THE PRIVATE PHYSICIAN

The Department of Public Health of the City and County of San Francisco has published a *Special Venereal Disease Bulletin* for July, 1948, on "The Diagnosis and Treatment of Gonorrhea in Private Practice." The authors are J. C. Geiger, M.D., Director of Public Health, and Richard A. Koch, M.D., Chief of the Division of Venereal Disease Control.

This *Bulletin* points up the strategic place of the private practitioner in the modern day treatment of gonorrhea. It is presented in a simple but comprehensive manner and the physician who reads it will have access to the established methods of treatment adapted for office use.

STURDY OAK FROM SMALL ACORN

The State Charities Aid Association (105 E. 22nd St., New York, N.Y.) took note of its 75th birthday recently in an attractive pamphlet, *A Small but Resolute Acorn on its 75th Birthday*.

There is a brief story, with pictures, of its various activities, child placing, mental hygiene, tuberculosis and public health, legislation, fund raising, etc. The emphasis is on today's picture but in the process a good deal of illustrious history is reviewed.

Lighthearted imagination has gone into both illustrations and writing, making the report delightful rather than stuffy. A good illustration of the fact that age need not be solemn.

A LOOK AT THE RECORD

Statistics so often give comfort to the enemy. But Don Griswold, M.D., Consultant in Public Health, Mississippi

State Board of Health, has come up with some charts and figures whose significance is unmistakable. In a bar chart he relates the non-white maternal mortality to the percentage of patients admitted to antepartum nursing service.

In the full-time county health departments the higher the per cent admitted to antepartum nursing service the lower the maternal mortality. Where 80 per cent or more were so admitted the rate was 1.6 per 100,000, where fewer than 20 per cent the rate was 4.4, nearly three times as great. The correlation was almost uniform throughout. In counties with only part-time health services, where the number brought under care was not even known, the maternal mortality rate was 5.8.

This material was prepared for a film strip for general distribution.

SUMMARY OF MILK- AND WATER-BORNE DISEASE OUTBREAKS

A Summary of Disease Outbreaks from Water, Milk and Milk Products, Other Foods, and Undetermined Vehicles has been prepared by the Milk and Food Section of the Sanitary Engineering Division, U. S. Public Health Service, on the basis of reports submitted by state and municipal health departments. This summary gives the number of outbreaks, cases, and deaths reported as attributed to water, milk and milk products, other foods, and undetermined origins for the years 1938 to 1946 inclusive. Whereas a reduction of outbreaks, cases, and deaths is evident in those attributed to water and undetermined origin, those attributed to milk and milk products do not show any clear-cut trend. Those attributed to other foods indicate an increase, particularly in the number of outbreaks of illness.

Another report of the Milk and Food Section gives a summary of milk-borne disease outbreaks reported by state and local health authorities in the United

States for the years 1923 to 1946 inclusive. The diseases listed are typhoid, paratyphoid, scarlet fever and septic sore throat, diphtheria, dysentery, food poisoning and gastroenteritis, and undulant fever.

LABOR TO OPERATE A HOSPITAL COÖPERATIVELY

Under the title of "Duluth Unions to Run Own Hospital," a recent issue of *C.I.O. News* tells of the hospital to be organized and operated coöperatively in Duluth, Minn., by CIO, AFL, and the Railroad Brotherhoods. Because a brick hospital building was vacant in West Duluth, and because downtown Duluth hospitals were overcrowded and rates so high that "another baby knocks a family budget badly out of kilter," the union coöperative has taken over the hospital. It is expected to be in operation by September.

Life membership for a family is \$100. Present plans indicate 75 days a year of hospital care including X-ray, operating room, etc., without extra charge, and free medical care. Charges, in addition to the life membership, have not yet been worked out.

PREMARITAL LAWS OF THE STATES

The January issue of *Pennsylvania's Health*, published monthly by the Pennsylvania State Health Department, is devoted to a summary and analysis of the state's premarital laws, together with a tabulation of similar laws in the other 47 states and the District of Columbia. This is a valuable service to Pennsylvania citizens particularly, and to those of other states as well.

MANY ARE THE USES OF PAPER CUPS

All you could possibly want to know about the size, shape, and varied uses of paper cups and containers is included in *Paper Cups and Containers At Your Service*. Attractively printed and illustrated, it is available from the Public

Health Committee of the Paper Cup and Container Institute, 1790 Broadway, New York 19.

NEW ENGLAND PIONEERS IN INTEGRATING HOSPITAL FACILITIES

"Regionalization in New England," a staff report of the Association's Subcommittee on Medical Care, offers a detailed account of the Bingham Associates Fund program for regional integration of hospitals in Maine and Massachusetts. The program of the Bingham Associates, organized in the early thirties, is aimed at improving the quality of care in rural areas by making available the skills of larger centers through diagnostic aid, hospital extension services, and postgraduate education, using approximately the pattern projected by the Federal Hospital Survey and Construction Act. The report, which is thoroughly documented, may be obtained from the Subcommittee on Medical Care, American Public Health Association, P. O. Box 5998, Bethesda, Md.

DESCRIPTIVE BOOKLET ON NATIONAL INSTITUTES OF HEALTH PUBLISHED

The National Institutes of Health (the name was officially changed to the plural by the 80th Congress) is described in a booklet recently published by the Public Health Service, Federal Security Agency. A very well written and well illustrated booklet of 28 pages outlines the historical development of this unique enterprise, beginning with the laboratory set up in the Marine Hospital on Staten Island in 1887 when bacteriology was a new science, traces the direction of the laboratory through Drs. Joseph J. Kinyoun, Milton J. Rosenau, John F. Anderson, George W. McCoy, L. R. Thompson, and now the present Director, R. E. Dyer. It is stated that the National Institutes of Health laboratories and their field stations are now staffed with about 150

commissioned officers, 750 professional and scientific personnel, 75 trainees and fellows, and some 475 others who provide essential administrative, scientific, and maintenance services in support of the research. In the immediate future a still greater expansion of facilities will come with the construction of a Clinical Center providing 500 clinical research beds and associated laboratories. These facilities will offer research opportunities for well trained medical and scientific personnel.

Separate chapters describe the work of the National Cancer Institute, of the Division of Physiology, the Sections on Cardiovascular Diseases and Gerontology, Chemotherapy, Dental Research, Nutrition, and Pharmacology. The booklet describes the Division of Infectious Diseases, the Division of Tropical Diseases, the Biologics Control Laboratory, Laboratory of Physical Biology, the Division of Research Grants and Fellowships, and the newly authorized Clinical Center.

This booklet is to be recommended for those who visit the Institutes and would be an excellent source of information for high school students and those in college who are familiarizing themselves with federally supported research in public health.

ANNUAL REPORTS

The *1947 Annual Report of the John and Mary R. Markle Foundation* is the report of what this foundation is doing to break the bottleneck of man power shortage by appropriations for medical research in colleges and universities and by a system of subsidizing the training of young scientists. Nearly half a million dollars were appropriated in 1947, bringing to a total of about 11,000,000 appropriations made during 20 years of the Foundation's existence. 14 Wall Street, New York 5.

This is Our Task is an attractive 16 page leaflet on heavy paper, printed in

gold and black, reporting on the activities of the Queensboro Tuberculosis and Health Association, 159-29 90th Ave., Jamaica 2, N. Y. For those who may not understand the expanse that is New York City, it should be said that Queens is the largest in area of the 5 boroughs of the city and the fourth largest in population. Its inhabitants number about one and a half million of the nearly 8 million that now make up the city.

A Backward Glance—A Forward Look is an annual report of one of the several district health committees in New York City. The area comprises 2 municipal health center districts, each with a population of more than 300,000. The report of the committee's activities in nutrition, health education, mass chest X-ray, etc., are briefly described in the 7 natural districts into which the area divides itself. An effective small compass report to the neighborhood on what its own committee is doing. Washington Heights—Riverside District Health Committee, 600 West 168th St., New York, N. Y.

Since the Merger is the title chosen for the Calhoun County, Michigan, Board of Health's 1947 annual report. The *Merger* refers to the consolidation of the health services of the City of Battle Creek and the rest of Calhoun County in 1944, resulting in a service unit of approximately 100,000 persons. Perhaps the most telling page is the double spread reporting that each department had some services, each was lacking some, and some were provided by neither department in 1944; in 1947 the whole county had a complete well rounded service. The report is short, done up in an attractive red cover, is printed in clear black and green on good quality paper. Its unspoken moral on almost every page is "In Union There is Strength."

The *1947 Annual Report of the National Committee for Mental Hygiene*

is a historical capsule as well as an annual report. Briefly and interestingly, it tells how the National Committee got where it is, how it fits in with other mental hygiene agencies, what it considers its job, and how it is doing that job. Pictograph illustrations help, as does a sweet humility in the writing. National Committee for Mental Hygiene, 1790 Broadway, New York 19.

DR. DOULL ON WHO

The U. S. Public Health Service has distributed, in mimeograph form, *Nations United for Health* by James A. Doull, Medical Director, Chief, Office of International Health Relations, U. S. Public Health Service. This is an address made at the May 29, 1948, Saturday morning Health Forum of the Harvard School of Public Health.

This gives a brief historical picture of modern international coöperation in health beginning with the Cholera Conference in Paris in 1857, carries it through the recent war period and the organization of the world health body. His "The Prospect" is a recital of the not too impossible goals WHO may be expected to achieve.

FIGHTING TUBERCULOSIS 40 YEARS IN WISCONSIN

The Crusader, the monthly organ of the Wisconsin Anti-Tuberculosis Association, uses its May issue to review the 40 years of its work in reducing tuberculosis in Wisconsin. In short, brightly written paragraphs, with excellent photographs, are told the stories of how the first sanatorium came to be, how public health nursing started, how a modern tuberculosis clinic developed, and finally how the "free care" law of 1945 came to be.

Oscar Lotz, M.D., has been the Executive Secretary of the Wisconsin Association since 1939, when he succeeded Hoyt E. Dearholt, M.D., who helped to found the Association in 1908 and

served as its executive from 1910 to 1939.

WAR MEMORIAL THAT MAKES SENSE

During World War II, 32 members of the Medical Society of New York State lost their lives in service. At the Society's annual meeting in May, 1948, the House of Delegates voted a mandatory assessment of \$12 per member to provide a sum of nearly a quarter of a million dollars as a memorial to these 32 physicians. The sum, to be used for the education of the 58 children of the deceased members, will provide \$600 a year for collegiate and professional training from the end of high school up to 25 years of age.

LET CIVIL SERVICE DO IT

There are some problems it is better to sidestep than to meet head on. That would appear to be the lesson of *Your Patronage Problem and Civil Service* prepared by the Louisiana Department of State Civil Service for the State Legislature. Though addressed primarily to legislators, it can be applied by public health and other administrators. Its prescription for patronage headaches is to let Civil Service handle them. The pamphlet is simply written, amusingly illustrated in black and white drawings, and is an excellent down-to-earth exposition of the functions—and non-functions—of a Civil Service Department. Prepared by the Louisiana Department of Civil Service, Baton Rouge. No information as to whether it is available.

ERRATA

The June *Journal*, p. 876, credited the National Society for Crippled Children and Adults with publication of *The Problem of Cerebral Palsy*. This was in error. It was published by the Association for the Aid of Crippled Children and distributed by the National Society for Crippled Children and Adults.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted. All books reviewed in these columns may be purchased through the Book Service.

Diagnostic Procedures for Virus and Rickettsial Diseases—*Thomas Francis, Jr., M.D., Chairman, Committee on Diagnostic Procedures for Virus and Rickettsial Diseases. New York: American Public Health Association, 1947. 347 pp. Price, \$4.00.*

It is a rare experience to read a book and feel that one has discovered the type of reference manual that has long been needed. This new addition to the publications of the American Public Health Association on laboratory methods falls into such a category. Investigations in the field of virus diseases have progressed so rapidly in recent years, and physicians are so constantly seeking the assistance of the laboratory for the solution of problems of diagnosis, that a reference source of this type is particularly timely.

The seventeen chapters are written by active investigators, who write with the authority that comes from experience. Methods are carefully described; precautions to be taken, limitations of techniques, and principles of interpretation, are thoroughly discussed. It is of particular value that methods capable of routine application are differentiated from those that are still essentially research procedures. Instructions are given for the collection and transportation of suitable specimens. These are of great value for those laboratories that are not equipped to work with viruses.

The compendium type of manual naturally makes some sacrifice in terms of evenness and conciseness of chapters, the length of which is not always proportional to their importance. The

chapter on poliomyelitis for example deals with techniques which are wholly beyond the reach of limited laboratories, and with dengue and phlebotomus fever no assistance can at present be offered to the clinician. The need for frequent and thorough revision in such a rapidly growing field is obvious, and in mumps for example, the necessary delay in publication has already resulted in the omission of important new developments.

The members of the committee that produced this book are to be congratulated. The publication is an exceptional accomplishment, and no active laboratory can safely be without this valuable reference. R. S. MUCKENFUSS

Vers la Médecine Sociale—*By René Sand. Paris: J. B. Baillière et fils. Liège Editors Desoer, 1948. 671 pp.*

For forty years René Sand (now Professor of Social Medicine at Brussels) has been a leader—perhaps the outstanding leader—in developing a broad and vital conception of the importance of social and economic factors in the promotion of the public health.

The term "social medicine" is difficult to define. In his introduction, Dr. Sand says that the art of prevention and of cure is "individual medicine" when applied to one human being alone, "public medicine" when applied to the whole population, and "social medicine" when applied to individuals and classes whose conditions of living require special social measures. A more formal definition is presented near the end of his volume in the following

terms: "Social medicine is the art of prevention and of cure, considered (in its scientific principles as well as in its individual and collective applications) from the point of view of the reciprocal relations which relate the health of men to the conditions of their life."

This book is in the main historical and is written with a depth of scholarship and a width of vision which has not before been achieved in this field. The author is equally at home in ancient Rome and in 20th century New Zealand. He cites Egyptian records of 3000 B.C. and the Constitution of the World Health Organization. His choice of salient events and of outstanding leaders is sound and acute—his source references, representative of every country and of every age. The volume is an invaluable and a definitive work of reference in its field.

Major chapters deal with the history of the medical profession in its various social and economic relations; hospitals, out-patient services and social services; personal hygiene; public hygiene; social hygiene; occupational hygiene; public assistance; and the basic sciences relating to men (demography, anthropometry, psychology, sociology, and the like). The chapter on Social Hygiene includes such subjects as maternal and infant and school health, and the control of tuberculosis, venereal diseases, mental diseases, degenerative diseases, etc.; so that Sand's "public hygiene" and "social hygiene" are both aspects of what we in this country call "public health."

One of the most suggestive discussions to workers in our field is the chapter on "Assistance" (which is so much less offensive a term than "Poor Relief") because this is an area with which most of us are unfamiliar. Particularly illuminating is the following list of recent trends in social service toward increasing emphasis on: (1) active participation by the beneficiaries

in providing such service for themselves; (2) utilization of preventive rather than merely palliative or curative means; (3) application of psychological medicine and reëducational techniques; (4) developing familial rather than purely individual action; (5) development of generalized assistance (pensions, social insurance, family allowance) rather than individual doles; (6) utilization of public rather than private agencies; and (7) replacement of empirical by scientific procedures. This is a far cry from traditional "poor relief"!

In a final chapter, Dr. Sand reviews 20th century advances of social medicine in Germany and Austria, France, Belgium, the Netherlands, Italy, Czechoslovakia, Romania, Jugo Slavia, Great Britain and its dominions, Eire, the United States, and Latin America, as usual with keen and sound perception of major trends.

To this point, the book is mainly historical and constitutes a work of reference which will be indispensable to every serious student of the phases of social progress with which it deals. To the reviewer, however, the best part of the whole volume is the last 30 pages, in which the author gives us his own views on the characteristics, fields, frontiers, and methods of social medicine and of the relations of social medicine to society as a whole and to the individual human being. We hope Dr. Sand will expand this section of his book to make a new volume. "Social medicine" has been discovered, of late, in England and the United States, with an enthusiasm which is gratifying; but the safest guide for the future is one who understands the past as thoroughly as René Sand. C.-E. A. WINSLOW

The Use of Aircraft in the Control of Mosquitoes — Sponsored by the American Mosquito Control Association, T. D. Mulhern, Sec'y-Treas. New Bruns-

wick, N. J., *A.M.C.A. Bull. No. 1*, 1948. 46 pp., 45 figs. Price, \$1.50.

Engineers, public health workers, and entomologists alike will welcome the appearance of this authoritative, up-to-the-minute brochure. The successful and spectacular use of aircraft during the war in the control of disease-bearing insects has given tremendous impetus to aerial attack on various insect problems under peacetime conditions.

There has been much loose thinking and talking about the aerial application of insecticides, and some misuse of aircraft in combating insect pests. This compendium of information dealing with all aspects of the subject covered by the title—and more—should help put us straight on many matters relating to this tremendously interesting and important activity.

The bulletin, prepared through the joint efforts of leading engineers, entomologists, wildlife experts, pilots, and directors of mosquito control projects, and edited by Dr. Paul F. Russel and others, is crammed with useful information. Not only does it meet the needs of those concerned with the use of aircraft in fighting mosquitoes but it will be very helpful to anyone employing aircraft in any insect control operation.

It is important that the public, and especially those employed in or considering the use of aircraft in applying insecticides, recognize that the control of insect pests and disease carriers involves much more than ability to fly an airplane. This publication helps to bring out the many factors that must be considered and supplies information which will help overcome difficulties and avoid serious mistakes.

Brief chapters are devoted to the history of the use of airplanes in mosquito control, types of aircraft and equipment used, DDT formulations and specifications, operational procedures, situations in which aircraft are useful, appraisal of results, precautions to be taken against

injurious effects, public relations, legislation and liability, and civil air regulations. Numerous bibliographical references, a list of dealers in DDT insecticides, and of aircraft spraying and dusting services are included.

Forty-five half-tones and diagrams of aircraft and insecticide dispersing equipment form an important part of the publication. FRED C. BISHOPP

Milk Products—By William Clunie Harvey, M.D., D.P.H., F.R.San.I., and Harry Hill, F.R.San.I., A.M.I.S.E., F.S.I.A. (2nd ed.). London: H. K. Lewis & Co., Ltd., 1948. viii + 343 pp. + 80 illus. Price, 30s.

The authors have discussed on 328 pages many of the sanitary and manufacturing problems connected with seven dairy products, viz., ice cream, cream, butter (and margarine), cheese, condensed milk, evaporated milk, and dried milk. In the eighth and last chapter, 20 pages are devoted to special milk drinks, including fermented milk, junket, whey and lactalbumin foods, malted milk, and chocolate milk.

After a historical and/or introductory treatise, the composition and food value of each item is considered. Manufacturing processes are described in detail in so far as pages will permit, associated with which are 80 illustrations of equipment. Sanitation is discussed in terms of (1) general contamination, (2) specific infections and digestive disturbances, (3) appropriate means for their prevention, and (4) microbiological methods for the detection and determination of the several contaminants. Selected procedures for chemical analysis are described. Each chapter contains copies and/or excerpts of legislation, mostly of British origin, for guidance of the control official and the manufacturer with respect to the sanitary care and the chemical composition required for each food.

The subject matter is reasonably well

organized with subtitles clearly shown in bold face. The printing is clear and the diction is unmistakable. Specific references to original documentary evidence concerning infections generally have been omitted. Errors of fact are the exception. Although elemental in some respects, the book can be recommended for student reference use and for guidance of commercial interests who desire general information. Like most information of this type when assembled in book form, it becomes historical.

A. H. ROBERTSON

Practical Food Inspection — By C. R. A. Martin. (3rd. ed.) London: H. K. Lewis & Co., Ltd., 1948. Vol. I, 316 pp. Vol. II, 284 pp. Price, 18s. net each.

Written presumably for use in the British Isles only for the "lay food inspectors," these two volumes are unique in several ways. Quite an amount of the information in Volume I, *Meat Inspection*, agrees with the information published as regulations governing meat inspection of the U.S.D.A., January, 1947, issue. (U. S. Government Printing Office); there is a surprising amount of information in Volume II, *Fish, Poultry, and other Foods*, that would be valuable to state, city or county regulatory food officials or sanitarians of the U. S.; there is no bibliography in either volume; and there is no mention made of any authoritative source from the Continent or the United States.

Some of the statements in both of the volumes have to be taken with several grains of salt. Examples of such statements are "The effects of refrigeration upon meat, as regards nutritive value, have not been the subject of reliable tests, but all are agreed that there is an impairment of the digestibility of both muscle and fat, particularly the latter, and also an absence of certain tissue-building substances in the meat juices,

which are present in the meat of home-killed animals"; and "Poisonous fungi can be distinguished from edible mushrooms by their pale-brown colour."

Volume I—*Meat Inspection*. The nine chapters of this volume deal with Physiology and Comparative Anatomy; Antemortem Inspection; Slaughtering; A System of Meat Inspection; Physiological Abnormalities; Pathological Abnormalities; Infectious Diseases; Parasites; and Preservation of Meat. Each is treated from the point of view of the experienced lay inspector operating as one who is enforcing the meat laws of Great Britain. Much of the basic information is accurate but if used by American inspectors, cross-reference must be made to the Federal Meat Inspection Act and Regulations.

Volume II—*Fish, Poultry and Other Foods*. The eight chapters in this volume discuss Fish, Poultry, and Game; Fruit, Vegetables, and Cereals; Canned Foods; Milk and Milk Products; Miscellaneous Foods; Food Poisoning; and Legal Procedure.

The chapter on fish is excellent, gives salient points concerning detection of staling and spoilage, and describes a number of seafoods common to the British Isles and many to this country. Some diseases of poultry are described in Chapter II and various types of game, including the ptarmigan (page 66) are described; but the only inspection data are "... it is the usual practice to seize game that is maggoty, and the flesh green, soft, flabby, and putrid"!

In the chapter on fruits and vegetables this statement appears, "Insects and their excrements may affect the taste and appearance of flour." Many of the tips on the inspection of canned foods in Chapter IV are good and the several pages devoted to this subject are worth while. The chapters on Milk and Milk Products and Miscellaneous Foods are interesting reading. Pasteurization is described in ten pages, and ice

cream in four pages, suprisingly brought up-to-date.

The chapter on food poisoning deals almost solely with bacterial infections; chemicals and other causes are mentioned however, in the opening paragraph, and the chapter on legal procedure is interesting and some of the sections of England's food laws could well be adopted in this country.

There are ample illustrations in each chapter. The books are bound attractively and the printing is readable. Considering that there are relatively few books on the subject of practical food inspections, these volumes may be of value to the health officer and his sanitarians.

FERDINAND A. KORFF

Nutrition and the Public Health: A Study Guide — By *Adelia M. Beerwkes, M.S., and John J. Hanlon, M.D., M.P.H.* Ann Arbor, Mich.: The Overbeck Company, 1947. 120 pp. Price, \$2.50.

This manual, which is offered to students of public health as an overview of nutrition, is organized into twenty-seven chapters plus supplementary and bibliographical material. Approximately half of the pages are devoted to "The Science of Nutrition" and the remaining to public health aspects and supplementary material. Granted that some historical interest may be lost by the necessary condensation, the scientific material is not oversimplified, and numerous applications of nutrition to public health are given consideration. The manual fulfils its objective: "to present the student of public health with a framework of the basic knowledge needed to appreciate the relation of nutrition to total health." This reviewer sees an equally helpful use for public health workers in the carefully selected bibliography and the nutrition education sources included in the supplementary material. The ideas and suggested pattern in chapters XXIII

and XXIV, "The Place of Nutrition in the Public Health Program," and "A Suggested Nutrition Program for a State Department of Health," will be of interest to health officers as well as to students of public health.

HAROLD R. SANDSTEAD

Radio Manual—A Guide to Broadcasting for "Mouth Health Education." New York: Oral Hygiene Committee of Greater New York, 1947. 320 pp. Price, \$4.00.

The first 260 pages of this book consist of radio talks and interviews on mouth health, selected from among those broadcast by speakers sponsored by the committee during the interval between the first edition of this book in 1939, and the current volume. These talks represent various phases of mouth hygiene, dentistry, an interpretation of the dental profession to the public. The talks contain much information of great value to the student of mouth hygiene, and should be excellent source material for those who are already motivated by personal problems or other driving force to seek information in this field. As examples of good radio, they could be much improved. They are too professionally self-conscious, too much concerned with what dentists want the people to know, and not enough with what people want to know. The two dissertations about the American Dental Association, which head the section on talks, are excellent in themselves, but they would not appeal to a radio listener unless he were a dentist or a relative of a dentist. The use of the interview format is usually stilted, unnatural and forced, rather than easy-to-listen-to interchange. There is scarcely a ray of humor to relieve the monotonous repetition of the details of mouth pathology. Most of these talks and interviews could have benefited from the attentions of writers more skilled in radio.

The second part consists of advice to dentists about the facts of radio. This is a satisfactory explanatory essay, though highly conservative. It stresses dignity of the profession, perhaps above the desirability of having a large and interested audience. It condemns commercial sponsorship, whereas the trend is toward greater coöperation with appropriate commercial sponsors, without loss of professional integrity and with the advantages of broadcasting technics which help to attract listeners.

Possibly the most significant revelation in the book is the tremendous amount of labor and coöperation which lies behind it. For this, great credit is due to the dental societies and the dentists of Greater New York who have made possible the Oral Hygiene Committee.

W. W. BAUER

Say It With Figures—By *Hans Zeisel*, New York: Harper, 1947. 250 pp. Price, \$2.50.

While this is primarily a manual for statisticians in the field of consumer and opinion research, it is a valuable text on the science of assembling and using social statistics of many kinds.

Public health agencies, both official and voluntary, must depend upon public support and understanding. It is useful for them to measure, therefore, from time to time, public knowledge and attitudes, and this text describes how to use data which may be accumulated for this purpose so that they will not yield spurious conclusions. Also health agencies sometimes need to evaluate the public acceptance of a given campaign or study, the effects of a particular program of health education. For the latter purpose, especially, the description of the panel technique which this book gives is useful. This technique differs from the customary polling of opinion of selected cross-sections at various times by interviewing the same group at different intervals.

Many of the techniques used by advertisers to estimate the effect of their advertising are equally adaptable to the health educator for ascertaining the effect of his educational program. Likewise the techniques of market research used by manufacturers to estimate the probable need of or the likely acceptance of their products are equally adaptable to health officers for the same purpose. Heretofore health agencies have been prone to rely rather on morbidity and mortality reports as guides to practice. These reports, however, reflect failures and only by inference do they indicate some of the existing problems.

The methods of statistical analysis outlined present nothing new to those skilled in the science of statistics except to illustrate how the principles of that science may be applied to the analysis of certain social situations with which the vital statistician is not usually accustomed to deal. For the imaginative health officer and health educator, it suggests exciting possibilities of a new approach to ancient problems.

HOMER N. CALVER

Russell Sage Foundation, 1907–1946. (2 Volumes.)—By *John M. Glenn, Lilian Brandt, and F. Emerson Andrews*. New York: Russell Sage Foundation, 1947. 746 pp. Price, \$5.00.

The Russell Sage Foundation, having discontinued the policy of making grants to outside agencies, has presented to the public an informative review of the grants in aid—totalling over nine million dollars—made to 119 agencies and special projects over a period of forty years. Support has been given in widely diversified areas of the general field of social work, including tuberculosis and child hygiene, as well as education, recreation, city planning, the technique of surveys and exhibits, industrial relations and delinquency. The record is impressive and inspiring.

C.-E. A. WINSLOW

Public Health in Foreign Periodicals

GEORGE ROSEN, M.D., PH.D.

EPIDEMIOLOGY is not concerned simply with individual sick people, but rather with all those factors and conditions that join together to produce disease in groups of individuals. This is already evident in the Hippocratic work *On Airs, Waters and Places*, which may be regarded as the first treatise on epidemiology. Interesting examples of the epidemiological approach are provided by a number of recent articles in foreign publications.

NATIVE CUSTOMS AND THE EPIDEMIOLOGY OF MALARIA IN SPANISH MOROCCO

The prevalence of malaria in Spanish Morocco is dependent on two sets of factors.¹ On the one hand, conditions favorable to anopheline development exist from early spring to late autumn throughout the entire territory wherever there are permanent or temporary collections of water. On the other hand, the customs and mode of life of the inhabitants tend to exert both favorable and unfavorable effects on the prevalence and spread of malaria. Ignorance, defective nutrition, inadequate treatment or complete lack of medical care, and poor living conditions favor the persistence and extension of the disease. A very important factor in the maintenance of endemic malaria is the establishment of military camps near native rural villages, and near breeding places of anophelines. As factors tending to limit the spread of malaria, Conillera mentions the proximity of cattle (leading to mosquito deviation), the location of villages in the highlands, and an apparent development by the adult natives of a kind of immunity. This is not uncommon in endemic areas

where the greater morbidity is found among infants and young children. In conclusion, it is suggested that factors such as those mentioned above must be taken completely into account before any measures for the control of malaria are undertaken.

EPIDEMIOLOGY OF TERTIAN MALARIA IN FINLAND DURING 1941-1945

Malaria is world-wide in its distribution and occurs in countries of northern Europe. Hernberg offers the experience with malaria in Finland during the war years.² Malaria was not common in Finland before the war. Severe outbreaks had occurred during the 19th century and early in the present century. Following the First World War malaria spread northward as far as the city of Archangel, and cases were reported from other parts of northern Europe. In Finland, 468 cases were recorded. This epidemic wave subsided, however, and in 1938 only 16 cases were reported. Of these, 12 were from the province of Viipuri in southeastern Finland adjoining Russia.

During the recent war, cases of malaria appeared in large numbers among Finnish troops. In 1942, 583 cases were reported; in 1943, there were 262 cases; and in 1944, 892 cases. A lesser number of civilian cases was reported and these are regarded as having been communicated from infected soldiers. Hernberg asserts that Soviet troops were the source of infection, but as the disease occurred principally on the Karelian Isthmus where it had previously been endemic one doubts whether this assertion is warranted. Furthermore, it should be noted that

no antimalarial prophylaxis was employed in the Finnish Army. The disease is benign in character and is due to *Plasmodium vivax*. The apparent vector in Finland is *Anopheles maculipennis*.

While studying cases of malaria in 1945, Hernberg found that these were almost exclusively men who had performed military service in malarious areas during the preceding summer. As the possibility of relapse was excluded, he inferred that the disease became manifest after an incubation period of 9 months. It is believed that the malarial parasite remains quiescent in the reticulo-endothelial system until spring. In this connection, it is of interest to note that in the Netherlands, *P. vivax*, which is prevalent, has a tendency to remain latent for many months after the sporozoites have entered the human body through the bite of an *Anopheles* mosquito. At the same time it should be pointed out that one cannot entirely exclude possible infection by hibernating mosquitoes, despite the author's belief to the contrary.

MEASLES EPIDEMICS IN HELSINKI, 1919-1944

Forsius made a statistical study of the epidemics of measles that had occurred in Helsinki from 1919 to 1944.³ During this period there were seven epidemics comprising a total of 12,831 cases. Among the cases in these epidemics, 3.2 to 6.8 per cent were over 18 years of age. The oldest reported patient was 58 years of age, the youngest 9 days. Of the patients over 18 years old, many were rural inhabitants who had moved to the city. It is of interest to note that the incidence curve for measles among children of school and preschool age showed a steep rise at the beginning of the epidemics, while among infants and youths the peak of the curve occurred toward the end of the epidemics. Infants during the first

half-year of life were immune to infection. During the measles epidemics fresh cases of tuberculosis were found to increase by 34.9 per cent. Nevertheless, there was no increase in cases of tubercular meningitis.

EPIDEMIOLOGY OF BRUCELLOSIS IN ARGENTINA

Investigation of brucellosis in Argentina began in 1931 at the Malbrán Bacteriological Institute.¹ It was soon found that in large areas caprine, bovine, and porcine brucellosis existed as an indigenous disease. Since then, studies have shown that *Brucella* infection exists in all the Argentine provinces between the twenty-second and forty-sixth parallels, southern latitude.

Up to the present, 2,430 cases have been reported. Three-quarters of the total incidence was in males. The age range of these cases was from 8 months to 82 years, although young adults predominated. Most of the cases are occupational in origin. In the plains area of Argentina, the chief source of infection is to be found in hogs and cattle, whereas in the Andean region goats are almost solely responsible. Direct human transmission is rare in both rural and urban districts.

In urban communities human brucellosis may arise from a variety of sources. Cases have been traced to direct contact in slaughterhouses, or to attendance in such infected places as slaughterhouses by workers such as painters, masons, or mechanics. Others are due to the consumption of raw or inadequately pasteurized milk; of infected milk products, particularly fresh cheese made from goat milk; or of insufficiently cooked meat or viscera of infected animals. Incidental laboratory infections, and the tasting of raw cream before making butter account for other cases. Interesting is the mention of sexual intercourse as a source

of human infection; no substantiating data are offered.

In rural districts, infection occurs chiefly in the case of certain occupational activities. Among these may be mentioned the milking of infected animals, the handling of aborted fetuses, or the removal of placental remnants following abortion.

The disease occurs at all seasons of the year, but is more common during the spring and summer.

EPIDEMIOLOGY OF TUBERCULOSIS IN CONCEPCIÓN, CHILE

As in other Chilean cities, the incidence of tuberculosis in Concepción is high.⁵ In fact, the mortality rate is even higher than the average for Chile as a whole. Apart from the diseases of childhood, in 1945, tuberculosis was the leading cause of death in the population as a whole. Among the preschool and school age groups, the mortality rate was higher for the females than for the males. Over the age of 25, however, the female mortality rate dropped below the male rate.

As might be expected, Mantoux tests show a high rate of infection in the population. Between 3.7 and 5 per cent of the population of Concepción are estimated to have active tuberculosis. Yet, it is noteworthy that in 1945, only 26.5 per cent of the total deaths occurred in a hospital, while the other 73.5 per cent occurred at home. The migration of young susceptibles from rural areas to the city in quest of industrial employment is adduced to explain the high mortality.

To combat this situation, it is proposed to coördinate all health services, to employ mass radiography, to provide enough hospital beds for active open cases, to carry out Mantoux tests in order to select those cases suitable for BCG vaccination, to carry on an intensive campaign of health education, and in conjunction with this campaign

to have home visiting by nurses who will teach personal hygiene.

A NEW EPIDEMIC OF TULAREMIA AT LÜLEBURGAZ IN EUROPEAN TURKEY

Tularemia was first recognized in Turkey in 1936 at Lüleburgaz in Thrace.⁶ In the same year the disease was also reported from central Anatolia, and in 1938 from eastern Anatolia.⁶ No further outbreaks of tularemia were reported until 1945, when 18 cases occurred at Lüleburgaz, 15 in military garrison and 3 among the civilian population.

Tularemia has long been endemic among the civilian population of Lüleburgaz. However, the disease occurred in such a mild form that medical assistance was rarely needed. After recognition of the presence of tularemia in Turkey in 1936, investigation established its existence throughout Thrace.

The epidemiology of the disease in Turkey has not been explained. It has been suggested that transmission is possible through *Ornithodoros lahorensis*, a tick that is widespread in Turkey. Another suggestion has been that the eating of infected animals, hares or quails, or the drinking of water contaminated by the droppings of quails, may be responsible for its spread. All efforts to obtain evidence on the role of ectoparasite or of rodents in the 1945 outbreak at Lüleburgaz were in vain. It is worth noting, however, that all the cases seemed to be connected in some way with a small stream named Kaymarca. In 1937, it had been possible to infect guinea pigs with water from this stream. All the patients in the 1945 outbreak had been in contact with this water; after it had been declared out of bounds for the soldiers, the epidemic among them ceased.

POLIOMYELITIS IN BULGARIA FROM 1931 TO 1945

Poliomyelitis has been endemic in

Bulgaria, small numbers of cases having been reported as occurring during all seasons.⁷ The maximal incidence was found in October. One hundred and twenty cases were reported in 1939, and 72 in 1940. In 1941, however, there was a sudden increase in the incidence of the disease; 471 cases were reported. Cases were more common in rural villages than in towns and cities. To explain this increase it is suggested that more virulent strains of the causative virus were introduced by German troops that passed through Bulgaria in 1941. Obviously, a hypothesis of this kind could hardly be verified. After 1941, the incidence of poliomyelitis dropped again, but it still remains higher than before the war.

SWISS MEDICAL EXPERIENCE WITH NUTRITION DURING THE WAR

Kapp shows that food resources in Switzerland were managed in the best possible way during 1939-1944.⁸ The rationing scheme employed bread, milk, and potatoes as the basic foods. Special account was taken of the needs of children and of workers performing heavy labor. Throughout the entire period only a small number of pathological cases due to food shortage occurred. Some cases of osteoporosity were observed that were very likely due to lack of fat, and fat-soluble vitamins. There was also some increase in the frequency of anemia. All in all, however, the Swiss experience is claimed to have

demonstrated the importance of scientific management of nutrition.

EPIDEMIOLOGICAL SIGNIFICANCE OF COCKROACHES IN DIPHTHERIA

A curious and interesting epidemiological note on diphtheria is reported from Holland.⁹ In the course of a serious rise in the number of diphtheria carriers (patients and staff) in a large hospital, investigation revealed that cockroaches in the institution were harboring diphtheria bacilli. Measures were undertaken to exterminate the cockroaches, and as their number dropped there was a concomitant decrease in the number of diphtheria infections. Finally, these ceased completely.

REFERENCES

1. Conillera, J. S. Costumbres indigenas con la epidemiologia del paludismo en el Protectorado marroqui. *El Siglo Medico*, 115:371-374, 1947.
2. Hernberg, C. A. The Epidemiology of Malaria Tertiana in Finland during the Years 1941-1945. *Acta medica Scandinavica*, 127:342-360, 1947.
3. Forsius, H. Om mässling-epidemierna i Helsingfors 1919-1944. *Nordisk Medicin*, 36:2387-2390, 1947.
4. Molinelli, E. A. Basso, G., and Liyara, S. Epidemiologia de la brucellosis humana en la Republica Argentina. *Revista de la Asociación Medica Argentina*, 61:182-188, 1947.
5. San Martin Ferrari, H. Epidemiologia de la tuberculosis en Concepción. *Revista Chilena de Higiene y Medicina Preventiva*, 8:241-260, 1946.
6. Golem, S. B. Lüleburgazda yeni bir tularemi epidemisi. *Türk İhyen ve Tercübi Biyoloji Dergisi (Turkish Bulletin of Hygiene and Experimental Biology)*, 5:27-40, 1945.
7. Koussitassoff. Epidemic Poliomyelitis in Bulgaria during the Period 1931-1945. *Bull. Office internat. d'Hygiène publique*, 38:1077-1081, 1946.
8. Kapp, H. Ärztliche Erfahrungen mit der Kriegsernährung in der Schweiz. *Experientia*, 3:11-20, 1947.
9. De Graaf, J. Epidemiologische betekenisse van kakkerlakken bij diphtherie. *Nederlandsch Tijdschrift voor Geneeskunde*, 91:135-136, 1947.

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

THE ABNORMAL PERSONALITY. Robert W. White, Ph.D. New York: Ronald Press, 1948. 613 pp. Price, \$5.00.

ADVANCES IN FOOD RESEARCH. Vol. I. Edited by E. M. Mrak and George F. Stewart. 459 pp. Price, \$7.50.

AMERICAN RURAL LIFE. A Textbook of Soci-

ology. David Edgar Lindstrom. New York: Ronald Press, 1948. 385 pp. Price, \$4.00.

BACTERIOLOGY AND IMMUNOLOGY. Fiat Review of German Science 1939-1946. Hans Schmidt (Senior Author) Berlin, Germany: Office of Military Government, 1947. 155 pp.

BASIC PRINCIPLES OF VENTILATION AND HEAT-

- ING. Thomas Bedford, D.Sc. Ph.D. London: H. K. Lewis, 1948. 401 pp. Price, 25s net.
- THE CHEMICAL COMPOSITION OF FOODS. R. A. McCance and E. M. Widdowson (2nd ed.) Brooklyn, N. Y.: Chemical Publishing Co., 1947. 156 pp. Price, \$3.75.
- CLINICAL LABORATORY METHODS AND DIAGNOSIS. Vols. I, II, and III. R. B. H. Gradwohl, M.D., D.Sc. (4th ed.) St. Louis: Mosby, 1948. Vols. I, and II 2284 pp. Vol. III 819 pp. Price, \$40.00.
- CONTEMPORARY SCHOOLS OF PSYCHOLOGY. Robert S. Woodworth, Ph.D., Sc.D., LL.D. (rev. ed.) New York: Ronald Press, 1948. 279 pp. Price, \$3.00.
- CONVALESCENT CARE FOR CHILDREN, REPORT OF THE STUDY OF. Chicago: National Society for Crippled Children and Adults, 1947. 156 pp.
- DISEASES AFFECTING THE VULVA. Elizabeth Hunt, B.A., M.D., Ch.B. (3rd ed. rev.) St. Louis: Mosby, 1948. 211 pp. 36 illus. Price \$7.50.
- EATING FOR HEALTH. Pearl Lewis, B.S. New York: Macmillan, 1948. 121 pp. Price, \$2.25.
- ESSENTIALS OF PUBLIC HEALTH. William P. Shepard, M.D. Philadelphia: Lippincott, 1948. 600 pp. Price, \$5.00.
- FEEDING THE HUMAN FAMILY. Science Plans for the World Larder. F. Le Gros Clark. London: Sigma Books Ltd., 1948. 125 pp. Price, 7s 6d net.
- FOOD PRODUCTS. Saul Blumenthal. Brooklyn, N. Y.: Chemical Publishing Co., 1947. 986 pp. Price, \$12.00.
- FOODS. PRODUCTION, MARKETING, CONSUMPTION. Jean J. Stewart, M.A., and Alice L. Edwards, Ed.D. (2nd ed.) New York: Prentice-Hall, Inc. 1948. 400 pp. Price, \$6.35.
- FROM OLD TO NEW. The University of Vermont and State Agricultural College. Burlington, Vt.: University of Vermont, 1947. 43 pp. Price, \$.35.
- HEALTH SERVICES IN ENGLAND. R. C. Wofinden, M.D., B.S., D.P.H., D.F.A. Baltimore: Williams & Wilkins, 1947. 191 pp. Price, \$2.50.
- HOW FAMILIES USE THEIR INCOMES. Bureau of Human Nutrition and Home Economics, U. S. Department of Agriculture. Miscellaneous Publication No. 653. Washington, D. C.: U. S. Gov. Ptg. Office, Supt. of Documents, 1948. 64 pp. Price, \$.30.
- HOW LAYMEN CUT MEDICAL COSTS. Public Health Institute. Chicago: Lakeside Press, 1948. 35 pp.
- HUTCHISON'S FOOD AND THE PRINCIPLES OF DIETETICS. Revised by V. H. Mottram, M.A., and George Graham, M.D. (10th ed.) Baltimore: Williams & Wilkins, 1948. 727 pp. Price, \$6.75.
- HYGIENE PART I. GENERAL HYGIENE. Fiat Review of German Science 1939-1946. Ernst Rodenwaldt (Senior Author). Berlin, Germany: Office of Military Government, 1948. 191 pp.
- INDUSTRIAL AIR SAMPLING AND ANALYSIS. Chemistry and Toxicology Series: Bulletin No. 1, 1947. Leslie Silverman, Sc.D. Pittsburgh, Pa. Industrial Hygiene Foundation, 1947. 72 pp. Price, \$1.50.
- LIMNOLOGICAL METHODS. Paul S. Welch, Ph.D. Philadelphia: Blakiston, 1948. 381 pp. Price, \$7.00.
- THE MACHINERY OF THE BODY. Anton J. Carlson and Victor Johnson (3rd ed.) Chicago: University of Chicago Press, 1948. 639 pp. Price, \$4.50.
- MALARIA CONTROL ON IMPOUNDED WATER. Prepared Jointly by the Tennessee Valley Authority, Health and Safety Department, and the U. S. Public Health Service Communicable Disease Center. Washington, D. C.: U. S. Gov. Ptg. Office, Supt. of Documents, 1948. 422 pp.
- MANUAL OF VETERINARY BACTERIOLOGY. Raymond A. Kelsner, D.V.M., A.M., Ph.D., and Harry W. Schoening, V.M.D. (5th ed.) Baltimore: Williams & Wilkins, 1948. 767 pp. Price, \$6.50.
- MILK AND DAIRY PRODUCTS. Lincoln M. Lampert. Brooklyn, N. Y.: Chemical Publishing Co., 1947. 291 pp. Price, \$7.00.
- THE MUNICIPAL YEAR BOOK 1948. The Authoritative Resume of Activities and Statistical Data of American Cities. Chicago: International City Managers' Assoc., 1948. 558 pp. Price, \$9.00.
- OCCUPATIONAL PAMPHLETS. Gertrude Forrester, Ed.D. New York: H. W. Wilson Co., 1948. 351 pp. Price, \$2.50.
- PRACTICE OF ALLERGY. Warren T. Vaughan, M.D., Revised by J. Harvey Black, M.D. (2nd ed.) St. Louis: Mosby Co., 1948. 1132 pp. 333 illus. Price, \$15.00.
- PRACTICAL BACTERIOLOGY, HANDBOOK OF. T. J. Mackie, C.B.E., M.D., LL.D., D.P.H., and J.E. McCartney, M.D., D.Sc. (8th ed.) Baltimore: Williams & Wilkins, 1948. 624 pp. Price, \$7.00.
- PRACTICAL THERAPEUTICS, A COURSE IN. Martin Emil Rehfuess, M.D., F.A.C.P., F. Kenneth Albrecht, M.D., and Alison Howe Price, M.D. Baltimore: Williams & Wilkins, 1948. 824 pp. Price, \$15.00.
- RACIAL VARIATIONS IN IMMUNITY TO SYPHILIS. Chester North Frazier and Li Hung-Chiung. Chicago: University of Chicago Press, 1948. 122 pp. Price, \$2.50.

SOCIAL DISORGANIZATION. Robert E. L. Faris.
New York: Ronald Press, 1948. 481 pp.
Price, \$4.50.

TWENTIETH CENTURY SPEECH AND VOICE CORRECTION. Edited by Emil Froeschels, M.D.
New York: Philosophical Library, 1948. 321 pp. Price, \$6.00.

THIS FOR THAT. By the Florida Committee for the Improvement of the Applied Economics Part of the Teacher Education Program. Gainesville, Fla.: University of Florida, 1947. 31 pp. Price, \$.25.

THE FOLLOWING REPORTS HAVE BEEN RECEIVED

BRITAIN'S CHARTER OF SOCIAL SECURITY 1948.
New York: British Information Services, 1948. 24 pp.

CENTRAL MINING—RAND MINES GROUP. Health Department. Report for the Year 1947. A. J. Orenstein, C.B., C.M.G., C.B.E., LL.D., M.D, Chief Medical Officer. Johannesburg, So. Africa: Rand Mines, Ltd., Health Dept. 18 pp.

CHILDREN'S FUND OF MICHIGAN. 19th Annual Report 1947-1948. Detroit, Mich.: Children's Fund of Michigan. 20 pp.

THE COMMONWEALTH OF MASSACHUSETTS. Report of the Special Commission to Study and Investigate Certain Public Health Matters. Boston: Wright & Potter Printing, 1948. 77 pp.

CORTLAND COUNTY, N. Y., Department of Health 1947. 18th Annual Report. Cortland County, N. Y. Dept. of Health, 50 pp.

HEALTH APPRAISAL OF SCHOOL CHILDREN. A Report of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association. Edited by Dean F. Smiley, M.D., and Fred V. Hein, Ph.D. Chicago, Ill.: American Medical Assoc., 1947. 27 pp.

MONTGOMERY COUNTY, MARYLAND HEALTH DEPARTMENT. ANNUAL REPORT 1947. Montgomery County, Md. Health Dept. 24 pp.

NASSAU COUNTY TUBERCULOSIS AND PUBLIC HEALTH ASSOCIATION. 25 YEARS—A Review and A Look Ahead. Long Island, N. Y. Nassau County Tuberculosis and Public Health Assoc. 23 pp.

NEW HAVEN, CONN., DEPARTMENT OF HEALTH.

CITY OF. ANNUAL REPORT 1947. New Haven, Conn.: Dept. of Health. 40 pp.

NEW YORK TUBERCULOSIS AND HEALTH ASSOC., INC. ANNUAL REPORT, April 1947-March 1948. New York: New York Tuberculosis and Health Assoc.

OFFICIAL RECORDS OF THE WORLD HEALTH ORGANIZATION: New York: U.N.W.H.O. Interim Commission, 1948. Proceedings and Final Acts of the International Health Conference, New York, June 19-July 22, 1946. 130 pp. Price, \$.50.

Minutes and Documents of the 5th Session of the Interim Commission. Geneva, January 22-February 7, 1948. 261 pp. Price, \$.25.

Reports of Expert Committees to the Interim Commission. 67 pp. Price, \$.25.

Report of the Interim Commission to the first World Assembly. 91 pp. Price, \$.25.

ON THE ALBERTA HEALTH HORIZON. Dept. of Public Health. Edmonton, Alberta, Canada: A. Shnitka. 46 pp.

PHYSICIANS AND SCHOOLS. Report of Conference on the Coöperation of the Physician in the School Health and Physical Education Program. October 1947. Edited by Dean F. Smiley, M.D., and Fred V. Hein, Ph.D. Chicago, Ill.: American Medical Assoc. 1947. 32 pp.

POLIOMYELITIS IN IDAHO 1947-1948. Prepared by the Idaho State Dept. of Public Health. Boise, Idaho: Dept. of Health, 1948.

PROVINCE OF BRITISH COLUMBIA. Second Report of the Dept. of Health and Welfare—1947. Victoria, B. C.: Don McDiarmid, 1948. 77 pp.

REPORT OF THE MISSION FOR POLAND. Food and Agriculture Organization of the United Nations. Washington, D. C. FAO, 1948. 160 pp.

"SINCE THE MERGER" Calhoun County Board of Health. Battle Creek, Mich.: Calhoun County Health Dept., 1948. 22 pp.

TODAY AND TOMORROW—Chapter Seven. Ninth Annual Report of the Housing Authority of the City of New Haven 1946-1947. New Haven, Conn.: Housing Authority, 1948. 22 pp.

VIRGINIA STATE DEPT. OF HEALTH. 38TH ANNUAL REPORT. Richmond: State Dept. of Health. 281 pp.

Preliminary Program of the Scientific Sessions of the
76th Annual Meeting of the American Public Health
Association and Meetings of Related Organizations,
Boston, Mass., November 8-12, 1948.

MONDAY MEETINGS

AMERICAN SCHOOL HEALTH ASSOCIATION

Talbot Hall, Mechanics Building

Presiding: DAVID VAN DER SLICE, M.D., *President.*

Trends in Health Education. A. O. DEWEESE, M.D.

Nutritional Appraisals of New York State School Children. FREDRICK J. STARE, M.D., PH.D.

The Physician and the School. DEAN F. SMILEY, M.D.

Cancer in the School Age Child. SIDNEY FARBER, M.D.

CONFERENCE OF MUNICIPAL PUBLIC HEALTH
ENGINEERS

Morning, Luncheon and Afternoon Sessions—Parlor A, Statler Hotel

Committee Reports on "Administration of Local Sanitation Problems"

CONFERENCE OF PROFESSORS OF PREVENTIVE
MEDICINE

Morning and Afternoon Sessions—Reception Room, Mechanics Building

CONFERENCE OF STATE DIRECTORS OF HEALTH
EDUCATION

Morning and Afternoon Sessions—Room C, Mechanics Building

CONFERENCE OF STATE AND PROVINCIAL PUBLIC
HEALTH LABORATORY DIRECTORS

Morning and Afternoon Sessions—Paul Revere Hall, Mechanics Building

COUNCIL OF STATE DIRECTORS OF PUBLIC
HEALTH NURSING

Morning and Afternoon Sessions—Paul Revere Banquet Hall, Mechanics Building

MONDAY MEETINGS

MASSACHUSETTS ORGANIZATION FOR PUBLIC
HEALTH NURSING

Morning and Afternoon Sessions—Ball Room Foyer, Statler Hotel

PUBLIC HEALTH CANCER ASSOCIATION

Morning and Afternoon Sessions—Room A, Mechanics Building

PUBLIC HEALTH VETERINARIANS

Morning and Afternoon Sessions—Room 407, Statler Hotel

MONDAY, 12:30 P.M.

AMERICAN PUBLIC HEALTH ASSOCIATION
GOVERNING COUNCIL

Luncheon and Afternoon Meeting—Georgian Room, Statler Hotel

MONDAY, 2:30 P.M.

AMERICAN SCHOOL HEALTH ASSOCIATION

Talbot Hall, Mechanics Building

Presiding: WILLIAM E. AYLING, M.D., Vice-President.

Presidential Address. DAVID VAN DER SLICE, M.D.

*Reasons for Lack of Correction of Physical Defects. MARIE E. SWAN-
SON, R.N.*

Education for Mental Hygiene. WALTER S. HOLMELUND.

*The Jackson's Mills Conference on Health Education, Physical Educa-
tion and Recreation. HOLGER F. KILANDER, PH.D.*

ASSOCIATION OF STATE AND TERRITORIAL
HEALTH OFFICERS

Room 405, Statler Hotel

CONFERENCE OF HEALTH MUSEUM EXECUTIVES

Parlor E, Statler Hotel

MONDAY, 2:30 P.M.

MASSACHUSETTS PUBLIC HEALTH ASSOCIATION

*Salle Moderne, Statler Hotel**Presiding: VLADO A. GETTING, M.D.**Introductory Remarks: SENATOR RICHARD H. LEE.**Reports of Technical Committees:**Local Health. Chairman, HUGH R. LEAVELL, M.D.**Preventable Diseases. Chairman, CONRAD WESSELHOEFT, M.D.**Sanitation. Chairman, GORDON M. FAIR.**Maternal and Child Health. Chairman, WARREN R. SISSON, M.D.**Discussion: (Speakers to be announced).*

MONDAY, 5:00 P.M.

RECEPTION TO THE PRESIDENT OF THE AMERICAN
PUBLIC HEALTH ASSOCIATION*Imperial Ball Room, Statler Hotel, 5-7 P.M., Informal*

MONDAY, 6:30 P.M.

ASSOCIATION OF MATERNAL AND CHILD HEALTH AND
CRIPPLED CHILDREN'S DIRECTORS*Dinner and Evening Session—Parlor B, Statler Hotel*COMMITTEE ON CONSULTANTS OF THE NATIONAL
SANITATION FOUNDATION*Dinner Session—Parlor C, Statler Hotel*ENGINEERING SECTION, CONFERENCE OF MUNICIPAL
PUBLIC HEALTH ENGINEERS, AND CONFERENCE
OF STATE SANITARY ENGINEERS*Annual Engineers' Stag Dinner, Georgian Room, Statler Hotel**"Bill" Orchard, Master of Ceremonies*

PUBLIC HEALTH VETERINARIANS

Dinner and Evening Sessions—Parlor F, Statler Hotel

MONDAY, 8:30 P.M.

AMERICAN SCHOOL HEALTH ASSOCIATION

Evening Session—Parlor A, Statler Hotel

Presiding: DAVID VAN DER SLICE, M.D., AND CYRUS H. MAXWELL, M.D.

The Academy of Pediatrics' Study of Child Health Services. JOHN P. HUBBARD, M.D.

School Lighting. C. L. CROUCH.

St. Louis Study on Vision Testing. FRANKLIN M. FOOTE, M.D.

Use of Well Baby Clinic for Teaching Health and Child Care. THOMAS E. SHAFFER, M.D.

ASSOCIATION OF RESERVE OFFICERS OF THE U. S.
PUBLIC HEALTH SERVICE

Evening Session—Ball Room Foyer, Statler Hotel

PUBLIC HEALTH EDUCATION

Evening Session—Room 405, Statler Hotel

Presiding: DONALD B. ARMSTRONG, M.D., *Chairman.*

Meeting of Section Council and Committee Chairmen.

SCHOOL HEALTH

Evening Session—Room 406, Statler Hotel

Presiding: JESSIE M. BIERMAN, M.D., *Chairman.*

Meeting of Section Council.

TUESDAY, 9:30 A.M.

DENTAL HEALTH

First Session—Reception Room, Mechanics Building

Presiding: KENNETH A. EASLICK, D.D.S.

Nutrition, Diet, and Dental Caries. (Speaker to be announced.)

Nutritional Deficiencies—An Appraisal of the Symptoms Appearing in Oral Soft and Supporting Structures. PAUL K. LOSCH, D.D.S.

Nutrition and Human Occlusion. CHARLES M. WALDO, D.D.S.

The Nutritionist—An Appraisal of Her Role in the Maintenance of Oral Health. (Speaker to be announced.)

TUESDAY, 9:30 A.M.

ENGINEERING SECTION AND CONFERENCE OF
MUNICIPAL PUBLIC HEALTH ENGINEERS*Joint Session—Georgian Room, Statler Hotel**Presiding:* JOHN M. HEPLER AND CHARLES L. SENN.

HOUSING AND HEALTH.

Sanitary Problems of the Dwelling. M. ALLEN POND, M.P.H.

The Appraisal of Substandard Housing. EMIL A. TIBONI.

Legal Control of Substandard Housing. SPENCER PARROTT.

The Provision of Good Housing. CATHERINE BAUER.

The Planned Community. ROBERT B. MITCHELL.

Panel Leader: C.-E. A. WINSLOW, DR.P.H.*Participants:*

CHARLES L. SENN.

ABEL WOLMAN, DR.ENG.

HUGH POMEROY.

WILLIAM H. CARY, JR.

CHARLES A. REAGAN.

ARTHUR H. HERBERGER.

ROSS W. BUCK.

EPIDEMIOLOGY

*First Session—Paul Revere Hall, Mechanics Building**Presiding:* M. E. BARNES, M.D., *Chairman.*

Influenza in California, 1947-1948. GORDON MEIKLEJOHN, M.D.

Studies on Survival of Influenza Virus between Epidemics and Antigen
Variance of the Virus. R. M. TAYLOR, M.D., D.P.H.A Comparative Study of Reactions Following Inoculation with Red
Cell Elution and Centrifuged Influenza Vaccines. JOSEPH F. SADUSK,
JR., M.D.The Influenza Information Center of the U. S. Public Health Service.
JAMES T. CULBERTSON, PH.D.The Importance of Antigenic Composition of Influenza Virus Vaccine
in Protecting Against the Natural Disease. Observations during the
Winter of 1947-1948. JONAS E. SALK, M.D., AND PHILIP C. SURIANO, 1st
Lt., M.C.Antibody Response to Multiple Injections of a Single Strain of Influenza
Virus in Infants and Children. J. J. QUILLIGAN, JR.

TUESDAY, 9:30 A.M.

FOOD AND NUTRITION

*First Session—Room A, Mechanics Building**Presiding: MARJORIE M. HESELTINE, Chairman.*

FOOD PRODUCTION AND PROCESSING IN RELATION TO CONSERVATION OF NUTRIENTS

The Effects of Varieties, Soil, and Other Growing Factors on the Nutritive Value of Foods. OLIVE SHEETS, PH.D.

Nutrient Retention During Canned Food Processing and Production. EDWIN J. CAMERON, PH.D., ROBERT W. PILCHER, PH.D., AND LAVERNE E. CLIFCORN, PH.D.

The Effect of Freezing on the Nutritive Value of Foods. FAITH FENTON, PH.D.

The Effect of Curing and Canning on the Nutritive Value of Meat. H. E. ROBINSON, PH.D.

The Effect of Processing on the Nutritive Value of Milk and Milk Products. HENRY T. SCOTT, PH.D.

The Effect of Processing on Cereals and Bread. FREDERIC W. NORDSIEK, PH.D.

HEALTH OFFICERS

*First Session—Grand Hall, Mechanics Building**Presiding: C. HOWE ELLER, M.D., Chairman.*

ANNIVERSARY PROGRAM—150th YEAR, U. S. PUBLIC HEALTH SERVICE

Past and Future of Public Health Services. LEONARD A. SCHEELE, M.D.

Training of Health Man Power. (Speaker to be announced.)

Federal-State Coöperation in Public Health Service. (Speaker to be announced.)

New Frontiers in Research. MAURICE B. VISSCHER, M.D.

Community and Consumer. AGNES MEYER.

LABORATORY

*First Session—Imperial Ball Room, Statler Hotel**Presiding: EDMUND K. KLINE, DR.P.H., Chairman.**Section Business.**Committee Reports.*

Discussion of U. S. Public Health Service Influenza Control Program. JAMES T. CULBERTSON, PH.D.

Report of the Section Archivist. ANNA M. SEXTON.

The Laboratory Diagnosis of Tuberculosis. MARTIN CUMMINGS, M.D.
(Cont.)

TUESDAY, 9:30 A.M.

LABORATORY (Cont.)

The Limitations of Fluorescence Microscopy for the Detection of Acid-Fast Bacilli. HOWARD E. LIND, PH.D.

Laboratory Tests in Brucellosis. NORMAN B. McCULLOUGH, PH.D., M.D.

An Evaluation of Diagnostic Methods in Chronic Brucellosis. CHARLES M. CARPENTER, M.D.

Chronic Brucellosis: The Unsatisfactory Status of Current Diagnostic Methods. HAROLD J. HARRIS, M.D.

The Laboratory Diagnoses of Mycoses. C. W. EMMONS, PH.D.

PUBLIC HEALTH EDUCATION

First Session—Paul Revere Banquet Hall, Mechanics Building

Presiding: A. HELEN MARTIKAINEN, Vice-Chairman.

STAFF RELATIONS OF THE HEALTH EDUCATOR *

A Program of In-service Training for Health Department Staff. ANN WILSON HAYNES.

Motivation in Health Education. IAGO GALDSTON, M.D.

Health Education—Through a Health Center. GERTRUDE E. FRIRES.

(Other speakers to be announced.)

* A portfolio on Motivation in Health Education, prepared under the guidance of Dr. IAGO GALDSTON, is on display in the Health Education and Publicity Headquarters.

PUBLIC HEALTH NURSING

First Session—Talbot Hall, Mechanics Building

Presiding: RUTH FREEMAN, R.N., Chairman.

INCREASING THE EXPERTNESS OF THE PUBLIC HEALTH NURSE

Use of University Facilities for Increasing Nursing Expertness. MARGARET S. TAYLOR, R.N.

Individual Guidance as a Means of Increasing Nursing Expertness. PEARL SHALIT, R.N.

On-the-job Training for Nurses without Specialized Public Health Training. CHRISTINE CAUSEY, R.N.

Building Expertness in a Clinical Field. EDNA BRANDT, R.N.

TUESDAY, 9:30 A.M.

SCHOOL HEALTH

First and Second Sessions—Rooms 405, 406, 407, and Salle Moderne, Statler Hotel

Presiding: JESSIE M. BIERMAN, M.D., Chairman.

ROUND TABLES ON SCHOOL HEALTH *

9:30-12:00 School Health Councils—Their Organization, Operation
2:30- 3:45 and Relationship to Community Health Councils.
Room 405, *Discussion Leader: JOHN L. MILLER, Ed.D.*
Statler

9:30-12:00 In-service Training Courses in Health Education for
2:30- 3:45 Teachers.
Room 406, *Discussion Leader: WARREN H. SOUTHWORTH, Dr. P.H.*
Statler

9:30-12:00 Techniques of Counselling Children with Health Prob-
2:30- 3:45 lems.
Room 407, *Discussion Leader: RUTH STRANG, Ph.D.*
Statler

4:00 P.M. Summary Session.
Salle Moderne,
Statler

The capacity of each room is 40. First come; first served. These round tables will last all day. At 4:00 P.M., summaries of the three round tables will be presented at a general session.

* Members of the Section will be interested to know that there is a special section in the Health Education and Publicity Headquarters devoted to materials on school health. In addition, consultants on special problems will be on hand every day from 9 to 10, 12 to 2, 4 to 5; other hours by appointment.

SUBCOMMITTEE ON MEDICAL CARE

First Session—Room B, Mechanics Building

Presiding: JOHN P. PETERS, M.D.

IMPROVING THE QUALITY OF MEDICAL CARE

By Training of Personnel. THOMAS D. DUBLIN, M.D., Dr.P.H.

By Group Medical Practice. DEAN A. CLARK, M.D.

By Regionalization of Hospitals. ALBERT D. KAISER, M.D.

By Sound Principles of Administration. EDWIN F. DAILY, M.D.

TUESDAY, 9:30 A.M.

VITAL STATISTICS

*First Session—Room C, Mechanics Building**Presiding: RUTH R. PUFFER, DR.P.H., Chairman.*

BASIC DATA

International Adoption of Principles of Morbidity and Mortality Classification. W. THURBER FALES, SC.D., AND IWAO MORIYAMA, PH.D.

Plans for the 1950 Population Census. A. ROSS ECKLER, PH.D.

Morbidity Statistics Derived from Sickness Insurance. BARKEV SANDERS, PH.D.

The Need for Statistics of Marriage and Divorce. SAM C. NEWMAN, PH.D.

Section Business.

TUESDAY, 12:30 P.M.

ENGINEERING

*Luncheon Session—Parlor A, Statler Hotel**Presiding: JOHN M. HEPLER, Chairman.**Section Business.**Committee Reports:*

Conference of Educators in Environmental Sanitation. *Chairman, ELLIS S. TISDALE.*

Exploration of Research Needs (in the Field of Environmental Sanitation). *Chairman, BLUCHER A. POOLE.*

Municipal Public Health Engineering. *Chairman, CHARLES L. SENN.*

Rural Sanitation. *Chairman, WILLIAM T. INGRAM.*

School Sanitation. *Chairman, HERBERT J. DUNSMORE.*

Report of the Engineering Section Council. *Chairman, JOHN M. HEPLER.*

PUBLIC HEALTH NURSING

*Luncheon Session—Ball Room Foyer, Statler Hotel**Presiding: RUTH FREEMAN, R.N., Chairman.*

TUESDAY, 2:30 P.M.

DENTAL HEALTH SECTION AND AMERICAN SCHOOL
HEALTH ASSOCIATION

Joint Session—Paul Revere Banquet Hall, Mechanics Building

Presiding: GEORGE A. NEVITT, D.D.S., *Chairman.*

A Good School Dental Health Program. A. HARRY OSTROW, D.D.S.

The Caries Problem of the School Child. KENNETH A. EASLICK, D.D.S.

Dental Caries Research Findings in a School Dental Program. WALTER J. PELTON, D.D.S.

The School Physician and the School Dental Health Problem. WILLIAM E. AYLING, M.D.

FOOD AND NUTRITION AND LABORATORY SECTIONS

Joint Session—Paul Revere Hall, Mechanics Building

Presiding: ARCHIE H. ROBERTSON, PH.D.

MILK

The Possible Significance of Milk and Water in the Spread of Virus Infections. GORDON C. BROWN, SC.D.

Comparative Study of Lancefield's Group "B" Streptococci of Human and Bovine Origin. A. POMALES-LÉBRON, PH.D., AND P. MORALES-OTERO, M.D.

Direct Microscopic Clump Counts of Bacteria as Used to Control a Pasteurized Metropolitan Milk Supply. FRANK E. MOTT.

Quality Control of Milk and Dairy Products with Direct Microscopic and Swab Tests. C. W. ANDERSON AND N. O. GUNDERSEN, M.D.

Direct Microscopic Clump Counts of Pasteurized Milk by Carbolated Methylene Blue, Newman Lampert No. 2 and the Acid- and Water-Free Staining Procedures. B. S. LEVINE, PH.D., AND L. A. BLACK, PH.D.

Preliminary Report on Studies to Formulate a New Agar Medium for the Standard Plate Count of Dairy Products. LEON BUCHBINDER, PH.D.

An Improved Medium for the Enumeration of Bacteria in Milk and Milk Products. M. J. PELCZAR, PH.D., AND HARRIETTE D. VERA, PH.D.

FOOD AND NUTRITION

Second Session—Reception Room, Mechanics Building

Presiding: MARJORIE M. HESLITINE, *Chairman.*

NUTRITION IN PUBLIC HEALTH

A Nutrition Course for Students of Public Health. ADELIA M. BEEUWKES AND JOHN J. HANLON, M.D.

(Cont.)

TUESDAY, 2:30 P.M.

FOOD AND NUTRITION (Cont.)

Training of Nutritionists for Public Health. ELDA ROBB, PH.D.

Training Physicians for Public Health Nutrition. FREDRICK J. STARE, M.D., PH.D.

Nutrition Programs for State Health Departments—A Progress Report. GRACE A. GOLDSMITH, M.D.

HEALTH OFFICERS AND PUBLIC HEALTH NURSING
SECTIONS

Joint Session—Grand Hall, Mechanics Building

Presiding: C. HOWE ELLER, M.D., AND RUTH FREEMAN, R.N.

PERSONNEL MANAGEMENT AND PROBLEMS

Panel Leader: HERMAN E. HILLBOE, M.D.

Participants:

DOROTHY DEMING, R.N.

DOROTHY C. LOWMAN, R.N.

FANNY WARNCKE, R.N.

ROBERT G. WEBSTER.

DAVID LITTLEJOHN, M.D., DR.P.H.

BERWYN F. MATTISON, M.D.

ROY L. CLEERE, M.D.

INDUSTRIAL HYGIENE

First Session—Room C, Mechanics Building

Presiding: CARL M. PETERSON, M.D., *Chairman.*

MAXIMUM ALLOWABLE CONCENTRATIONS

Panel Leader and Participants (to be announced).

LABORATORY

Second Session—Room A, Mechanics Building

Presiding: EDMUND K. KLINE, DR.P.H., *Chairman.*

A Serologic Procedure in a Public Health Laboratory. DANIEL WIDELOCKE, PH.D.

TUESDAY, 2:30 P.M.

LABORATORY (Cont.)

A Quantitative Turbidimetric Method for the Determination of Spinal Fluid Proteins. HILFRED N. BOSSAK, ARTHUR A. ROSENBERG, AND AD HARRIS.

Selection of Guinea Pig Complement from the Standpoint of Natural Antibodies. PAUL FUGAZZOTTO, PH.D.

Differentiation between Syphilitic and Non-syphilitic Serologic Reactions. REUBEN L. KAHN, D.Sc.

Routine Antistreptolysin Titrations in a Hospital Laboratory. LEO CRAVITZ, DR.P.H., AND CHARLES L. STEINBERG, M.D.

Unusual Cultures Submitted to an Enteric Laboratory for Study. MACDONALD FULTON, PH.D., AND M. L. CHILTON.

A Public Health Rh Program on a State-wide Scale. CLIFFORD I. ARCALL.

MATERNAL AND CHILD HEALTH AND VITAL
STATISTICS SECTIONS

Joint Session—Talbot Hall, Mechanics Building

Presiding: FORREST LINDER, PH.D., Vice-Chairman.

ADMINISTRATIVE USE OF RECORDS
ROUND TABLE

The Philosophy of Records. PAUL M. DENSEN, D.Sc.

Nursing. MARGARET G. ARNSTEIN, R.N.

Dental Health. JOHN W. KNUTSON, D.D.S., DR.P.H.

School Health. LEONA BAUMGARTNER, M.D., PH.D.

Maternal and Child Health. MYRON E. WEGMAN, M.D.

Federal Needs. EVELYN FLOOK.

SCHOOL HEALTH

CONTINUATION OF ROUND TABLES ON SCHOOL HEALTH

See page 1303.

TUESDAY, 2:30 P.M.

PUBLIC HEALTH EDUCATION

Second Session—Georgian Room, Statler Hotel

Presiding: DONALD A. DUKELOW, M.D., *Secretary.*

THE VOLUNTARY AGENCY IN HEALTH EDUCATION AND COMMUNITY ORGANIZATION

Council Programs Influencing the Health Education of the Public.
JOHN W. FERREE, M.D.

Teamwork of Official and Voluntary Health Agencies and Non-Health Agencies in Health Education. HOWARD W. GREEN.

Community Organization for Health Education. CLAIR E. TURNER, DR.P.H., D.Sc.

Community Health Education in Hawaii. RAYMOND G. NEBELUNG, DR.P.H.

SUBCOMMITTEE ON MEDICAL CARE

Second Session—Room B, Mechanics Building

Presiding: HUGH R. LEAVELL, M.D.

MEDICAL CARE PROGRAMS: PROBLEMS AND METHODS

Effect of Rising Costs on Prepayment Plans. C. RUFUS ROREM, PH.D.

Administrative Problems of a Blue Shield Medical Service Plan. CHARLES G. HAYDEN, M.D.

Coöperation of Physicians and Consumers in a Group Health Association. MELVIN L. DOLLAR.

Utilization of Physicians', Nursing, and Hospital Services During a Two Year Period—Trinity Hospital Study. MARGARET C. KLEM.

A Pattern of Local Services in the Saskatchewan Health Program. FREDERICK D. MOTT, M.D.

TUESDAY, 6:30 P.M.

PUBLIC HEALTH EDUCATION

Dinner Session—Salle Moderne, Statler Hotel

Presiding: DONALD B. ARMSTRONG, M.D., *Chairman.*

Committee Reports.

Election of Officers.

Section Business.

Twenty-five Years of Public Health Education (Commemoration of the founding of the Section). H. E. KLEINSCHMIDT, M.D.

TUESDAY, 8:30 P.M.

FIRST GENERAL SESSION

Grand Hall, Mechanics Building

Presiding: MARTHA M. ELIOT, M.D., *President, American Public Health Association.*

Addresses of Welcome:

HONORABLE ROBERT F. BRADFORD, Governor of the Commonwealth of Massachusetts.

HONORABLE JAMES M. CURLEY, Mayor of the City of Boston.

JOHN H. CAULEY, M.D., Commissioner, Boston Health Department.

Presidential Address. The Cultivation of our Human Resources for Health in Tomorrow's World. MARTHA M. ELIOT, M.D.

Presentation of Sedgwick Memorial Medal Award..

WEDNESDAY, 8:00 A.M.

THE JOHNS HOPKINS UNIVERSITY ALUMNI

Breakfast Session—Salle Moderne, Statler Hotel

ALUMNI OF THE SCHOOL OF PUBLIC HEALTH,
UNIVERSITY OF NORTH CAROLINA

Breakfast Session—Hancock Room, Statler Hotel

GRADUATES' ORGANIZATION, SCHOOL OF HYGIENE,
UNIVERSITY OF TORONTO

Breakfast Session—Parlor B, Statler Hotel

WEDNESDAY, 9:30 A.M.

EPIDEMIOLOGY

Second Session—Parlor A, Statler Hotel

Presiding: M. E. BARNES, M.D., *Chairman.*

The Possible Prevention of Gonorrhea with Penicillin Tablets. A Preliminary Report. HARRY EAGLE, M.D., A. V. GUDE, Lt., j.g., M.C., U.S.N.R., G. E. BECKMAN, Lt., j.g., M.C., U.S.N.R., GEORGE MASS, M.D., COMDR., M.C., U.S.N., J. J. SAPERO, M.D., CAPT., M.C., U.S.N., AND J. B. SHINDLEDECKER.

Contact Investigation of Syphilis—A Current Appraisal. JOSEPH S. SPOTO, M.D. AND ALBERT P. ISKRANT.

(Cont.)

WEDNESDAY, 9:30 A.M.

EPIDEMIOLOGY (Cont.)

Certain Phases of the Epidemiology of Salmonellosis and Shigellosis.
JAMES WATT, M.D., DR.P.H.

Observations on the Epidemiology of Shigellosis Among Institutional Inmates in Puerto Rico. GUILLERMO ARBONA, M.D., AND LUIS GONZALES, PH.D.

Effect of Ultra-Violet Irradiation of Class Rooms on Spread of Mumps and Chicken Pox in Large Rural Central Schools. A Progress Report. ANNE M. BAHLKE, M.D., HILDA FREEMAN SILVERMAN, AND HOLLIS S. INGRAHAM, M.D.

BIOMETRICS SECTION OF THE AMERICAN STATISTICAL ASSOCIATION, BIOMETRICS SOCIETY, AND VITAL STATISTICS SECTION

Joint Session—Paul Revere Banquet Hall, Mechanics Building

Presiding: RUTH R. PUFFER, DR.P.H., *Chairman.*

MORBIDITY SURVEYS

ROUND TABLE

Moderator: GEORGE ST.J. PERROTT.

Opinion Poll Methods in Measuring Morbidity. GEORGE GALLUP.

Types of Morbidity Surveys. THEODORE D. WOOLSEY.

Sampling Methods as Applied to Morbidity Surveys. NATHAN KEYFITZ.

Contribution of the Survey Method to Epidemiology. ALEXANDER D. LANGMUIR, M.D.

Morbidity Sampling as a Function of the Health Department. HUNTINGTON WILLIAMS, M.D., DR.P.H.

WEDNESDAY, 9:30 A.M.

DENTAL HEALTH

Second Session—Parlor C, Statler Hotel

Presiding: GEORGE A. NEVITT, D.D.S., *Chairman.*

Neoplastic Lesions of Interest to the Dental Profession. FRANCIS P. MCCARTHY, M.D.

Prosthetic Replacement for Tissues Lost Through Cancerous Lesions. RALPH S. LLOYD, D.D.S.

The Dental Phases of the National Cancer Program. AUSTIN V. DEIBERT, M.D.

Simplified Case-finding Procedure for Congenital Syphilis. FRANK P. BERTRAM, D.D.S.

Section Business.

ENGINEERING SECTION AND INTER-AMERICAN
ASSOCIATION OF SANITARY ENGINEERING

Joint Session—Reception Room, Mechanics Building

Presiding: JOHN M. HEPLER AND CLARENCE I. STERLING, JR.

Sanitary Aspects of the WHO Program. ABEL WOLMAN, DR. ENG.

Arctic Sanitation. WILLIAM HARDENBERGH.

Public Health Engineering in Foreign Areas. JOHN M. HENDERSON.

Public Health Engineering in Bolivia. PAUL S. FOX.

Panel Discussion

Panel Leader and Participants to be announced.

Professional Education and Training Given Sanitation Personnel in Latin American Republics. GAYLORD W. ANDERSON, M.D.

Panel Discussion

Panel Leader and Participants to be announced.

The Sanitation Problems of Persons Encountered by UNRRA. FREDERICK F. ALDRIDGE.

Military Sanitation. LEONARD L. TRAGER.

WEDNESDAY, 9:30 A.M.

FOOD AND NUTRITION SECTION AND THE AMERICAN
SCHOOL HEALTH ASSOCIATION*Joint Session—Talbot Hall, Mechanics Building**Presiding:* MARJORIE M. HESELTINE AND DAVID VAN DER SLICE, M.D.

CHILD NUTRITION

The Relation of Nutrition to Infection in Children. JUNIUS M. RAWLINGS, M.D.*A Nutrition Study of a Group of Burlington, Vermont, School Children.* H. B. PIERCE, JOHN H. BROWE, M.D., R. F. KRAUSE, PH.D., SUSAN B. MERROW, AND C. A. NEWHALL, M.D.*Nutritional Reconditioning of Malnourished Children.* ELSIE MOYER.*Discussion: Educational Implications of Clinical and Research Findings.* ELIZABETH LOCKWOOD, DR.P.H.HEALTH OFFICERS AND MATERNAL AND CHILD
HEALTH SECTIONS*Joint Session—Paul Revere Hall, Mechanics Building**Presiding:* C. HOWE ELLER, M.D., AND A. L. VAN HORN, M.D.

PREMATURITY

Hospital Fatality Rates for Premature Infants. KATHERINE BAIN, M.D., JOHN P. HUBBARD, M.D., AND MARYLAND Y. PENNELL.*Hospital Facilities for Premature Infants in New York State.* EDWARD R. SCHLESINGER, M.D., AND ELIZABETH PARKHURST.*Premature Care in New York City Under EMIC.* HELEN M. WALLACE, M.D., AND LEONA BAUMGARTNER, M.D., PH.D.*Colorado's Premature Infant Care Program.* JOHN A. LIGHTY, M.D.*Louisiana's Premature Care Program.* SIDNEY S. CHIPMAN, M.D., AND WALDO L. TREUTING, M.D.

INDUSTRIAL HYGIENE

*Second Session—Room C, Mechanics Building**Presiding:* CARL M. PETERSON, M.D., *Chairman.**Poisoning Due to Ingestion of Wax Crayons.* H. BRIEGER, M.D.*The Health of Open Hearth Steelworkers Exposed to Sodium Fluoride.* DOHRMAN H. BYERS.

WEDNESDAY, 9:30 A.M.

INDUSTRIAL HYGIENE (Cont.)

The Dust Environment of the Cemented Tungsten Carbide Industry,
with Particular Reference to Cobalt. LAWRENCE T. FAIRHALL, PH.D.

Physiological Response of Man to Ammonia in Low Concentrations.
LESLIE SILVERMAN, SC.D., AND JAMES L. WHITTENBERGER, M.D.

Shavers Disease. ARTHUR J. VORWALD, M.D.

LABORATORY

Third Session—Georgian Room, Statler Hotel

Presiding: EDMUND K. KLINE, DR.P.H., *Chairman.*

Section Business.

A Method for the Bacteriological Examination of Edible Fat Preparations. BERYL F. CAPPS, MARY K. WOLLAM, AND NORMAN L. HOBBS.

The Laboratory Aspects of Cancer Treatment with Radioactive Isotopes. SHIELDS WARREN, M.D., AND JOHN Z. BOWERS, M.D.

A Comparison of *H. pertussis* Cultures by Mouse Protection and Virulence Tests. PEARL L. KENDRICK, SC.D., ELAINE L. UPDYKE, SC.D., AND GRACE ELDERING, SC.D.

Free Halogens: A Comparative Study of Their Efficiencies as Bactericidal Agents. LOUIS GERSHENFELD, D.Sc., AND BERNARD WITLIN, D.Sc.

Synergistic Action of Antibiotics in Experimental Infections. C. W. PRICE, PH.D., W. A. RANDALL, PH.D., HENRY WELCH, PH.D., AND V. L. CHANDLER, PH.D.

Studies on the Morphology and Antibiotic Resistance of *Haemophilus influenzae*. GEORGE E. FOLEY, MARY MCGARRY, M.D., AND HARRY SHWACHMAN, M.D.

In Vitro Antibiotic Effects on *Haemophilus ducreyi*. D. G. WETHERBEE, 1st Lt., M.C., MARJORIE A. HENKE, ROBERT I. ANDERSON, 1st Lt., M.S.C., E. J. PULASKI, MAJ., M.C., AND D. M. KUHN, COL., M.C.

WEDNESDAY, 9:30 A.M.

PUBLIC HEALTH EDUCATION

*Fourth Session—Room A, Mechanics Building**Presiding: DONALD B. ARMSTRONG, M.D., Chairman.*

ADMINISTRATIVE PROBLEMS IN PUBLIC HEALTH EDUCATION

Geographical Variations in the Educational Approach to Public Health Problems. (Speaker to be announced.)

Solving Health Education Problems Within a Region. HOWARD W. LUNDY, DR.P.H.

*Reports of Regional Chairmen.**Reports of Cross-Section Committee Chairmen.**Discussion.*PUBLIC HEALTH NURSING SECTION AND
SUBCOMMITTEE ON MEDICAL CARE*Joint Session—Grand Hall, Mechanics Building**Presiding: EDWARD S. ROGERS, M.D., AND ZELLA BRYANT, R.N.*

Home Nursing Service in the Health Insurance Plan of Greater New York. MARIAN G. RANDALL, R.N.

Nursing in a Nation-wide Program for Medical Care—Conclusions from Experience in the EMIC Program. RUTH G. TAYLOR, R.N.

The Montefiore Home Care Program. MARTIN CHERKASKY, M.D.

The Health Department and Vocational Rehabilitation. G. S. T. PEEPLES, M.D.

SCHOOL HEALTH

*Second Session—Room B, Mechanics Building**Presiding: JESSIE M. BIERMAN, M.D., Chairman.*

The School Health Section, 1948. JESSIE M. BIERMAN, M.D.

Principles for Consideration in Judging the Probable Effectiveness of Federal Legislation Designed To Improve the Health of Children of School Age. LEONA BAUMGARTNER, M.D., PH.D.

PERTINENT RESEARCH

An Evaluation of Various Audiometric Testing Procedures for School Children. THOMAS E. SHAFFER, M.D., AND DELYTE W. MORRIS, PH.D.

Absenteeism Studies in California and Canada. MARJORIE L. CRAIG.

Incidence of Heart Disease in Salt Lake City School Children. ROBERT H. ALWAY, M.D., AND E. B. HOLLEY, M.D.

Election of Officers.

WEDNESDAY, 12:30 P.M.

INDUSTRIAL HYGIENE

Luncheon Session—Parlor B, Statler Hotel

Presiding: CARL M. PETERSON, M.D., Chairman.

WEDNESDAY, 2:00 P.M.

FIRST SPECIAL SESSION IN COÖPERATION WITH THE
MASSACHUSETTS STATE DEPARTMENT OF HEALTH,
MASSACHUSETTS PUBLIC HEALTH ASSOCIATION,
AND HARVARD SCHOOL OF PUBLIC HEALTH

Grand Hall, Mechanics Building

*Presiding: VLADO A. GETTING, M.D., DR.P.H., CHARLES F. WILINSKY, M.D.,
JAMES S. SIMMONS, M.D., AND GORDON M. FAIR.*

LEMUEL SHATTUCK—STILL A PROPHET

Lemuel Shattuck: America's Great Public Health Pioneer. W. G.
SMILLIE, M.D.

Sanitation of Yesterday—But What of Tomorrow? ABEL WOLMAN, DR.
ENG.

The Vitality of Vital Statistics. HUGO MUENCH, M.D., DR.P.H.

The Shattuck Report a Hundred Years Hence. C.-E. A. WINSLOW, DR.P.H.

WEDNESDAY, 4:00 P.M.

GOVERNING COUNCIL

Second Meeting—Talbot Hall, Mechanics Building

PUBLIC HEALTH EDUCATION

Fifth Session—Room 405, Statler Hotel

Presiding: DONALD B. ARMSTRONG, M.D., Chairman.

Meeting of Section Council with newly elected officers.

WEDNESDAY, 6:30 P.M.

HARVARD UNIVERSITY ALUMNI ASSOCIATION

Dinner Meeting—Longwood Towers, 20 Chapel Street, Brookline, Mass.

WEDNESDAY, 6:30 P.M.

AMERICAN SCHOOL HEALTH ASSOCIATION

*Dinner Session—Salle Moderne, Statler Hotel**Presiding:* DAVID VAN DER SLICE, M.D., *President.**Presentation of the William A. Howe Award to:*

AMOS L. BEAGHLER, M.D.

SALLY LUCAS JEAN.

Responses: DR. BEAGHLER AND MISS JEAN.*Dinner Speaker:* HERMAN E. HILLEBOE, M.D.

WEDNESDAY, 7:15 P.M.

NATIONAL COMMITTEE OF HEALTH COUNCIL
EXECUTIVES*Dinner Session—Salmagundi Restaurant, 222 Beacon Street*

THURSDAY, 8:00 A.M.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY ALUMNI

Breakfast Session—Salle Moderne, Statler Hotel

UNIVERSITY OF MINNESOTA ALUMNI

Breakfast Session—Parlor B, Statler Hotel

YALE UNIVERSITY ALUMNI

Breakfast Session—Parlor A, Statler Hotel

THURSDAY, 9:30 A.M.

DENTAL HEALTH SECTION AND SUBCOMMITTEE ON
MEDICAL CARE*Joint Session—Room C, Mechanics Building**Presiding:* GEORGE NEVITT, D.D.S., AND NATHAN SINAI, DR.P.H.

Standards of Dental Care for All Age Groups. (Speaker to be announced.)

Provision of Dental Clinics in Hospitals and Health Centers. JAMES S
MILLER, D.D.S.Use of Auxiliary Personnel in Dental Care Programs. R. M. WALLS,
D.D.S.The Industrial Dental Program of the Pennsylvania State Department
of Health. EDWARD R. ASTON, D.D.S.

THURSDAY, 9:30 A.M.

EPIDEMIOLOGY, HEALTH OFFICERS, AND VITAL
STATISTICS SECTIONS

Joint Session—Grand Hall, Mechanics Building

Presiding: RUTH R. PUFFER, DR.P.H., AND FRANKLIN H. TOP, M.D., D.P.H.

CHRONIC DISEASE

The Chronic Disease Study of the California Department of Health.
WILTON L. HALVERSON, M.D., DR.P.H.

Chronic Disease as an Industrial Hygiene Problem. CLARENCE D. SELBY,
M.D.

The Use of Statistics in Cancer Control Programs. HAROLD F. DORN,
PH.D.

Diabetes Control in a County Health Department. (Speaker to be an-
nounced.)

MERIT SYSTEM SERVICE

First Session—Reception Room, Mechanics Building

Presiding: LEROY E. BURNEY, M.D.

THE LIFE STORY OF A PUBLIC HEALTH EXAMINATION

The Subject-Matter Consultant. DOROTHY DEMING, R.N.

The Psychometrician. LILLIAN D. LONG, PH.D.

The Reviewer. RAYMOND S. PATTERSON, PH.D.

The Field Consultant. CHARLES B. FRASHER.

The Test Administrator:

Merit Systems. THOMAS L. BRANSFORD, PH.D.

Schools. KATHLEEN M. LEAHY, R.N.

U. S. Public Health Service. SIDNEY H. NEWMAN, PH.D.

The Researcher. ROGER M. BELLOWS, PH.D.

The Examinee. JOSEPH P. GAREN, M.D., AND JAMES KING. (Other speakers
to be announced.)

Staff Consultants. ELIZABETH KENT LAZO AND ELAINE R. GRIMM.

Discussant: CHARLES B. FRASHER.

THURSDAY, 9:30 A.M.

FOOD AND NUTRITION AND LABORATORY SECTIONS

*Joint Session—Paul Revere Banquet Hall, Mechanics Building**Presiding:* MARJORIE M. HESELTINE AND EDMUND K. KLINE, DR.P.H.

NUTRITION IN INFECTION

Nutrition and Experimental Epidemiology. HOWARD A. SCHNEIDER, M.D.

The Influence of Protein Nutrition on Experimental Infection—Physiologic Aspects. JACK METCOFF, M.D., M.P.H.

The Relation of Nutrition to the Development and Course of Tuberculosis in Adolescence. JOSEPH A. JOHNSTON, M.D.

The Nutrition of Women with Active and Arrested Tuberculosis. MARGARET A. OHLSON, Ph.D.

Discussant: J. M. RAWLINGS, M.D.MATERNAL AND CHILD HEALTH AND SCHOOL HEALTH
SECTIONS AND THE AMERICAN SCHOOL HEALTH
ASSOCIATION*Joint Session—Talbot Hall, Mechanics Building**Presiding:* A. L. VAN HORN, M.D., AND JESSIE M. BIERMAN, M.D.PHYSICALLY HANDICAPPED CHILDREN OF SCHOOL AGE—MEET-
ING THEIR MENTAL, EMOTIONAL, SOCIAL, AND PHYSICAL
NEEDS

As Seen by an Educator. (Speaker to be announced.)

As Seen by a Medical Administrator. SAMUEL M. WISHIK, M.D.

Children with Special Problems. — A report by the National Tuberculosis Association. Discussed by members of the Committee:

CHARLES C. WILSON, M.D., *Chairman.*

GEORGE M. WHEATLEY, M.D.

HERBERT R. EDWARDS, M.D.

VIVIAN DRENCKHAHN

Discussion opened by: JESSIE M. BIERMAN, M.D., AND DOROTHY NYSWANDER, Ph.D.

THURSDAY, 9:30 A.M.

INDUSTRIAL HYGIENE, ENGINEERING, AND PUBLIC
HEALTH NURSING SECTIONS*Joint Session—Paul Revere Hall, Mechanics Building**Presiding:* CARL M. PETERSON, M.D., JOHN M. HEPLER, AND RUTH FREEMAN, R.N.

COMMON COMMUNITY AND INDUSTRIAL HEALTH PROBLEMS

Industrial Health Counseling by the Nurse in Industry. ETHEL BURGESON, R.N.

Handling, Storage, and Disposal of Radioactive Isotopes. ABEL WOLMAN, DR.ENG., AND ARTHUR E. GORMAN.

Contributions of Industrial Hygiene to Public Health. THEODORE HATCH AND LEONARD GREENBURG, M.D.

Reports of Committees on Industrial Sanitation and on Air Pollution. (Tentative.)

PUBLIC HEALTH EDUCATION

Sixth Session—Parlors C, D, F, Hancock Room, Rooms 405, 406, 407, 408, 419, Statler Hotel

DISCUSSION OF CURRENT PUBLIC HEALTH EDUCATION PROBLEMS

(Standing Committees of the Section. All interested A.P.H.A. members are invited to participate in the discussion of any subject within their interest.)

Public Health Education Planning. *Chairman,* C. MAYHEW DERRYBERRY, PH.D. *Parlor C.*Health Education and Social Science. *Chairman,* LUCY S. MORGAN, PH.D. *Parlor D.*Community Organization for Health Education. *Chairman,* CLAIR E. TURNER, DR.P.H. *Parlor F.*Coördination of Public Health Education with Other A.P.H.A. Sections. *Chairman,* MURIEL F. BLISS, PH.D. *Hancock Room.*Public Health Films. *Chairmen,* KENNETH D. WIDDEMER AND THOMAS C. STOWELL. *Room 405.*Utilization of Commercial Advertising in Health Education. *Chairman,* MARY CONNOLLY. *Room 406.*Materials and Publicity. *Chairmen,* RAE K. SHOEMAKER AND SALLIE E. BRIGHT. Methods of Highlighting Health Education Programs and Techniques in the Setting of a Conference—Ways in which exhibits, portfolios, graphic techniques, and personal consultation can be used at conferences to tell the story of successful health education programs. *Room 407.*Press Relations. *Chairman,* ANNA B. TOWSE. *Room 408.*Scientific Exhibits. *Chairman,* MARIE C. HARRINGTON. *Room 419.*

THURSDAY, 12:30 P.M.

DENTAL HEALTH

*Luncheon Session—Parlor A, Statler Hotel**Presiding:* LESTER A. GERLACH, D.D.S., *Secretary.**Section Business:*REPORT OF YOUR REPRESENTATIVES TO THE NATIONAL HEALTH
ASSEMBLY

HAROLD HILLENBRAND, D.D.S.

ALLEN O. GRUEBBEL, D.D.S.,

ANNIE J. TAYLOR.

CARL L. SEBELIUS, D.D.S.

LESTER A. GERLACH, D.D.S.

THURSDAY, 2:30 P.M.

ENGINEERING

*Second Session—Reception Room, Mechanics Building**Presiding:* M. ALLEN POND, *Vice-Chairman.*Report of the Committee on Sewage Disposal. *Chairman,* LOUIS F. WARRICK.

Water-borne Diseases. IRVING R. BORTS, M.D.

Water Supply and Infant Cyanosis. CLARENCE W. KLASSEN.

Report of the Committee on Water Supply. *Chairman,* CHARLES R. COX.Report of the Committee on Bathing Places (Joint with the Conference of State Sanitary Engineers.) *Chairman,* WARREN J. SCOTT.

EPIDEMIOLOGY

*Third Session—Paul Revere Banquet Hall, Mechanics Building**Presiding:* M. E. BARNES, M.D., *Chairman.*Tuberculosis in the German Population, U. S. Zone of Germany.
PHILIP E. SARTWELL, M.D., CHARLES H. MOSELEY, M.D., LT. COL., M.C.,
U.S.A., AND ESMOND R. LONG, M.D., PH.D.

Recent Studies on the Specificity of the Tuberculin Test. LYDIA B. EDWARDS, M.D., AND CARROLL E. PALMER, M.D.

Histoplasmin Sensitivity and Coccidioidal Infections. CHARLES E. SMITH, M.D., MARGARET T. SITO, RODNEY R. BEARD, M.D., HOMER G. ROSENBERGER, M.D., AND EDWARD G. WHITING, M.D.

Some Epidemiological Considerations of Histoplasmin Sensitivity.
MICHAEL L. FURCOLOW, M.D., JOSEPH S. RUHE, D.V.M., AND IVAN L. BONNELL, M.D.

Trimming the Tuberculosis Register. JOHN H. KORNS, M.D.

THURSDAY, 2:30 P.M.

FOOD AND NUTRITION, HEALTH OFFICERS,
LABORATORY, AND ENGINEERING SECTIONS*Joint Session—Paul Revere Hall, Mechanics Building**Presiding:* HARRY E. GORESLINE, PH.D.

SANITARY PRACTICES IN THE FOOD INDUSTRY

A New Look in Food Sanitation. HENRY F. VAUGHAN, DR.P.H.

Development of an Adequate Educational Program on Sanitation in a Typical Food Industry—the Baking Industry. EDWARD L. HOLMES, PH.D.

The Organization and Execution of the National Cannery Association Program. N. H. SANBORN, PH.D., AND EDWIN J. CAMERON, PH.D.

New Developments in Laboratory Control of Food Sanitation:

- (1) Method for Elimination of Bacteriostasis from Quarternary Ammonium Compounds in Swab Rinse Test. G. M. RIDENOUR, PH.D., AND E. H. ARMBRUSTER.
- (2) The Effect of Borax on the Germicidal Efficiency of Alkali Washing Compounds. SIDNEY M. BERNSTEIN, M.D., AND MAX LEVINE, PH.D.

PUBLIC HEALTH NURSING, PUBLIC HEALTH EDUCATION,
MATERNAL AND CHILD HEALTH, AND SCHOOL HEALTH
SECTIONS, AND THE AMERICAN SCHOOL HEALTH
ASSOCIATION*Joint Session—Grand Hall, Mechanics Building**Presiding:* RUTH FREEMAN, R.N., DONALD B. ARMSTRONG, M.D., A. L. VAN HORN, M.D., JESSIE M. BIERMAN, M.D.

SCHOOL-COMMUNITY HEALTH EDUCATION COÖRDINATION

A School Health Program Based on Sound Public Health Practices. THOMAS R. HOOD, M.D.

Discussants:

PAUL R. ENSIGN, M.D.

MAY HARE.

Health Appraisal of School Children. DEAN F. SMILEY, M.D.

School-Community Health Education Projects. HELEN M. STARR.

(Other speakers to be announced.)

THURSDAY, 2:30 P.M.

INDUSTRIAL HYGIENE SECTION AND SUBCOMMITTEE
ON MEDICAL CARE

Joint Session—Talbot Hall, Mechanics Building

Presiding: CARL M. PETERSON, M.D., AND HERBERT L. LOMBARD, M.D.

NEW FIELDS OF INDUSTRIAL HYGIENE

Prevention and Control of Industrial Cancer. W. C. HUEPER, M.D.

Health Problems in Industrialized Agriculture. S. J. AXELROD, M.D.

Compensation for Wage Loss Due to Illness. JAMES DEERY, M.D.

The Industrial Hygienist and Medical Care. LORIN E. KERR, M.D.

Organization of Industrial Medical Care Plans. SIDNEY R. GARFIELD, M.D.

THURSDAY, 7:00 P.M.

SECOND GENERAL SESSION

Annual Banquet—Imperial Ball Room, Statler Hotel

Presiding: MARTHA M. ELIOT, M.D., President, American Public Health Association.

Presentation of Forty Year Membership Certificates.

Announcement of New Officers, Resolutions.

Presentation of the Lasker Awards for 1948.

Dancing. Refreshments. Informal.

FRIDAY, 8:00 A.M.

UNIVERSITY OF MICHIGAN ALUMNI

Breakfast Session—Parlor A, Statler Hotel

FRIDAY, 9:30 A.M.

ENGINEERING SECTION AND SUBCOMMITTEE ON
MEDICAL CARE*Joint Session—Reception Room, Mechanics Building**Presiding:* J. M. JARRETT AND JOHN J. BOURKE, M.D.

THE HOSPITAL SURVEY AND CONSTRUCTION PROGRAM

Progress Report. VANE M. HOGE, M.D.

State Administration. D. V. GALLOWAY, M.D.

Environmental Sanitation. MALCOLM C. HOPE.

Standards and Licensure. RAY M. AMBERG.

*Panel Discussion**Participants:*

GEORGE BUGBEE.

WILTON L. HALVERSON, M.D., DR.P.H.

MARTEA A. O'MALLEY, M.D.

GEORGE O. PIERCE.

EPIDEMIOLOGY AND LABORATORY SECTIONS

*Joint Session—Paul Revere Banquet Hall, Mechanics Building**Presiding:* M. E. BARNES, M.D., AND EDMUND K. KLINE, DR.P.H.

Q FEVER

History and Present Status of Q Fever. R. E. DYER, M.D.

Epizootological Studies of Q Fever in Southern California. R. J. HUEBNER, M.D., W. L. JELLISON, PH.D., J. A. BELL, M.D., R. E. MOTT, D.V.M., AND BERTON ELSON, D.V.M.

Epidemiological Studies of Q Fever in Southern California. M. DORTHY BECK, J. A. BELL, M.D., AND R. J. HUEBNER, M.D.

Experimental Q Fever in Cattle. E. J. BELL, D.Sc., R. R. PARKER, PH.D., Sc.D., AND H. G. STOENNER, D.V.M.

Q Fever Survey in Southwest Texas. J. V. IRONS, Sc.D., J. N. MURPHY, JR., A. B. RICH, D.V.M., AND A. E. HILL, M.D.

Serological Studies on Q Fever in the United States. ELIAS STRAUSS, M.D., AND S. E. SULKIN, PH.D.

FRIDAY, 9:30 A.M.

FOOD AND NUTRITION, MATERNAL AND CHILD HEALTH,
AND PUBLIC HEALTH NURSING SECTIONS*Joint Session—Grand Hall, Mechanics Building**Presiding:* MARJORIE M. HESELTINE, A. L. VAN HORN, M.D., AND RUTH FREEMAN, R.N.

CONTENT OF MATERNAL AND NEONATAL HEALTH SERVICES

Panel Leaders: HAROLD C. STUART, M.D., AND ALEXANDER M. CAMPBELL, M.D.*Participants:*

Content of Preconceptional and Interpregnancy Care. JOHN ROCK, M.D.

Obstetrical Aspects of Services. SAMUEL B. KIRKWOOD, M.D.

Pediatric Aspects of Services. STEWART CLIFFORD, M.D.

Nursing Services. JANE Y. HARSHBERGER, R.N.

Social Services. ELIZABETH RICE.

Nutrition Services. BERTHA BURKE.

Psychiatric Services. HELENE DEUTSCH, M.D.

PUBLIC HEALTH EDUCATION AND VITAL STATISTICS
SECTIONS*Joint Session—Paul Revere Hall, Mechanics Building**Presiding:* DONALD B. ARMSTRONG, M.D., AND RUTH R. PUFFER, DR.P.H.

HOME ACCIDENT PREVENTION *

The Place of Home Accident Prevention in the Public Health Program.
I. JAY BRIGHTMAN, M.D.

The Epidemiology of Accidents. JOHN E. GORDON, M.D., PH.D.

The Home Environment in Relation to Home Accidents. LEONARD M. BOARD.

Gathering and Evaluating Farm Accident Data. CHARLES F. SARLE, PH.D.,
AND T. M. C. ROBINSON.The Accident Prevention Education Program of the Voluntary Agencies.
IRMA GENE NEVINS HOLLOWAY, ED.D.

* In connection with this session, a special display on Accident Prevention is featured in the Health Education and Publicity Headquarters. The display focuses on the program developed by the A.P.H.A. Committee on Accident Prevention and shows ways home safety may be integrated in the activities of a health department. Consultants on special problems will be available from 9 to 10, 12 to 2, 4 to 5; other hours by appointment.

FRIDAY, 9:30 A.M.

HEALTH OFFICERS

Second Session—Room C, Mechanics Building

Presiding: C. HOWE ELLER, M.D., *Chairman.*

NEWER OUTPOSTS IN PUBLIC HEALTH

The Medical Problems Encountered in Dealing with an Atomic Detonation. COL. JAMES P. COONEY, M.D.

Canadian National Health Program. GEORGE D. W. CAMERON, M.D., D.P.H.

Public Health and Welfare in Japan. BRIGADIER GENERAL CRAWFORD F. SAMS, M.C.

A Health Officer Survey of the Medical Care Program. WILLIAM H. F. WARTHEN, M.D.

FRIDAY, 12:30 P.M.

MEETING OF ALL SECTION COUNCILS WITH THE
EDITORIAL BOARD

Luncheon Session—Ball Room Foyer, Statler Hotel

FRIDAY, 2:30 P.M.

SECOND SPECIAL SESSION

Imperial Ball Room, Statler Hotel

Presiding: REGINALD M. ATWATER, M.D., DR.P.H.

ROUND-UP SESSION—HIGH POINTS OF THE 76th ANNUAL MEETING

Participants:

Representatives of the Sections, of the Program Committee and members of Association Committees.

RESOLUTIONS COMMITTEE FOR BOSTON MEETING

Appointment of the Resolution Committee to serve at the Annual Meeting in Boston is announced by Martha M. Eliot, M.D., *President*. The members appointed are:

Hugh R. Leavell, M.D. *Chairman*
C. Earl Albrecht, M.D.
Katherine Faville, R.N.
Frederick D. Mott, M.D.
Myron E. Wegman, M.D.

Suggested resolutions can be sent to the committee, c/o the Association, now. As in the past, a resolutions box will be placed near the registration desk, Mechanics Hall in Boston, at the time of the Annual Meeting. The time for closing the box, as determined by the Executive Board, will be announced at that time.

Hotel Reservations at Boston

Members are asking which is the "Headquarters" hotel for the Boston Annual Meeting. The answer is that no one hotel has been designated headquarters for delegates because Boston's hotels, though numerous, are not large.

A Housing Bureau is being operated for the Association by the Boston Convention Bureau. We are asking members to select their own hotel from among those listed on page 1178. The application should be carefully filled in and mailed to:

The Housing Bureau
Boston Chamber of Commerce
80 Federal Street
Boston, Mass.

Convention activities will center largely in Mechanics Building. We rearrange the list of hotels below to show you their location with relation to Mechanics Building. No. 1 is nearest, 2 next in order of distance, and so on.

- | | | |
|-----------------------|-------------------------|----------------------|
| 1—Hotel Minerva | 6—Hotel Statler | 16—Hotel Manger |
| 2—Copley Square Hotel | 7—Hotel Bradford | 16—The Parker House |
| 3—Copley Plaza Hotel | 8—Hotel Touraine | 17—Hotel Continental |
| 4—Hotel Lenox | 9—Hotel Puritan | 13—Hotel Kenmore |
| 5—Hotel Gardner | 10—Hotel Somerset | 14—Hotel Braemore |
| 5—Hotel Hemenway | 11—Hotel Myles Standish | 15—Hotel Bostonian |
| 5—Hotel Vendome | 12—Hotel Sheraton | 16—Hotel Bellevue |

Single rooms are few and are hard to obtain. Rooms for double occupancy are strongly recommended. There is no question about the ability of Boston's hotels to accommodate the delegates to the Annual Meeting, but the Housing Bureau and the Local Committee ask the cooperation of the membership in seeking double rather than single room accommodations.

THE 76TH ANNUAL MEETING

Boston, Mass., November 8-12, 1948

Hotel Reservation Form

The hotels listed below have rooms available for Association delegates at the rates indicated. Please note that **NO RESERVATIONS WILL BE ACCEPTED DIRECTLY BY HOTELS.** Make your reservation through:

The Convention Bureau, Boston Chamber of Commerce, 80 Federal Street, Boston 10, Mass.

Hotels	Singles	Doubles	Twin Beds	Suites
Bellevue	\$4.00-\$6.00	\$6.00-\$8.00	\$7.25-\$10.00	\$12.00-\$15.00
Bostonian	3.00- 4.50	5.00- 6.50	5.00- 7.00	8.00- 10.00
Bradford	4.00- 6.00	6.00- 7.00	6.50- 8.00	12.00- 14.00
Braemore	4.40- 6.60	6.40- 9.90	6.60- 9.90	9.90- 25.00
Continental	3.50- 4.00	6.60	7.00	8.00- 25.00
Copley Plaza	4.50- 6.60	7.75- 8.80	8.80- 10.00	15.00- 25.00
Copley Square	4.00- 5.00	6.00	7.00	10.00- 14.00
Gardner	2.50- 5.00	4.00- 6.00	4.00- 6.00	7.50
Hemenway	3.00- 3.85	4.40- 5.50	4.40- 5.50	None
Kenmore	4.00- 6.00	6.50- 8.50	6.50- 8.50	10.00- 12.50
Lenox	3.75- 5.00	5.50- 6.50	7.50	10.00- 16.00
Manger	3.85- 5.50	5.00- 7.50	5.50- 7.50	None
Minerva	3.00- 5.00	4.00- 6.00	5.00- 7.00	5.00- 8.00
Myles Standish	3.85- 6.50	5.50- 7.50	6.50- 7.50	6.50- 15.00
Parker House	4.00- 6.50	6.25- 8.50	7.50- 10.00	14.00- 16.00
Puritan	4.40- 6.60	6.60- 8.80	9.90	13.20- 17.60
Sheraton	4.00- 4.50	7.00- 8.00	7.00- 8.00	7.00- 16.00
Somerset	5.00- 9.00	7.00-11.00	7.00- 11.00	10.00- 20.00
Statler	4.00- 9.50	6.50-12.00	8.50- 14.00	17.50- 27.00
Touraine	4.00- 6.00	6.00- 9.00	7.50- 9.00	14.00- 16.00
Vendome	3.75- 7.00	5.50- 8.75	6.50- 8.75	10.00- 15.00

MAKE ROOM RESERVATIONS EARLY

APPLICATION FOR HOTEL ACCOMMODATIONS

AMERICAN PUBLIC HEALTH ASSOCIATION

76th Annual Meeting and Meetings of Related Organizations, Boston, November 8-12, 1948

(Note that the Meeting opens Monday, November 8, at 9.30 A.M.)

Please make hotel reservation as indicated below:

Give three choices of hotels.

Hotel 1st Choice; Hotel 2nd Choice; Hotel 3rd Choice

.... Room with Double Bed at \$..... per day for persons

.... Room with Twin Beds at \$..... per day for persons

.... Room for three people at \$..... per day for persons

.... Single room at \$..... per day

.... Suite at \$..... per day for persons

ARRIVING. NOVEMBER Hour LEAVING: NOVEMBER Hour

Please print (or type) names and addresses of all occupants including persons making reservation.

NAME STREET ADDRESS CITY STATE

.....

.....

.....

Name

Street Address

City State

MAIL TO: The Convention Bureau, Boston Chamber of Commerce, 80 Federal St., Boston, Mass.

RESERVATIONS WILL BE HELD UNTIL 6:00 P.M. ONLY, UNLESS

THE HOTEL IS NOTIFIED OF LATE ARRIVALS

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

- Murray S. Acker, M.D., D.P.H., Health Region 3, Weyburn, Sask., Canada, Medical Health Officer
- R. E. Elvins, M.D., City Hall, San Angelo, Tex., Director, San Angelo-Tom Green County Health Unit
- L. D. Farragut, M.D., M.P.H., 1120 Franklin St., Houston 14, Tex., Director, Harris County Health Unit
- William B. Ganaposki, Box 295, 633 Spearman Ave., Farrell, Pa., City Health Officer
- Robert E. S. Kelley, M.D., 227 Commonwealth Ave., Boston 16, Mass., District Health Officer, Dept. of Public Health
- George E. Maddison, M.D., C.M., D.P.H., Moncton Tuberculosis Hospital, Moncton, New Brunswick, Canada, Director of Tuberculosis Control
- Mamoun Z. Mahayni, M.D., M.P.H., Midan Fokani Ave., Damascus, Syria, Public Health Officer, Syrian Ministry of Health
- Bertram E. Marks, M.D., Dept. of Health, Middletown, Conn., City Health Officer

Laboratory Section

- Ralph G. Aronstam, M.D., 858 W. Boston Blvd., Detroit, Mich., Prof. of Bacteriology, Great Lakes College
- J. Owen Blache, M.D., 2601 N. Whittier, St. Louis 13, Mo., Pathologist, Homer G. Phillips Hospital
- Rachel L. Dirks, 406 B. Ea. 28th, Vancouver, Wash., Bacteriologist, Clark County Health Dept.
- Deborah L. Friedman, 1865 University Ave., New York 53, N. Y., Student, Univ. of Michigan
- Rose R. Ichelson, 5841 Christian St., Philadelphia 43, Pa., Bacteriologist
- Gonzalo A. Mondragon, M.D., Maracaibo 46-60, Medellin, Antioquia, Colombia, S.A., Jefe del Laboratorio Departamental de Antioquia
- Marion Pfeiffer, 137 Vine, Park Ridge, Ill., Senior Laboratory Asst., Chicago Board of Health
- Karel Raska, M.D., 158 Srobarova, Public Health Institute, Prague XII, Czechoslovakia, Deputy Director
- Adele M. Snyder, 5525 Kimbark Ave., Chicago 37, Ill., Bacteriologist, State Dept. of Public Health

Vital Statistics Section

- Eddie V. Cooksey, Charity Hospital, Record Library, New Orleans, La., Medical Record Librarian
- Eugene K. Harris, 2704 Yale Station, New Haven, Conn., Graduate Student, Yale University, Dept. of Public Health
- Mary T. D. Jett, 4726a McMillan, St. Louis, Mo., Acting Asst. Medical Record Librarian, Homer G. Phillips Hospital
- Richard V. Kasius, M.P.H., U.S.P.H.S., Tuberculosis Control Division, Field Studies Section, Washington, D. C., Senior Asst. Sanitarian (R), Statistician
- Sister Mary Anne, Mt. Carmel Hospital, Pittsburgh, Kans., Administrator
- Audrey V. Ohlandt, 221 Foothill Blvd., Oakland 6, Calif., Statistician, Oakland Dept. of Public Health
- Estelle Schloderbach, 5447 Wilson Ave., Chicago, Ill., Asst. Medical Record Librarian, Cook County Hospital
- Charlotte P. Sell, J.C.R.S. Sanatorium, Spivak, Colo., Medical Record Librarian, Jewish Consumptives Relief Society
- Esther M. Sherard, 2601 N. Whittier St., St. Louis, Mo., Chief Registered Medical Librarian, Homer G. Phillips Hospital
- Helen G. Tibbitts, M.A., 1022 S.W. 11th Ave., Portland, Ore., State Registrar, State Board of Health
- Sister M. Wencesla, Margaret Mary Hospital, Rosemont, Batesville, Ind., Administrative Office Supervisor

Engineering Section

- George S. Bote, State Board of Health, P. O. Box 210, Jacksonville, Fla., Typhus Control Specialist, U.S.P.H.S.
- Glen E. Browning, 1449 W. 69th St., Los Angeles 44, Calif., Public Health Engineering Trainee, Oregon State Board of Health
- Harold F. Elkins, M.S.P.H., 1206 N. 64th St., Philadelphia 31, Pa., U.S.P.H.S., Research Fellowship
- Clyde F. Fehn, M.S., 605 Volunteer Bldg., Atlanta, Ga., Engineer (R), U.S.P.H.S.
- Charles C. Johnson, Jr., U.S.P.H.S., Mission Monrovia, Liberia, Engineer in Charge, Engineering Division
- Sheldon L. Lang, U.S.P.H.S., 15 Pine St., New York 5, N. Y., Engineer (R)
- George A. Prince, 39 North St., Hillsdale,

Mich., Public Health Engineer, Hillsdale County Health Dept.

Industrial Hygiene Section

Roland E. Byrd, M.S., 704 N. Pine St., Little Rock, Ark., Director, Division of Industrial Hygiene, State Board of Health

Wilber A. Mitchell, M.S., 119 Crestmoor Ave., Louisville 6, Ky., Industrial Hygienist, State Dept. of Health

Food and Nutrition Section

Isabelle F. M. Ackerman, 21 Shepard St., Cambridge 38, Mass., Nutrition Supervisor, Visiting Nurse Assn. of Boston

John C. Ayres, Ph.D., Iowa State College, Science Hall, Ames, Iowa, Assoc. Prof., Bacteriology Dept.

Robert E. Johnson, M.D., 1849 W. Pershing Road, Chicago 9, Ill., Director of Nutritional Research, WD Medical Nutrition Laboratory

Lelia C. Ogle, 1089 W. Michigan, Indianapolis 7, Ind., Nutritionist, State Board of Health

Robert E. Shank, M.D., 4 Garden Lane, Kirkwood, Mo., Prof. of Preventive Medicine and Public Health, Washington Univ. School of Medicine

Maternal and Child Health Section

Percy Boland, M.D., M.P.H., Casilla 43, Santa Cruz, Bolivia, South America, Chief Obstetrician, Hospital, San Juan de Dios, Santa Cruz

Katharine Dodge Brownell, M.D., 119 E. 78th St., New York 21, N. Y., New York City Dept. of Health, Bureau of Child Hygiene

Allan M. Butler, M.D., 62 Buckminster Road, Brookline, Mass., Prof. of Pediatrics, Harvard Univ.

Rose Ober, R.N., AJDC, c/o PCIRO Administrative Subunit, APO 407, New York, N. Y., Area Supervising Nurse, American Joint Distribution Committee

Public Health Education Section

Elizabeth H. Adler, M.P.H., 306A Lombard St., San Francisco, Calif., Director of Health Education, Dept. of Public Health, Oakland

Mary F. Arnold, M.P.H., 30 Wilson Drive, Ben Avon Heights, Pittsburgh 2, Pa., Student, Univ. of North Carolina

Alfred R. Clarke, 175 Union Ave., Rutherford, N. J., Editor, RN & Journal for Nurses

Elizabeth LeVell, R.N., 109 Lawrence Place, Baltimore 21, Md., Coordinator in Public Health, National LePain Hospital School of Nursing

Charles E. M. A., 17 East National Bank Bldg.,

Springfield, Ill., Director of Health Education, Illinois Tuberculosis Assn.

Alexander Geller, 931 Schenectady Ave., Brooklyn 3, N. Y., Student, Columbia Univ. School of Public Health

Raymond L. Kahn, 1505 E. 67th Place, Chicago 37, Ill., Director of Personnel, National Society for Crippled Children and Adults

Sylvia H. Maness, 68 Allerton St., Brookline 46, Mass., Director, Allerton Hospital

Joseph G. Murphy, 214-15 Gluck Bldg., Niagara Falls, N. Y., Exec. Secy., Tuberculosis and Health Assn. of Niagara County

Fred B. Ragland, 3464 San Jose Blvd., Jacksonville, Fla., Director, Bureau of Finance, State Board of Health

Verne C. Reiersen, 1022 S.W. 11th Ave., Portland 5, Ore.

Walter Wenkert, Squaw Brook Road, Stony Creek, Conn., Exec. Secy., New Haven Tuberculosis and Health Assn., Inc.

Public Health Nursing Section

Essie Anglum, R.N., 2519 Sherman St., Evanston, Ill., Instructor, Dept. of Public Health Nursing, Loyola Univ., Chicago

Madelene Bailey, R.N., Glenville, W. Va., Public Health Nurse, Gilmer County

Florence M. Burnett, R.N., 141 N. Village Ave., Rockville Center, N. Y., Army Nurse Corps, discharged

Margaret R. Daugherty, R.N., 104 W. Kent St., Streator, Ill., Nurse, LaSalle County Health Service, Ottawa, Ill.

Amber M. G. Golob, R.N., 5858 Byron St., Chicago 34, Ill., Educational Supervisor, Evanston Visiting Nurse Assn.

Emogean Guthrie, R.N., 465 Kennedy St., Spartanburg, S. C., Local Supervising Nurse, Spartanburg County Health Dept.

Elizabeth Howland, B.N., 137 Newbury St., Boston 15, Mass., General Director, Visiting Nurse Assn. of Boston

Josephine E. Irwin, R.N., B.S.N., 622 Greenwood Ave., Toledo, Ohio, Senior Nurse, Toledo Health Dept.

Helen E. Kinback, 3301 N. Calvert St., Baltimore 18, Md., Instructor, School of Nursing, Union Memorial Hospital

Margaret F. Knapp, U.S.P.H.S., Div. of Cancer Control, Bethesda, Md., Nursing Consultant

Mary J. Leake, Topeka-Shawnee Health Dept., Topeka, Kans., Educational Director, Nursing Division

Rosamond Noel, 1620 S. 2nd St., Springfield, Ill., Advisory Nurse, State Dept. of Public Health

Louise M. Suchomel, B.S.N.Ed., 1790 Broadway, Room 1315, New York 19, N. Y.,

Consultant in Orthopedic Nursing, National Organization for Public Health Nursing
 Dorothy G. Teall, R.N., Dept. of Health,
 Lihue, Kauai, T. Hawaii, Supervisor, Public Health Nursing, Territorial Dept. of Health

Epidemiology Section

Col. Charles O. Bruce, M.C., 57 Fenwick Road, Fort Monroe, Va., Deputy Surgeon, Army Field Forces, U.S.A.
 Harold T. Fuerst, M.D., 80-40 Lefferts Blvd., Kew Gardens, N. Y., Epidemiologist, New York City Dept. of Health
 George C. Griffith, M.D., 1060 E. Green St., Suite 106, Pasadena 1, Calif., Clinical Prof. of Medicine, Univ. of Southern California
 Edward A. Horr, M.D., M.P.H., Naval Medical Center School, Bethesda 14, Md., Instructor in Parasitology
 Clayton G. Loosli, M.D., 950 E. 59th St., Chicago 37, Ill., Assoc. Prof. of Medicine, Univ. of Chicago, School of Medicine
 Robert K. Nelson, D.V.M., M.P.H., P. O. Box 453, Manhattan, Kans., Base Veterinarian, 363rd Medical Group, Langley Air Force Base, Hampton, Va.
 Col. Laurence A. Potter, M.C., 5609 Northfield Rd., Bethesda 14, Md., Deputy Chief, Procurement Branch, Personnel Division, Office of the Surgeon General, U.S.A.
 Samuel M. Taylor, 2145 Bourdon St., Muskegon, Mich., Venereal Disease Investigator, Muskegon County Health Dept.
 Norman H. Topping, M.D., 10 North Drive, Bethesda 14, Md., Assoc. Director, National Institutes of Health

School Health Section

David A. Rosenberg, M.D., 199 Valentine Lane, Yonkers, N. Y., Field Training, New York City Dept. of Health
 Katherine Steinbicker, State Dept. of Education, Charleston 5, W. Va., State Supervisor, Health Education
 N. E. Watson, Ph.D., 1000 Waukegan Road, Northbrook, Ill., Supt. of Schools, Northfield Township

Dental Health Section

Dr. Philip J. Kane, Sheridan National Bank Bldg., Sheridan, Wyo., Dentist
 Eugenia L. Mobley, D.D.S., M.P.H., 108 4th Ave. South, Birmingham 4, Ala., Director, Negro Bureau of Dental Health, Jefferson County Board of Health

Unaffiliated

Ray Amberg, University Hospitals, Minneapolis, Minn., Director
 M. Haskins Coleman, Jr., 207 E. Franklin St., Richmond, Va., Exec. Director, Virginia Hospital Service Assn.
 Robert A. Hunt, 1340 Crandall Ave., Salt Lake City, Utah, Administrator, Hospital Survey and Construction Division, State Dept. of Health
 Alfred T. Johnson, LL.B., 17211 S.E. Powell Blvd., Portland 16, Ore., Personnel Director, State Board of Health
 Herbert M. Krauss, M.B.A., Burlington Protestant Hospital, Burlington, Iowa, Hospital Administrator
 Carrie L. Lawrence, P.O. Box 1017, Santa Fe, N. M., Chief Accountant, Dept. of Public Health
 Don Longfellow, M.D., M.P.H., Office of the Surgeon General, U.S.A., Washington 25, D. C., Chief, Preventive Medicine Division
 George R. Nelson, 9th and Mt. Vernon Place, N.W., Washington 1, D. C., International Assn. of Machinists
 Margarita Pascual, Fernandez Juncos 1456, Santurce, Puerto Rico, Dept. of Education, Program on Human Relations
 Osler L. Peterson, M.P.H., 20 Rue de la Baume, Paris, France, Staff Member, Rockefeller Foundation
 Paul B. Shanks, State Health Dept., Charleston, W. Va., Administrative Asst.
 Mack D. Shelhorse, 4216 Kingcrest Parkway, Richmond, Va., Administrative Asst., State Dept. of Health
 Margaret K. Stanley, P.O. Box 186, Bakersfield, Calif., Exec. Secy., Kern County Branch, American Cancer Society
 Stuart B. Wilkins, 17 Capitol St., Concord, N. H., Director, Division of Finance, State Dept. of Health

APPLICANTS FOR FELLOWSHIP

In accordance with the By-laws of the Association, the names of applicants for Fellowship are officially published herewith. They have requested affiliation with the Sections indicated. Action by the various Section Councils, the Committee on Eligibility, and the Governing Council will take place during the Boston Annual Meeting.

Health Officers Section

- John K. Altland, M.D., M.S.P.H., Director, Bureau of Local Health Services, State Dept. of Health, Lansing, Mich.
- Robert E. Archibald, M.D.C.M., M.P.H., Director, Division of Local Health Administration, State Dept. of Public Health, Boston, Mass.
- Jesse B. Aronson, M.D., M.P.H., District Health Officer, New York City Health Dept., New York, N. Y.
- Clayton C. Benjamin, M.D., M.S.P.H., Director, St. Clair County Health Dept., Port Huron, Mich.
- Wilber V. Bradshaw, Jr., M.D., M.P.H., Assistant Director and Epidemiologist, City Health Dept., Fort Worth, Tex.
- Caroline H. Callison, M.D., M.P.H., Health Officer, Marlboro County Health Dept., Bennettsville, S. C.
- Capt. Thomas J. Carter, M.C., USN (M.D., Dr.P.H.), Senior Medical Officer, U. S. Naval Training Center, San Diego, Calif.
- Albert L. Chapman, M.D., M.P.H., Assistant Chief, States Relations Division, U. S. Public Health Service, Washington, D. C.
- Nathaniel H. Cooper, M.D., M.P.H., Assistant Director, Calhoun County Health Dept., Battle Creek, Mich.
- Gilbert Cottam, M.D., formerly Superintendent, State Board of Health, Pierre, S. D.
- Benjamin M. Drake, M.D., M.P.H., Health Officer, Rockingham-Caswell Health Dept., Spray, N. C.
- Eli Eichelberger, M.D., Director of Health, York, Pa.
- Harrison Eilers, M.D., M.P.H., Supervisor of Health Service, Long Beach Public Schools, Long Beach, Calif.
- Marion G. Fisher, M.D., M.P.H., Health Commissioner, Lorain County District Health Dept., Oberlin, Ohio
- Leon H. Flancher, M.D., M.P.H., Director, Division of Tuberculosis Control, State Dept. of Health, Des Moines, Iowa
- Malcolm J. Ford, M.D., M.P.H., Medical Officer in Charge, Diabetes Demonstration Unit, U. S. Public Health Service, Jacksonville, Fla.
- John H. Fountain, M.D., M.P.H., Director, Division of Tuberculosis Control, Seattle Health Dept., Seattle, Wash.
- Alfred L. Frechette, M.D., M.P.H., Director, Brookline Health Dept., Brookline, Mass.
- David Frost, M.D., M.P.H., Health Officer, City Health Dept., Alameda, Calif.
- A. Floyd Gardner, M.D., C.P.H., Board of Review, Member Discharges and Dismissals, Exec. Office of the Secretary, Navy Dept., Washington, D. C.
- Roy O. Gilbert, M.D., Health Officer, Los Angeles County Health Dept., Los Angeles, Calif.
- John T. Herron, M.D., Director, Bureau of Local Health Service, State Board of Health, Little Rock, Ark.
- Albert E. Heustis, M.D., M.P.H., Director, Branch County Health Dept., Coldwater, Mich.
- Walter R. Hewitt, M.D., Director of Health, University City, Mo.
- Herbert A. Hudgins, M.D., Medical Officer and Associate Chief of Field Party, Institute of Inter-American Affairs, Port-au-Prince, Haiti
- Walter C. Humbert, M.D., Director, Giles-Lincoln County Health Dept., Pulaski, Tenn.
- Robert M. Hursh, M.D., Director, Bureau of Health, Harrisburg, Pa.
- Clara R. Johns, M.D., M.P.H., Health Officer, Lee County Health Dept., Dixon, Ill.
- Trois E. Johnson, M.D., M.P.H., Director, Division of Local Health Services, State Dept. of Health, New Orleans, La.
- Walter B. Johnson, M.D., Deputy State and Dorchester County Health Officer, Cambridge, Md.
- Max R. Kiesselbach, M.D., M.P.H., Medical Officer, Venereal Disease Division, U. S. Public Health Service, Washington, D. C.
- Arnold B. Kurlander, M.D., M.P.H., Chief, Division of Tuberculosis, State Dept. of Health, Columbus, Ohio
- George Loewenstein, M.D., Health Officer, Cumberland, Me.
- Pascal F. Lucchesi, M.D., M.P.H., Superintendent and Medical Director, Philadelphia General Hospital, Philadelphia, Pa.
- James C. Malcolm, M.D., M.P.H., Health

- Officer, Alameda County Health Dept., San Leandro, Calif.
- Berwyn F. Mattison, M.D., M.P.H., Commissioner of Health, Erie County Health Dept., Buffalo, N. Y.
- Thomas F. McGough, M.D., M.P.H., Health Commissioner, Tuscarawas County Health Dept., New Philadelphia, Ohio
- Demetrius A. Messiney, M.B., M.P.H., Chief of Mission to Ethiopia and Chief Medical Officer, World Health Organization, Geneva, Switzerland
- Abbott B. Mitchell, M.D., M.P.H., Director, Blood Plasma Program, State Dept. of Health, Lansing, Mich.
- James M. Mott, M.D., Director, Lawrence-Douglas County Health Dept., Lawrence, Kans.
- Lorenzo L. Parks, M.D., M.P.H., Director, Field Technical Staff, State Board of Health, Jacksonville, Fla.
- George S. T. Peeples, M.D., M.P.H., Director, Division of Crippled Children, State Board of Health, Columbia, S. C.
- Paul Q. Peterson, M.D., M.P.H., Chief, Bureau of Direct Services, State Dept. of Health, Columbus, Ohio
- John D. Porterfield, M.D., M.P.H., Director, State Dept. of Health, Columbus, Ohio
- Winston B. Prothro, M.D., M.P.H., Director, City-County Health Dept., Kalamazoo, Mich.
- Charles E. Reddick, M.D., Director of Local Health Administration, State Dept. of Health, Phoenix, Ariz.
- Dudley A. Reekie, M.D., M.P.H., Director, Dept. of Public Health and Welfare, Fort Worth, Tex.
- Reuben F. Reider, M.D., D.P.H., Assistant Chief, Laboratory Division, Communicable Disease Center, U. S. Public Health Service, Atlanta, Ga.
- Leonard A. Scheele, M.D., Surgeon General, U. S. Public Health Service, Washington, D. C.
- Dale E. Scholz, M.D., M.P.H., Health Officer, Lawrence-Wabash County Health Dept., Mt. Carmel, Ill.
- Mack I. Shanholtz, M.D., M.P.H., Director of Preventive Medicine Services, State Health Dept., Oklahoma City, Okla.
- Morris Siegel, M.D., M.P.H., Assistant Health Officer, New York City Health Dept., New York, N. Y.
- Charles F. Sutton, M.D., M.P.H., Chief, Division of Local Health Administration, State Dept. of Public Health, Springfield, Ill.
- Sterling P. Taylor, M.D., Health Officer, North Haven, Conn.
- James A. Thrash, M.D., M.P.H., Commissioner of Health, City-County Health Dept., Columbus, Ga.
- Charles C. Tudor, M.D., M.P.H., District Health Officer, Benton-Franklin District Health Dept., Pasco, Wash.
- Bruce Underwood, M.D., State Health Commissioner, State Health Dept., Louisville, Ky.
- Sidney S. Wasserstrom, M.D., M.S.P.H., District Health Officer, New York City Health Dept., Brooklyn, N. Y.
- John J. Wright, M.D., M.P.H., Professor of Public Health Administration, School of Public Health, University of North Carolina, Chapel Hill, N. C.

Laboratory Section

- Emanuel Appelbaum, M.D., Senior Bacteriologist and Chief, Division of Acute Infections of Central Nervous System, Bureau of Laboratories, New York City Health Dept., New York, N. Y.
- Jacques Archambault, D.Sc., Associate Director of Laboratories, Quebec Ministry of Health, Montreal, Que., Canada
- Joseph D. Aronson, M.D., Associate Professor of Bacteriology, Henry Phipps Institute, Philadelphia, Pa.
- Catharine Atwood, B.A., Bacteriologist in Charge, Boston Health Dept., Boston, Mass.
- Frederick Boerner, V.M.D., Advanced Bacteriologist, State Dept. of Health, and Assistant Professor of Bacteriology, School of Medicine, University of Pennsylvania, Drexel Hill, Pa.
- Janet M. Bourn, Ph.D., Bacteriologist, State Dept. of Health, Lansing, Mich.
- Chester W. Christensen, Ph.D., Special Instructor in Industrial Microbiology, Wayne University, Detroit, Mich.
- Frances L. Clapp, B.A., Director, Biological Testing Section, Lederle Laboratories Division, American Cyanamid Co., Pearl River, N. Y.
- Rita Clark, S.B., City Chemist, Bacteriologist, and Milk Inspector, Brockton Health and Water Depts., Brockton, Mass.
- Gilbert Dalldorf, M.D., Director, Division of Laboratories and Research, State Dept. of Health, Albany, N. Y.
- Gustave J. Dammin, M.D., Assistant Professor of Pathology and Internal Medicine, Washington University Medical School, St. Louis, Mo.
- Ben E. Diamond, M.A., Director, Division of Laboratories, State Board of Health, Pierre, S. D.
- Cornelia A. Eddy, M.S., Instructor, Dept. of

- Bacteriology, Tulane University, New Orleans, La.
- Norbert H. Fell, Ph.D., Chief, Pilot Plants, Engineering Division, Chemical Corps, U. S. Army, Frederick, Md.
- Joseph Felsen, M.D., Director of Laboratory and Research, Bronx Hospital, New York, N. Y.
- Florence K. FitzPatrick, Ph.D., Research Bacteriologist, Sharp and Dohme, Inc., Glenolden, Pa.
- Louis Gershenfeld, D.Sc., Director of Bacteriological Laboratories and Professor of Bacteriology and Hygiene, Philadelphia College of Pharmacy and Science, Philadelphia, Pa.
- Paul W. Kabler, M.D., M.P.H., Chief, Section of Medical Laboratories, State Dept. of Health, Minneapolis, Minn.
- Anne C. Kimball, Ph.D., Director, Division of Serology, State Dept. of Health, Minneapolis, Minn.
- Alfred S. Lazarus, Ph.D., Associate Professor of Public Health and Preventive Medicine, University of Washington School of Medicine, Seattle, Wash.
- Howard E. Lind, Ph.D., M.P.H., Director, Sias Research Laboratory, Brooks Hospital, Brookline, Mass.
- Col. Karl R. Lundeberg, M.C. (M.D., D.T.M. & H.), Assistant Chief Health Officer, The Panama Canal, Balboa Heights, C. Z.
- Robert A. MacCready, M.D., Assistant Director, Division of Communicable Diseases and Director, State Diagnostic Laboratory, State Dept. of Public Health, Boston, Mass.
- Harold Macy, Ph.D., Associate Director, Agricultural Experiment Station, University of Minnesota, St. Paul, Minn.
- John K. Miller, M.D., M.A., Associate Director, Division of Laboratories and Research, State Dept. of Health, Albany, N. Y.
- Harry E. Morton, Sc.D., Associate Professor of Bacteriology, School of Medicine, University of Pennsylvania, Philadelphia, Pa.
- John M. Pearce, M.D., Professor of Pathology, Cornell University Medical College, and attending Pathologist, New York Hospital, New York, N. Y.
- Lenore R. Peizer, B.A., Bacteriologist, New York City Health Dept., New York, N. Y.
- Henry D. Piersma, Ph.D., Director, Human Biological Section, Lederle Laboratories Division, American Cyanamid Co., Pearl River, N. Y.
- Charles R. Rein, M.D., Private Practice of Dermatology and Syphilology, and Associate Professor of Dermatology and Syphilology, New York University, New York, N. Y.
- Lawrence W. Slanetz, Ph.D., Bacteriologist, Agricultural Experiment Station and Professor of Bacteriology, University of New Hampshire, Durham, N. H.
- Mathilde Solowey, Ph.D., Acting Head, Microbiology Research Division, Bureau of Agricultural and Industrial Chemistry, U. S. Dept. of Agriculture, Washington, D. C.
- Randall L. Thompson, M.D., Sc.D., Professor of Microbiology, Indiana University, Indianapolis, Ind.
- Willard F. Verwey, D.Sc., Director of Bacteriological Research, Medical Research Division, Sharp and Dohme, Inc., Glenolden, Pa.
- George R. Weber, Ph.D., S. A. Scientist, U. S. Public Health Service, Cincinnati, Ohio
- Lyle A. Weed, M.D., Ph.D., Bacteriologist, Mayo Clinic, Rochester, Minn.
- Bernard Witlin, Sc.D., Research Bacteriologist, Sharp and Dohme, Inc., Glenolden, Pa.
- Mildred T. Woolley, Dr.P.H., Director of Laboratory, Long Beach Health Dept., Long Beach, Calif.
- Joseph Zichis, Ph.D., Assistant Chief Bacteriologist, State Dept. of Public Health, Chicago, Ill.

Vital Statistics Section

- F. Herbert Colwell, Dr.P.H., Statistics Consultant, State Health Dept., Seattle, Wash.
- Ann Dillon, M.S.P.H., Senior Statistician, State Dept. of Public Health, Nashville, Tenn.
- Harold F. Dorn, Ph.D., Chief, Office of Statistical Methods and Advisory Service, U. S. Public Health Service, Washington, D. C.
- Carl L. Erhardt, B.B.A., Registrar of Records and Director, Bureau of Records and Statistics, New York City Health Dept., New York, N. Y.
- Clifford H. Greve, M.S.P.H., Statistician and Assistant Chief, Program Analysis Section, U. S. Public Health Service, Washington, D. C.
- Paul H. Jacobson, A.M., Vital Statistics Analyst, Statistical Bureau, Metropolitan Life Insurance Co., New York, N. Y.
- Anthony M. Lowell, M.P.H., Assistant Statistician, New York Tuberculosis and Health Assn., New York, N. Y.
- Kurt Pohlen, Ph.D., Director, Dept. of Research and Statistics, Catholic Hospital Assn., St. Louis, Mo.
- Paul W. Shipley, B.S., Chief, Bureau of Records and Statistics, State Dept. of Public Health, San Francisco, Calif.

Engineering Section

Joel C. Beall, B.S.C.E., Engineer and Director, Division of Sanitation, Macon-Bibb County Health Dept., Macon, Ga.

Nelson Biaggi, M.S.S., Associate in Sanitary Science, School of Tropical Medicine, San Juan, P. R.

A. Harry Bliss, M.S., Associate Sanitarian, School of Public Health, University of California, Berkeley, Calif.

Henry E. Breedlove, M.S.S.E., Public Health Engineer and Director, Division of Sanitation, Mobile County Board of Health, Mobile, Ala.

Charles G. Caldwell, M.S.S.E., Director, Division of Sanitary Engineering and Sanitation, State Dept. of Public Health, Santa Fe, N. M.

Herman L. Felton, B.S., Technical Director, Orkin Exterminating Co. and Orkin Sanitation Services, Atlanta, Ga.

Henry Greene, M.S.P.H., State Field Supervisor, Typhus Control Service, U. S. Public Health Service and State Dept. of Public Health, Macon, Ga.

Attmore E. Griffin, Ph.B., Director, Technical Service Division, Wallace & Tiernan Co., Inc., Newark, N. J.

William R. Hardy, M.S.S.E., City Sanitary Engineer, Dept. of Public Health, Fort Worth, Tex.

Frederick S. Kent, M.P.H., Senior Assistant Sanitary Engineer, U. S. Public Health Service, Ann Arbor, Mich.

Harold B. Robinson, M.P.H., Scientist (Milk and Food Sanitation), U. S. Public Health Service, New York, N. Y.

Jack C. Rogers, B.S.C.E., Public Health Engineering Associate, Los Angeles City Health Dept., Los Angeles, Calif.

James L. Rowland, Jr., M.S.P.H., Senior Sanitarian, State Division of Health, Jefferson City, Mo.

Wilmer H. Schulze, Ph.D., Director, Sanitary Section, City Health Dept., Baltimore, Md.

Alexander H. Zimmerman, Ch.E., Ventilation Engineer in Charge, Division of Industrial Hygiene, City Bureau of Heating, Ventilating and Industrial Sanitation, Chicago, Ill.

Industrial Hygiene Section

Henry S. Brown, M.D., Medical Director, Michigan Bell Telephone Co., Detroit, Mich.

Dohrman H. Byers, M.S., Scientist, Industrial Hygiene Division, U. S. Public Health Service, Washington, D. C.

Lewis J. Cralley, Ph.D., Engineer, Industrial Hygiene Division, U. S. Public Health Service, Washington, D. C.

William A. McQuary, B.A., Acting Director, Division of Industrial Hygiene, State Board of Health, Little Rock, Ark.

Harry F. Schulte, M.S., Occupational Hygiene Engineer, University of California, Los Alamos, N. M.

Food and Nutrition Section

Marjorie G. Abel, M.S., Chief, Bureau of Nutrition, Territorial Dept. of Health, Honolulu, T. H.

Lillian Anderson, M.A., Director, Nutrition Service, Community Service Society, New York, N. Y.

Stefan Ansbacher, Dr.Sc., Scientific Director, Hoosier Soybean Mills, Rockville Centre, N. Y.

Ansta T. Barr, M.S., Regional Nutrition Consultant, U. S. Children's Bureau, Dallas, Tex.

Esther L. Batchelder, Ph.D., Head, Food and Nutrition Division, Bureau of Human Nutrition and Home Economics, U. S. Dept. of Agriculture, Washington, D. C.

Franklin C. Bing, Ph.D., Director, American Institute of Baking, Chicago, Ill.

Bertlyn Bosley, Ph.D., Director, Nutrition Division, State Board of Health, Raleigh, N. C.

Enos B. Buchanan, M.A., Deputy Commissioner of Health, Cleveland Division of Health, Cleveland, Ohio.

Bertha S. Burke, A.M., Assistant Professor of Maternal and Child Nutrition, School of Public Health, Harvard University, Boston, Mass.

Roy E. Butler, M.D., Senior Surgeon, U. S. Public Health Service, New Orleans, La.

Howard E. Chaney, M.S., Chemist in Charge, Branch Chemical Laboratory, State Dept. of Health, Cambridge, Md.

William J. Darby, Jr., M.D., Ph.D., Professor of Biochemistry and Assistant Professor of Medicine, School of Medicine, Vanderbilt University, Nashville, Tenn.

Jane G. DeBuse, M.S.P.H., Nutrition Consultant, State Dept. of Public Health, Boise, Ida.

H. C. Diehl, B.S., Director and Secretary, The Refrigeration Research Foundation, Berkeley, Calif.

Conrad A. Elvehjem, Ph.D., Chairman and Professor, Dept. of Biochemistry, University of Wisconsin, Madison, Wis.

John L. Etchells, Ph.D., Bacteriologist, Bureau of Agricultural and Industrial Chemistry, U. S. Dept. of Agriculture, Raleigh, N. C.

Margaret S. Follstad, M.S., Nutrition Consultant, Tuberculosis Institute of Chicago and Cook County, Chicago, Ill.

- Robert S. Goodhart, M.D., Member, Food and Nutrition Board, and Chairman, Committee on Nutrition in Industry, National Research Council, New York, N. Y.
- Millicent L. Hathaway, Ph.D., Nutrition Specialist, Bureau of Human Nutrition and Home Economics, U. S. Dept. of Agriculture, Washington, D. C.
- Christine A. Heller, M.S., Nutrition Consultant, Territorial Dept. of Health, Anchorage, Alaska.
- Dorothy L. Husseman, Ph.D., Associate Professor, Home Economics Dept., University of Wisconsin, Madison, Wis.
- Almeda King, M.S., Nutritionist, State Dept. of Public Health, Boston, Mass.
- Pauline Beery Mack, Ph.D., Director, Ellen H. Richards Institute, Pennsylvania State College, State College, Pa.
- Lucy M. Maltby, Ph.D., Director of Home Economics, Corning Glass Works, Corning, N. Y.
- Edna M. McIntosh, M.S., Director, Dept. of Nutrition, Gerber Products Co., Fremont, Mich.
- Lillian L. Nash, M.S., Chief, Division of Nutrition, Cook County Dept. of Public Health, Chicago, Ill.
- Mildred E. Neff, M.A., Director, Nutrition Services, State Dept. of Health, Louisville, Ky.
- Milla E. Newland, M.S., Nutrition Consultant, State Dept. of Public Health, Burlington, Vt.
- Isabel Patterson, M.S., Nutrition Consultant, State Dept. of Health and Welfare, Augusta, Me.
- Leone Pazourek, S.M., Nutrition Consultant, State Dept. of Public Health, Springfield, Ill.
- Marguerite J. Queneau, M.A., Associate Nutritionist, State Health Dept., Albany, N. Y.
- Myra Reagan, M.S., Nutrition Consultant, State Dept. of Public Health, Atlanta, Ga.
- Elda Robb, Ph.D., Director, School of Home Economics, Simmons College, Boston, Mass.
- Tom D. Spies, M.D., Professor and Chairman, Dept. of Nutrition and Metabolism, Northwestern University Medical School, and Director, Nutrition Clinic, Hillman Hospital, Birmingham, Ala.
- Hulda Stettler, M.S., Nutrition Consultant, State Dept. of Health, Lansing, Mich.
- Robert P. Straka, Ph.D., Senior Microbiologist, Western Regional Research Laboratory, U. S. Dept. of Agriculture, Albany, Calif.
- Clara M. Taylor, Ph.D., Professor of Nutrition, Teachers College, Columbia University, New York, N. Y.
- Paul H. Tracy, Ph.D., Professor of Dairy Technology, University of Illinois, Urbana, Ill.
- Russell M. Wilder, M.D., Ph.D., Professor and Chief, Dept. of Medicine, Mayo Foundation for Medical Education and Research, Rochester, Minn.
- G. Dorothy Williams, M.S., Chief, Nutrition Division, New York City Health Dept., New York, N. Y.

Maternal and Child Health Section

- John A. Anderson, M.D., Ph.D., Professor of Pediatrics, University of Utah, Salt Lake City, Utah.
- Herbert Bauer, M.D., M.P.H., County Physician, San Luis Obispo County, Berkeley, Calif.
- Alice D. Chenoweth-Pate, M.D., M.A., Director, Division of Maternal and Child Health, State Dept. of Health, Louisville, Ky.
- Goldie B. Corneliuson, M.D., M.S.P.H., Director, Bureau of Maternal and Child Health, State Dept. of Health, Lansing, Mich.
- Edwin F. Gouldman, M.D., Obstetric Consultant, State Board of Health, Topeka, Kans.
- John M. Hayek, M.D., M.P.H., Director, Division of Maternal and Child Health, State Dept. of Health, Des Moines, Iowa.
- Herbert R. Kobes, M.D., M.P.H., Director, Division of Services for Crippled Children, University of Illinois, Springfield, Ill.
- Kenneth S. Landauer, M.D., Director of Medical Care, National Foundation for Infantile Paralysis, New York, N. Y.
- Ella Oppenheimer, M.D., Director, Bureau of Maternal and Child Welfare, D. C. Health Dept., Washington, D. C.
- Edward Press, M.D., M.P.H., Regional Medical Director, U. S. Children's Bureau, Chicago, Ill.
- Viola Russell, M.D., Director, Maternal and Child Health Division, State Dept. of Public Health, Burlington, Vt.
- Henry C. Schumacher, M.D., Medical Director and Consultant in Mental Hygiene, U. S. Public Health Service, San Francisco, Calif.
- Hart E. Van Riper, M.D., Medical Director, National Foundation for Infantile Paralysis, New York, N. Y.
- Samuel M. Wishik, M.D., Chief, Division for Physically Handicapped Children, New York City Health Dept., New York, N. Y.

Public Health Education Section

- William W. Bolton, M.D., Associate Director, Bureau of Health Education, American Medical Assn., Chicago, Ill.

- Bernadine Cervinski, M.P.H., Director, Division of Health Education, State Dept. of Health, Bismarck, N. D.
- Doris G. Chandler, M.P.H., Director of Health Education, National Society for the Prevention of Blindness, New York, N. Y.
- Helen Crosby, B.A., Director, Bureau of Social and Health Agencies, Metropolitan Life Insurance Co., New York, N. Y.
- Ira L. Ferguson, M.Sc., Associate Professor, Health Education and Safety Education, Southern University, Baton Rouge, La.
- William Griffiths, M.A., Director, Division of Public Health Education, State Dept. of Health, Minneapolis, Minn.
- Catherine D. Hidy, M.P.H., Public Health Educator, City Health Dept., Little Rock, Ark.
- Norma Johannis, M.P.H., Director of Health Education, State Dept. of Public Health, Denver, Colo.
- Ben D. Kiningham, Jr., M.P.H., Executive Secretary, Illinois Tuberculosis Assn., Springfield, Ill.
- Laura K. McCrory, M.P.H., Health Educator, City Health Dept., Minneapolis, Minn.
- Whitelaw R. Morrison, M.D., A.M., Professor of Hygiene and Physical Education, Oberlin College, Oberlin, Ohio.
- Raymond G. Nebelung, Dr.P.H., Executive Director, Public Health Committee, Chamber of Commerce, Honolulu, T. H.
- Morton A. Seidenfeld, Ph.D., Director of Psychological Services, National Foundation for Infantile Paralysis, New York, N. Y.
- Milton L. Shurr, M.S.P.H., Associate Executive Secretary, Health Division, Council of Social Agencies, Chicago, Ill.
- Myer Solis-Cohen, M.D., Assistant Director, Philadelphia Dept. of Public Health, Philadelphia, Pa.
- Josef J. Weisskopf, M.D., Surgeon and Chief, Treasury Dept. Health Units, Federal Employees Health Division, U. S. Public Health Service, Washington, D. C.
- M. Frances Frazier, R.N., M.P.H., Instructor, School of Public Health, Harvard University, Boston, Mass.
- Anna C. Gring, M.A., Director of Nursing, Public Health Nursing Service, Montclair, N. J.
- Ethel R. Jacobs, R.N., B.S., Director, Division of Public Health Nursing, State Board of Health, Indianapolis, Ind.
- Myona M. Morrison, M.P.H., Director of Public Health Nursing, Kern County Dept. of Public Health, Bakersfield, Calif.
- Jeannette Rosenstock, R.N., C.P.H., Director, Nursing Division, Topeka City-Shawnee County Health Dept., Topeka, Kans.
- Miriam M. Slight, R.N., B.S., Field Supervisor, Topeka City-Shawnee County Health Dept., Topeka, Kans.
- Julia C. Thompson, R.N., Acting Director, Nursing Division, Topeka City-Shawnee County Health Dept., Topeka, Kans.

Epidemiology Section

- Anne M. Bahlke, M.D., M.P.H., Medical Consultant, Bureau of Communicable Disease Control, State Dept. of Health, Albany, N. Y.
- Theodore J. Bauer, M.D., Venereal Disease Control Officer, U. S. Public Health Service, Chicago, Ill.
- Ward L. Chadwick, M.D., Director, Communicable Disease Division, Denver Dept. of Public Health, Denver, Colo.
- Abraham Gelperin, M.D., Dr.P.H., Director, Bureaus of Venereal and Communicable Diseases, New Haven Health Dept., New Haven, Conn.
- William M. Hammon, M.D., Dr.P.H., Professor of Epidemiology, University of California, San Francisco, Calif.
- Bascom Johnson, Jr., M.D., M.P.H., Assistant Chief, Dermatology and Syphilology Section, Veterans Administration, Washington, D. C.
- Herbert S. Miller, M.D., M.P.H., Director, Tuberculosis Control Service, State Division of Health, Jefferson City, Mo.
- William C. Spring, Jr., M.D., M.P.H., Commissioner of Health, Tompkins County Health Dept., Ithaca, N. Y.
- Thamara M. Stander, M.D., M.S.P.H., Epidemiologist, Nassau County Dept. of Health, Mineola, N. Y.
- James Watt, M.D., Dr.P.H., Surgeon and Medical Officer in Charge, Dysentery Control Project, U. S. Public Health Service, Pharr, Tex.

Public Health Nursing Section

- Flora H. Booth, R.N., B.S., Director of Nursing, Summit County Health Dept., Akron, Ohio.
- Mary L. Brown, R.N., M.P.H., Director, Public Health Nursing Instruction, Meharry Medical College, Nashville, Tenn.
- Meta L. Deininger, R.N., B.S., Director of Public Health Nursing, Tompkins County Health Dept., Ithaca, N. Y.
- Sara M. Errickson, R.N., B.S., Nurse Consultant, State Dept. of Health, Trenton, N. J.

School Health Section

- Helen L. Coops, Ph.D., Assistant Professor, Dept. of Physical and Health Education, and Health Coordinator, University of Cincinnati, Cincinnati, Ohio.
- Louella L. Haage, R.N., M.A., Supervisor of School Nurses, Jersey City Board of Education, Jersey City, N. J.
- Grace D. Keenan, M.S.Ed., Supervisor of Health Education, Brockton School Dept., Brockton, Mass.
- Cyrus H. Maxwell, M.D., M.S., Chief, Administration of School and College Health Services, U. S. Office of Education, Washington, D. C.
- Mary E. McGuire, M.S.P.H., Child Health Consultant, State Dept. of Public Welfare, Austin, Tex.
- Thomas R. O'Brien, M.D., Director of School Health, Health Dept., Lynn, Mass.
- Abraham B. Rosenfield, M.D., M.P.H., Director of Maternal and Child Health, State Dept. of Health, Minneapolis, Minn.
- George W. Snyder, M.D., Director of School Hygiene, Dept. of Education, St. Paul, Minn.

Dental Health Section

- Philip E. Blackerby, Jr., D.D.S., M.S.P.H., Director, Division of Dentistry, W. K. Kellogg Foundation, Battle Creek, Mich.
- Hugh R. McLaren, D.D.S., D.D.P.H., Assistant Chief, Dental Health Division, Dept. of National Health and Welfare, Ottawa, Ont., Canada.
- Joseph J. Obst, D.D.S., M.A., Private Dental Practice, and Secretary-Treasurer, Dental Information Bureau, Brooklyn, N. Y.
- Muriel K. G. Robinson, D.D.S., M.P.H., District Dental Officer, State Dept. of Health, Philadelphia, Pa.

Unaffiliated

- Herbert K. Abrams, M.D., M.P.H., Chief, Bureau of Adult Health, State Dept. of Public Health, San Francisco, Calif.
- Major V. Harry Adrounie, Bacteriologist, Medical Inspector and Preventive Medicine Officer, U. S. Army, Hq. 1 Corps, Medical Section, APO, San Francisco, Calif.
- Louis C. Barail, M.D., D.D.S., Chief Biologist-Bacteriologist, U. S. Testing Co., Inc., Hoboken, N. J.
- Morley B. Beckett, M.D., M.P.H., Chief Grade, Tuberculosis Section, Branch No. 11, Veterans Administration, Seattle, Wash.
- Leland J. Belding, M.D., M.P.H., Health Officer, Jackson Junction, Iowa.
- Capt. Otto L. Burton, MC, USN, (M.D., M.P.H.), Chief of Preventive Medicine, Bu-

reau of Medicine and Surgery, Navy Dept., Washington, D. C.

- Major George R. Carpenter, M.C., (M.D., M.P.H.), Assistant Chief, Preventive Medicine Branch, European Command, U. S. Army, APO, New York, N. Y.
- Leon A. Dickerson, M.D., Director, Kanawha-Charleston Health Dept., Charleston, W. Va.
- Frederick H. Downs, Jr., B.S., Director, Division of Milk and Dairy Products, State Health Dept., New Orleans, La.
- Joseph G. Fallon, M.P.H., Assistant Professor of Biology and of Nursing Education, Pacific Union College, Angwin, Calif.
- Harry S. Fein, M.D., M.S.P.H., Student, Dept. of Ophthalmology, Northwestern University Medical School, Chicago, Ill.
- Wilton M. Fisher, M.D., Ph.D., Surgeon (R), Laboratory Division, Communicable Disease Center, U. S. Public Health Service, Atlanta, Ga.
- Kenneth R. Gibson, D.D.S., M.S.P.H., Director of Dentists, Children's Fund of Michigan, Detroit, Mich.
- Max Gross, M.D., Director of Tuberculosis Clinics, New Jersey Sanatorium, Glen Gardner, N. J.
- Charles R. Hess, M.D., Section Chief, Veterans Hospital, Oteen, N. C.
- Marcus D. Kogel, M.D., General Medical Superintendent, City Department of Hospitals, New York, N. Y.
- Dominick J. Lacovara, M.D., M.A., Resident Psychiatrist and Chief Psychologist, Craig House Sanitarium, Beacon, N. Y.
- Hyrum L. Marshall, M.D., M.S., Professor of Public Health and Preventive Medicine, University of Utah Medical School, Salt Lake City, Utah.
- William Muhlberg, M.D., President, Cincinnati Board of Health and Treasurer, American Diabetes Assn., Cincinnati, Ohio.
- Walter L. Obold, Ph.D., Professor of Biological Sciences, Drexel Institute of Technology, Philadelphia, Pa.
- Frederick M. Offenkrantz, M.D., M.A., Clinical Pathologist, St. Joseph Hospital, Paterson, N. J.
- Herbert A. Perry, M.D., Superintendent and Medical Director, Eastern State Hospital, Medical Lake, Wash.
- Leslie W. Rowles, D.V.M., Director, Veterinary Division, Topeka City-Shawnee County Health Dept., Topeka, Kans.
- Mark M. Schapiro, M.D., M.S., Surgical Associate, American Hospital, Chicago, Ill.
- Norma G. Silver, M.S.P.H., Executive Secretary, Metropolitan Detroit Health Council, Council of Social Agencies, Detroit, Mich.

John G. Smith, M.D., Deputy Commissioner of Health, Cleveland Division of Health, Cleveland, Ohio.

John W. Spies, M.D., M.P.H., Director, Divisions of Communicable Diseases and Cancer, State Board of Health, Marshallton, Del.

Edward K. Steinkopff, M.D., Medical Director, Pinchurst Sanatorium, Janesville, Wis.

Allan Stone, B.A., Executive Director, Minnesota Division, American Cancer Society, St. Paul, Minn.

Alice B. Tobler, M.D., M.P.H., Assistant Deputy State Health Officer, State Dept. of Health, Annapolis, Md.

Samuel H. Zia, M.D., Professor of Bacteriology, Peiping Union Medical College, Peiping, China.

SUSTAINING MEMBERS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

American Bottlers of Carbonated Beverages, Washington, D. C.

Ames Company, Inc., Elkhart, Ind.

Association for the Aid of Crippled Children, New York, N. Y.

Borden Company, New York, N. Y.

Chlorine Institute, Inc., New York, N. Y.

Difco Laboratories, Inc., Detroit, Mich.

Diversey Corporation, Chicago, Ill.

Equitable Life Assurance Society of the United States, New York, N. Y.

John Hancock Mutual Life Insurance Company, Boston, Mass.

Hoffman-La Roche, Inc., Nutley, N. J.

Holland-Rantos Company, Inc., New York, N. Y.

International Association of Ice Cream Manufacturers, Washington, D. C.

International Equipment Company, Boston, Mass.

Josam Manufacturing Company, Cleveland, Ohio

Lederle Laboratories Division, American Cyanamid Co., New York, N. Y.

Liberty Mutual Insurance Company, Boston, Mass.

Life Insurance Co. of Virginia, Richmond, Va.
Macmillan Company, New York, N. Y.

George W. Merck, Rahway, N. J.

Metropolitan Life Insurance Company, New York, N. Y.

National Life Insurance Co., Montpelier, Vt.

Oval Wood Dish Corp., Tupper Lake, N. Y.

Prudential Insurance Company of America, Newark, N. J.

Sealright Company, Inc., Fulton, N. Y.

Sharp and Dohme, Inc., Glenolden, Pa.

E. R. Squibb and Sons, New York, N. Y.

Sun Life Insurance Company, Baltimore, Md.

Travelers Insurance Company, Hartford, Conn.

Union Central Life Insurance Company, Cincinnati, Ohio.

Upjohn Company, Kalamazoo, Mich.

West Disinfecting Co., Long Island City, N. Y.

Western and Southern Life Insurance Company, Cincinnati, Ohio.

Winthrop-Stearns, Inc., New York, N. Y.

Wyeth, Inc., Philadelphia, Pa.

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

(Supplemental to list in August Journal)

POSITIONS AVAILABLE

Deputy Health Officer at the Rochester Health Bureau, Rochester, N. Y. Salary \$7,000. M.D. degree and graduate work in public health required. Duties varied. Write, Dr. Albert D. Kaiser at above mentioned address giving training and experience and special interests in public health.

Associate Bacteriologist, Public Health. Master's degree. Two years' suitable postgraduate experience. Salary range \$306 to \$350 per month. Permanent position under effective civil service.

Senior Assistant Bacteriologist, Public Health. Salary range \$242 to \$270 per month. B.S. degree with major in biology and at least 18 months' public health laboratory experience required. Some graduate work or teaching experience highly desirable. Write: Director of Laboratories, Laboratory Section, St. Louis Health Division, Room 32, Municipal Courts Building, St. Louis, Mo.

Public Health Nurse: For generalized program (including school service). Staff of 40 nurses. Completion of accredited public health nursing course required. Beginning salary \$2,940—possibly higher. County car or 7¢ per mile for use of personal car. Personnel policies good, including five day week and annual salary increments. Write: Director of Public Health Nursing, Kern County Department of Public Health, P. O. Box 120, Bakersfield, Calif.

Staff School Nurse for small, well organized school health department on Pacific Coast. Salary approximately \$2,850, 35 hour week, 9 calendar months including 3 weeks vacation. Three summer months free. Annual increment for ten years, tenure after three probationary years. Must be under thirty with B.A. and P.H.N. degrees, at least one year's experience in generalized nursing program and own car. Send photograph, age, degrees, training and experience since receiving P.H.N., marital status,

number of children. Position open September, 1948. Write: Box A-23, Employment Service, A.P.H.A.

Public Health Nurse, white. Starting salary \$2,200. Apply: Health Officer, Health Center, Alexandria, Va.

Supervisors of Public Health Nurses. Baltimore County Health Department. Population 230,000; suburban, industrialized and rural areas; county seat 8 miles from Baltimore. Generalized service; director, 4 supervisors, 36 field nurses. Degree and experience required. Salary \$3,100 to \$3,600; for special preparation in child hygiene, venereal disease, mental hygiene or orthopedics, \$3,400 to \$3,900. Also **Public Health Nurses**, beginning salary \$2,300 (for trainee) to \$2,700, depending on experience and education; increases to \$3,300. Retirement plan; 1 month's vacation; 5 day, 35½ hour week; sick leave. For use of personal car, allowance of 7 cents per mile. Write: Dr. William H. F. Warthen, Health Officer, Baltimore County Health Department, Towson 4, Md.

Sanitarian, for town of 30,000 in the Northeastern United States. College graduate with major in Biological sciences and experience in sewage disposal and restaurant sanitation. Salary \$3,000 to \$3,500, plus car allowance. Car necessary. Write: Health Officer, Fairfield, Conn.

School Nurse for High School, Northeastern United States. R.N. and some public health experience required. College graduate preferred. Salary \$3,000 annually and increments. Write: Health Officer, Fairfield, Conn.

Health Educator for a college major in Health Education. Master's degree is required. Should be able to teach Administration and Organization and Materials and Methods of Health Education, and supervise student practice field work. Starting salary \$3,800 for 9 months, extra

pay for Summer School. Man preferred. Write: Dean, Springfield College, Springfield, Mass.

Public Health Nurse Supervisor—with certificate or one year of graduate study in public health. Salary range \$3,120 to \$3,600. Vacation, sick leave, retirement plan, 5 day week, permanent tenure. Car furnished. Write: Charles A. Neafie, M.D., Director, Dept. of Public Health, Pontiac 15, Mich.

Director for School Health Service, City Public Schools, M.D. required. M.P.H. desirable but not essential for applicants with public health experience. Age preferred 30-40. Beginning salary \$6,000. Staff of 17. Write: W. A. Bass, Superintendent, City Public Schools, Nashville 4, Tenn.

Sanitation Engineer, foreign location; experienced man to handle general work in tropics for well established plantation. Will supervise sanitation problems, mosquito control. Splendid 2 year contract for qualified man. In reply give age, education, experience, and salary expected. Write: Box A-24, Employment Service, A.P.H.A.

Public Health Nurses needed in Nevada. Permanent positions in rural counties and local county health unit. **Junior Public Health Nurses:** (salary range \$2,160-\$2,640 annually) minimum of 6 months' postgraduate public health nursing training. **Senior Public Health Nurses:** (salary range \$2,340-\$2,940 annually). One academic year of postgraduate training in public health nursing plus satisfactory experience in official agency. Mileage allowance 7½¢, if nurse owns car. Write: Nevada State Department of Health, Division of Public Health Nursing, Reno, Nev.

Associate Director who can in time succeed Director of Midwest City Department with better than average budget, program and staff of 70, Civil Service benefits. Preference to training and/or experience in M.C.H. or Tuberculosis. Salary to \$7,000 as Associate and \$10,000 as Director. Write: George Hays, M.D., Director, Dept. of Public Health, P. O. Box 28, Flint, Mich.

Sanitary Engineer in a well organized County Health Department in the choice section of Illinois. Twenty staff members including 2 sanitarians. Salary to depend on training and experience, liberal travel allowance. Population of County 72,000. Apply: McLean County Health Dept., 1009 North Park St., Bloomington, Ill.

Qualified Public Health Nurses for attractive rural area on coast of Northern California. Generalized Public Health Program. Population 60,000, State Retirement Plan. Car furnished. Salary range \$3,000-\$3,600. Apply: Director, Humboldt County, Department of Public Health, 805 Sixth St., Eureka, Calif.

The Denver City-County Health Department has several vacancies for **Public Health Nurses** with training and experience and interested in field teaching. Beginning salary \$245.00 per month plus mileage. Generalized program except for public school services. Recent Visiting Nurse Association merger. University field program. Write: Mrs. Mary Emberton, Director, Visiting Nurse Service, Denver Health Department, Denver General Hospital, Denver, Colo.

Two Staff Nurses in Health Department at Hillsboro, Ill. Salary range \$200 to \$250 per month. General nursing program. Car required. Liberal allowance for depreciation and mileage. Write: Montgomery County Health Dept., Hillsboro, Ill.

Staff Nurse preferably with public health nursing experience for generalized public health nursing program in a county Health Unit in S.E. Colorado. Salary dependent on qualifications; must own car, mileage paid. Write: Acting Director, Otero County Health Department, 17 West 4th, La Junta, Colo.

Public Health Statistician to direct bureau of health (vital) statistics. Salary \$407.08 to \$481.67 plus \$25.00 monthly bonus. Five years of statistical experience including three years in research and supervisory capacity in public health, graduation from a recognized university with courses in advanced statistics and one year of graduate work in public health, major in public health statistics. Write: air-mail to: President, Board of Health, P. O. Box 3378, Honolulu 1, Hawaii.

Staff Physician for Tuberculosis Sanatorium. 270 beds, salary \$4,848. Write: Dr. C. W. Scott, Superintendent, Piedmont Sanatorium, Burkeville, Va.

Sanitary Engineer or Sanitarian, engineering or science degree. Generalized program, rural and urban, two county district. Car necessary, mileage 7¢. Salary open. Write: Director, Delta-Menominee District Health Department, Escanaba, Mich.

Public Health Nurses; Southern Michigan City-County Health Department, field training area. Opportunity for supervised

experience and university extension courses. Forty hour week; 4 weeks' annual vacation; liberal sick leave. Salary liberal, systematic increments. Travel allowance. Write: Director, Calhoun County Health Department, Battle Creek, Mich.

Public Health Nurse, preferably with training and experience. County of 35,000 population, 100 miles from Chicago; 3 weeks' vacation, sick leave with pay; \$60 monthly travel allowance, monthly salary range \$200-\$250. Write Box A-25, Employment Service, A.P.H.A.

Bacteriologist for investigational work in pulp and paper fields involving bacteriological and mycological studies. Recent graduates with advanced degree or experienced personnel. Write: Institute of Paper Chemistry, Appleton Wis.

Chief Bacteriologist for State Health Department Laboratory, northeastern U. S. Advanced degree required. Salary \$4,170 maximum, depending on qualifications. Write Box A-28, Employment Service, A.P.H.A.

Director, Bureau of Tuberculosis, New York City Health Department. M.D., 1 year approved internship, 1 year residency in approved TB Hospital, 3 years' full-time administrative metropolitan public health experience, 3 years' full-time experience in examination and treatment of TB patients and radiological diagnosis or equivalent. New York State License; blanks must be applied for and delivered personally or by messenger at 299 Broadway, New York City.

Several qualified **Sanitarians**. Bachelor's degree with related science or engineering major and 1 year qualifying experience. Experience in sanitation may be substituted for two years college. Beginning

monthly salary \$200. Write Merit System Supervisor, Box 939, Santa Fe, N. M.

Two positions for **Staff Nurses**, salary \$250-\$310; one position for **Director of Nursing**; Sutter-Yuba Health Dept., Central California, including two counties, urban and rural. Total staff of twenty. Housing available. Salary for **Director of Nursing** \$360. Write: C. A. Scherer, M.D., Health Officer, 309 C St., Marysville, Calif.

Health Educator, with M.P.H. major in health education or equivalent, or degree plus minimum 3 years' public health experience with official or voluntary agency. Salary \$3,000-\$4,000. To work with metropolitan voluntary health agency, mid-west. Write Box A-27, Employment Service, A.P.H.A.

Educational Director for a growing student and staff education program. Salary open. Also several qualified staff nurses, salary \$185-\$245. Write: Director, Public Health Nursing Association, Des Moines 9, Iowa.

Public Health Nurses for generalized nursing program, salary range \$255-\$275 per month. Civil Service, 40 hour week, vacation and sick leave privileges. Car furnished. Write: Director of Public Health Nursing, 504 County City Building, Seattle 4, Wash.

Hearing and Vision Consultant. Minimum two years' experience in hearing and vision programs including hearing and vision testing. College graduate with one year graduate training in psychology, speech, or related field. Salary range \$3,600 to \$4,440. Considerable state-wide travel with per diem of \$6.75 and mileage. Permanent; Civil Service status. Write: State Health Officer, Oregon State Board of Health, Portland 5, Ore.

Opportunities for Physicians in Illinois

The Illinois Department of Public Health needs District Health Officers. Salary range \$5,760-\$6,960, plus travel. Liberal retirement system. Experienced men preferred and will start above minimum salary, with regular raises for satisfactory service. Qualified individuals may be placed in Division Offices of State Department. Possibility of positions in newly established city and county health departments paying approximately \$7,000 plus travel, or higher. Only graduates of Class A medical schools and AMA approved internships considered. Applicants must be willing to take special training on stipend if indicated. Write: Roland R. Cross, M.D., Director, State Department of Public Health, Springfield, Ill.

Opportunities in Kentucky

Assistant State Health Commissioner, well qualified, salary open. Public health officers, nurses and other public health personnel. Some are key positions on state and local levels. Write: Bruce Underwood, M.D., State Health Commissioner, Kentucky State Department of Health, Louisville 2, Ky.

Opportunities in Alaska

Public Health Nurses, well qualified with at least 1 year of generalized field experience under supervision. Openings chiefly in one-nurse community, or itinerant services. Minimum requirements include an approved course of study in Public Health Nursing. Salaries begin at \$3,960 (\$4,554 if assigned to Interior); with annual increase to maximum salary of \$4,860 at end of six years (\$5,589 if in Interior).

Senior Public Health Nurse or Public Health Nurse-Midwife. Generalized programs in more isolated areas, including itinerant services. Minimum requirements for both include an approved course of study in public health nursing. Senior nurses must have carried comparable senior or supervisory experience in another public health agency having a generalized program. PHN-Midwives must be certified. Salary begins at \$4,140 (\$4,761 if assigned to Interior); with annual increase to \$5,040 (\$5,796, if in Interior). All employees receive 30 working days' annual leave plus 2 weeks' sick leave; benefits under Workmen's Compensation Act. Write: Division of Public Health Nursing, Territorial Department of Health, Juneau, Alaska.

Opportunities for Physicians in the Regular Corps of the U.S.P.H.S.

Examinations for Senior Assistant Surgeon and Assistant Surgeon will be held October 4, 5, and 6, 1948. Senior Assistant Surgeon must have had at least 10 years of educational and professional training or experience after high school; Assistant Surgeon, 7 years. Beginning salaries: Senior \$5,551, Junior \$5,011. Minimum age, 21 years. Graduate from a recognized medical school and citizenship required. Applications may be obtained from U. S. Public Health Service Hospitals, District Offices or Surgeon General, U.S.P.H.S., Washington 25, D. C.

Opportunities in Colorado

The Weld County Health Department in Greeley, Colorado, announces the following openings: Public Health Nurse III, salary approximately \$3,000, Nutritionist, \$2,760, Health Education Director, \$4,200, Psychiatric Social Case Work Supervisor, \$3,600, Public Health Sanitarian or Engineer, \$4,000 to \$5,000 depending on background and experience. Apply Director, Weld County Health Department, Court House, Greeley, Colo.

Opportunities in Minnesota

	Salary Range
Public Health Engineering Aide	\$2,568-\$3,048
Public Health Engineer I	3,480- 4,080
Public Health Engineer II	4,332- 5,052
Public Health Engineer III	5,232- 5,952
Public Health Engineer IV	6,024- 6,864

All applicants must have graduated from a university of recognized standing with specialization in engineering and various requirements of graduate training and experience. Write: Minnesota State Civil Service Dept., 122 State Office Bldg., St. Paul 1, Minn.

Opportunities in Kansas

	Salary Range
Director of the Division of Local Health Administration	\$6,900-\$8,400
Director of Division of Tuberculosis Control	6,000- 7,200
Director of Venereal Disease Control	6,000- 7,200
Epidemiologist	6,000- 7,200
Local Health Officer II	6,000- 7,200
Local Health Officer III	5,100- 6,300
Industrial Hygiene Engineer I	3,900- 4,800
Industrial Hygiene Engineer II	3,300- 4,200

Write to: Division of Personnel
Kansas State Board of Health
Topeka, Kansas

POSITIONS WANTED

Public Health Administrator, M.D., Dr.P.H. Twelve years' experience in teaching of public health and preventive medicine in various medical schools. Experience as director of school health in a public school system. Eight years' experience in official and voluntary agencies and armed forces. Midwest preferred. Currently employed, but seeking challenging position. Write Box C-2, Employment Service, A.P.H.A.

Dentist—Thirty years' experience in clinical and 5 years' experience in public health hospital administrative work. Interested in dental opening (South and Southwest preferred) with or without clinical responsibilities. Write: Box D-2, Employment Service, A.P.H.A.

Public Health Administrator: ten years' public health experience, six of which were spent in charge of health departments with up to a third of a million population. M.D., M.P.H., Fellow Health Officers Section. Available for responsible Public Health, Medical Care, or Medical Administrative position. Willing to start at \$12,000 per year, provided there is a reasonable opportunity for increase. Write: Box C-4, Employment Service, A.P.H.A.

Public Health Physician seeks position in medical care, mental hygiene program or as health officer in or outside U. S. M.P.H., Harvard University, major medical care and public health practice. Some administrative experience in city

health department. National Board Diplomate. Negro, married, 27. Write Box Ph-7, Employment Service, A.P.H.A.

Health Educator, woman, M.S. Considerable experience in executive capacity in voluntary agencies, in community organization and group work with adults, school-agers and preparation of material. Interested in health education, teaching

or administrative position. Write: Box HE-6, Employment Service, A.P.H.A.

Executive or Associate Position, health or welfare field. M.S.S., 12 years' experience (case work, supervisory, administrative) public and semi-private welfare, health, hospital and community organization agencies. Male. Write: Box C-3, Employment Service, A.P.H.A.

LABORATORY COURSES AT THE COMMUNICABLE DISEASE CENTER

The Communicable Disease Center, U. S. Public Health Service, Atlanta, Ga., announces the following laboratory courses for the remainder of 1948:

Laboratory Diagnosis of Tuberculosis. Four weeks. From November 15 to December 10, 1948. A practical laboratory training course for laboratory employees.

Laboratory Diagnosis of Tuberculosis. Two weeks. From October 4 to 15, 1948. Open to laboratory directors and other laboratory supervisory personnel.

Laboratory Diagnosis of Parasitic Diseases. Six weeks. From October 11 to November 19, 1948. Open to all laboratory personnel.

There is no tuition or laboratory fee involved. Travel and living expenses must be paid for by the individual or his employer. Applications or inquiries should be sent to Seward E. Miller, Senior Surgeon.

HARVARD BROADENS TEACHING PROGRAMS IN CANCER CONTROL AND MENTAL HYGIENE

The Department of Public Health Practice of the Harvard School of Public Health will expand its teaching and research programs in Cancer Control and in the public health aspects of Mental Health for the academic year beginning September, 1948.

The objectives of the new Cancer Control program will be administrative, epidemiological and statistical research in cancer, and the training of cancer control administrators for official and voluntary agencies. Students in the Cancer

curriculum may specialize in the administrative, epidemiological, health education, or statistical aspects of the problem. These students will receive both basic public health training and specialized cancer teaching under the direction of the Cancer Control staff of the Harvard School of Public Health in cooperation with Boston hospitals and agencies. The staff will consist of a director-epidemiologist, health educator, secretary, technical assistant, clinical instructors, health department personnel, and a biometrician. The project is financed jointly by a \$40,000 grant from the U. S. Public Health Service and a \$6,900 grant from the Massachusetts Division, American Cancer Society.

The broadened teaching program in the preventive aspects of mental hygiene has been made possible by the Grant Foundation, which has given \$230,000 for this purpose and for a five year investigation of certain problems of community mental health. The first community service center and research unit under the project will be established in Wellesley, Mass., in October, 1948. Groups participating in the Community Mental Health program are the Department of Social Relations of Harvard University, the Harvard Medical School, the Massachusetts General Hospital, the Wellesley Community Mental Health Committee, and the Harvard School of Public Health. The Mental Health staff will be composed of a director-psychiatrist, an assistant director, a service team, a research team, clinical psychologists, and technical assistants.

Advertisement

Opportunities Available

WANTED—(a) Public health physician for field position with one of the national health agencies; considerable traveling; \$8,000-\$10,000; headquarters in eastern city. (b) Assistant director of public health; southern city of over 200,000; 150 employees. (c) Student health physician; coeducational college, well equipped offices; ample assistance; California. (d) Chief for bureau of school medical inspection and, also, chief of epidemiology; city health department; East. (e) Physician to direct student health department; approximately 9,000 on campus; excellent facilities; unusual opportunity for developing program. (f) Deputy health officer; duties in health administration with emphasis on epidemiology; city of 340,000; minimum, \$7,000. PH9-1. Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

WANTED—(a) Dentist qualified in public health dentistry or children's dentistry; administrative position; voluntary health agency having children's dental clinics in various parts of city and suburbs; East. (b) California licensed dentist for school position; should be well qualified in field of preventive public health and children's dentistry; full-time; minimum \$4,800, professional expenses. (c) Dental consultant; division of maternal and child health, state department of health; training in child dentistry required; should have ability to develop dental health program for children; \$375-\$475, expenses. PH9-2 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

WANTED—(a) Health educator; duties consist of working with all types of organized groups, promoting school health education; university medical centers; New England. (b) Sanitary engineer; state department of health; \$4,500-\$4,800, including traveling expenses. (c) Vital statistician, to supervise and maintain system of registration; degree

with graduate training in public health or statistics required; state department of health; West; \$5,100. (d) Bacteriologist with public health laboratory experience; state department of health; salary open to discussion; Middle West. (e) Superintendent of sanitation; city health department; 150 employees; Southern city, 200,000; \$4,080-\$4,896. (f) Graduate engineer with major in sanitary or public health engineering; to join staff of large industrial company having operations in Latin America; duties consist of directing sanitary program in two or three districts; work of non-routine nature. (g) Health educator to join staff of department serving town of 25,000; Pacific Northwest. PH9-3 Medical Bureau (Burneice Larson, Director) Palmolive Building, Chicago 11.

WANTED—(a) Public health nurse for supervisory position; generalized program, county health department; five-day week; \$290-\$348 including travel expenses; California. (b) Assistant professor in public health nursing; state teachers college; duties involve teaching senior students in school nurse-teacher education; Bachelor's degree required, Master's degree preferred; should have major in public health nursing; experience as school nurse desirable; \$4,275 for 10 month year; yearly increments of \$200. (c) Supervisory nurses for rural health department and, also, district field nursing consultants; large city having several colleges and university; salary for staff nurses, \$2,960-\$3,318, for consultants, \$3,670. (d) Public health nurse for teaching position with voluntary health agency offering bedside nursing care and family health service to large city and surrounding area; East; \$3,900-\$4,200. (e) Public health nurse for position as field representative, voluntary health association; duties include public relations, editing publications, health education; winter resort town; South. PH9-4 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

Advertisement

Opportunities Wanted

Public health physician seeks directorship; medical degree, eastern university; M.P.H. Johns Hopkins; 17 years' experience in public health field; during war held important assignment abroad; now director of health; city of 100,000; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Dentist experienced in public health work; D.D.S. eastern school; several years' successful private practice; eight years in charge of dental division, county health department; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Sanitary Engineer is available; B.S. in bacteriology; twelve years, sanitary engineer, large industrial company; for further information, please

write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Young public health man is available; M.S.P.H. (major in health education) Yale; eight years, professor of health education and health educator, small college; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health nurse; Master's degree, major in public health supervision; six years, staff nursing, rural and city health departments; six years, supervisor, municipal department of health; seeks administrative position in education, tuberculosis, or public health nursing; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Delegates:

Thomas Parran, M.D., Medical Director,
U. S. Public Health Service
Martha M. Eliot, M.D., Associate Chief,
U. S. Children's Bureau
James R. Miller, M.D., Trustee, American
Medical Association

Alternates:

F. P. Corrigan, M.D., Political Adviser on
Latin America, United States Mission
to the United Nations
James A. Doull, M.D., Chief, Office of In-
ternational Health Relations, U. S. Public
Health Service
Wilton L. Halverson, M.D., California State
Director of Public Health
H. van Zile Hyde, M.D., Division of Inter-
national Labor, Social and Health Affairs,
Department of State

Advisers:

H. B. Calderwood, Division of United Na-
tions Economic and Social Affairs, De-
partment of State
N. H. Cruikshank, Director, Social Insur-
ance Activities, American Federation of
Labor
A. W. Dent, President, Dillard University,
New Orleans
Morton Kramer, Chief, Research and In-
formation, Office of International Health
Relations, U. S. Public Health Service

Mrs. D. M. Levy, President, Citizens Com-
mittee on Children of New York City
James E. Perkins, M.D., Managing Director,
National Tuberculosis Association
Lucille Petry, Director, Division of Nursing,
U. S. Public Health Service
A. Roseman, Deputy Director, International
Activities Branch, Bureau of the Budget
P. F. Russell, M.D., Malariologist, The
Rockefeller Institute
D. V. Sandifer, Deputy Director, Office of
United Nations Affairs, Department of
State
James S. Simmons, Brig. Gen., M.C., U. S.
Army (Ret.), Dean, School of Public
Health, Harvard University
John Tomlinson, Assistant Chief, Division
of United Nations, Economic and Social
Affairs, Department of State
Tom F. Whayne, Colonel, M.C., U. S. Army,
Chief, Preventive Medicine Division,
Office of the Surgeon General
Abel Wolman, Dr. Eng., Professor, Sanitary
Engineering, Johns Hopkins School of
Public Health and Hygiene

Executive Secretary

W. H. Dodderidge, Division of Internal Con-
ference, Department of State

Among the Canadian delegation was
G. F. Amyot, M.D., Provincial Health
Officer of British Columbia.

AMERICAN BOARD OF PREVENTIVE MEDI-
CINE AND PUBLIC HEALTH
INCORPORATED

Culminating a plan that has been
long discussed in the councils of the
American Public Health Association's
Committee on Professional Education
and in the councils of the American
Medical Association and related groups,
the first meeting of the American Board
of Preventive Medicine and Public
Health, Inc., was held in New York City
on July 14. This meeting represented
the 3 incorporators of the Board, all of
whom were present, namely, Ernest L.
Stebbins, M.D., Robert H. Riley, M.D.,
and Reginald M. Atwater, M.D. Ac-
tion approving the incorporation had
been taken in early May through a
meeting in Washington attended by the
representatives of the American Medi-

cal Association, the American Public
Health Association, and other inter-
ested persons.

The American Board of Preventive
Medicine and Public Health has been
incorporated under the laws of the State
of Delaware. The incorporators organ-
ized with the appointment of Dr. At-
water as Chairman of the meeting and
Dr. Stebbins as Secretary. The perma-
nent officers of the Board will be chosen
at the first official meeting of the Board
of Directors which is expected to be
held in September.

It was reported that the certificate
of incorporation had been filed in the
office of the Secretary of State of the
State of Delaware on June 29, 1948,
and that certified copies had been re-
corded as required.

Dr. Stebbins as Secretary presented

to the meeting a form of proposed by-laws for the regulation of the activities and affairs of the corporation, which had been prepared and approved by the meeting of the representatives in May. These by-laws were duly submitted and adopted as the by-laws of the corporation. The by-laws provide that the members of the corporation are to be appointed by the American Medical Association and the American Public Health Association (3 members each), and by the Association of Schools of Public Health, the Southern Medical Association, and the Canadian Public Health Association (1 member each), a total of 9 members. It is provided further that one-third of the initial members of the corporation shall hold membership for a term ending at the first annual meeting of members of the corporation, one-third for a term ending one year thereafter, and one-third for a term ending 2 years thereafter. The incorporators proceeded with the 9 nominees and chose by lot the names to serve for 1, 2, and 3 years respectively. The vote resulted in the election of the following persons as trustees of the corporation for the terms indicated.

For a 1-year term:

Dr. J. H. Baille (C.P.H.A.), Toronto
Dr. F. C. Beelman (A.M.A.), Topeka, Kans.
Dr. Richard F. Boyd (A.P.H.A.), Washington, D. C.

For a 2-year term:

Dr. Ernest L. Stebbins (A.M.A.), Baltimore, Md.
Dr. Felix J. Underwood (S.M.A.), Jackson, Miss.
Dr. V. A. Van Volkenburgh (A.P.H.A.), Albany, N. Y.

For a 3-year term:

Dr. Walter L. Bierring (A.M.A.), Des Moines, Iowa
Dr. William P. Shepard (A.P.H.A.), San Francisco, Calif.
Dr. James S. Simmons, (A.S.P.H.), Boston, Mass.

The incorporators directed that announcements of the meeting as held should make clear that the Board was

not yet organized to receive applications for certification of candidates, but that steps were being taken to develop an application form and an examination procedure. Announcement will be made through the columns of the *American Journal of Public Health* and other channels when the Board is ready to receive applications, and instructions will be published regarding the method of submitting applications. In the meantime, the process of having the American Board of Preventive Medicine and Public Health, Inc., approved by the Advisory Council on Medical Specialties will be continued in order that diplomates of this Board, all of whom must be physicians, shall have standing comparable with the 16 other recognized specialty boards in the United States.

N.A.S. MEETS

The National Association of Sanitarians held its 12th annual meeting at Portland, Ore., July 7-9, 1948.

A progress report of the association's growth disclosed that 4 new sections were added representing Florida, Kansas, North Carolina, and North Dakota.

Officers elected and installed for the ensuing year were:

President—C. W. Clark, R.S., Portland, Ore.
Vice-President—Ed. McLarky, Sr., R.S., Los Angeles, Calif.
Treasurer—C. H. Zieler, R.S., Los Angeles, Calif.
Directors—Graves J. Grant, R.S., New Orleans, La.; Charles W. Ashbaugh, R.S., Kansas City, Mo.; Edwin A. Watkins, R.S., San Diego, Calif.
Board of Examiners—Clifford J. Baughman, R.S., Bakersfield, Calif.
Exec. Secretary—Roscoe C. Davis, R.S., Los Angeles, Calif.

The 13th annual meeting will be held in Los Angeles in 1949.

SHELLFISH BACTERIOLOGY LABORATORY

The U. S. Public Health Service has established a laboratory for studies of shellfish bacteriology at the Oceanographic Institution in Woods Hole,

Mass. One of its first projects will be a comparative study of various organisms such as coliform bacteria that have been used as indicators of sewage pollution of shellfish and shellfish growing waters. The Service, since 1925, in response to the request of the shellfish industry, has recommended minimum requirements for shellfish sanitation and has prepared a code of recommended practices that are the basis of legal regulations adopted by shellfish producing states.

MORE JOINT ACTIVITY IN WEST VIRGINIA

The Eastern Panhandle Cooperative Health Unit of West Virginia was recently established by Berkeley, Jefferson, and Morgan Counties with a combined 1940 population of about 60,000. Headquarters are in Martinsburg, and due to personnel shortages a temporary part-time health officer, G. P. Morison, M.D., has been named. Previous to this consolidation only Berkeley County was organized, Morgan County being served by a state health district, and Jefferson County having nursing service and a part-time health officer.

Cabell County and the City of Huntington are in process of organizing a city-county health department on approval of the County Court and the City Council. The *West Virginia Monthly News Letter* reports that the County Court's approval comes after 22 years of work.

Wood County and the City of Parkersburg, which already have joint health services, are organizing an official city-county health department with a single board of health.

WHO UP TO DATE

The May (Vol. 2, No. 5) *Chronicle of the World Health Organization* contains a general review of the work of the Interim Commission—the machinery of the Commission, the assimilation of existing international health activities,

work on such special problems as quarantine conventions, biological standardization, control of narcotics, malaria, tuberculosis, and venereal diseases, children's emergency fund, the Egyptian cholera epidemic, are all briefly reviewed. Available from World Health Organization, 350 Fifth Ave., New York, N. Y.

TYPHUS MENACE REDUCED IN GEORGIA

The State Department of Public Health carried on DDT dusting and rat eradication activities in 76 Georgia counties in 1947, with the result that in 5 of the most densely populated counties, comprising one-fourth of the state's population, the number of typhus cases decreased 57 per cent over 1946 and 92 per cent over 1945, when DDT dusting was begun. From a total of 1,111 cases of typhus reported in 1945, the number dropped to 436 in 1947, a decline of 61 per cent for the state as a whole. In 1947, DDT dusting was extended to include farm residences and outbuildings. More than 182,787 premises were dusted, nearly 35,000 more than in 1946. Poison bait was also used in some areas. Ratproofing buildings, refuse collecting, and sanitary land-fills were also employed in the campaign to reduce typhus.

METROPOLITAN CAMPAIGN TO REDUCE CHILDREN'S ACCIDENTS

Reducing the number of children's accidents is the objective of an intensive campaign now being launched by the Metropolitan Life Insurance Company with the coöperation of the U. S. Children's Bureau, the American Academy of Pediatrics, and the National Safety Council. Accidents are the leading cause of death among children of more than 1 year of age, with death rates per 100,000 population far surpassing those of any other cause. The program is planned to encourage public health, medical, safety organizations, and the

public to give greater attention to child safety. A 12 page booklet, *Help Your Child to Safety*, addressed to parents, emphasizes ways of combating physical hazards and unsafe practices resulting in injuries to children. The booklet and other source material is available from the company on request for use in local organized child safety programs. One Madison Avenue, New York, N. Y.

BEN MILLER NEW YOUTH HOSTELS' EXECUTIVE

Early in September Ben W. Miller assumed his duties as Executive Vice-President of American Youth Hostels, a newly created office which is planned to relieve the General Director, Monroe Smith, of other administrative duties to devote increasing attention to the development of the Youth Hostel program, particularly its international aspect. During the current summer more than 400 young people traveled to Europe under the auspices of American Youth Hostels, which has organizations in 24 countries.

Mr. Miller was formerly Secretary of the American Association for Health, Physical Education and Recreation.

TWO NEW SERVICES IN OHIO STATE HEALTH DEPARTMENT

In a recent reorganization a Bureau of Direct Services was created in the Ohio State Health Department. Under the direction of Paul Q. Peterson, M.D., this bureau is made up of the sanitary engineering, laboratory, vital statistics, industrial hygiene, and hospital divisions. Dr. Peterson will also be responsible for the department's public health training program.

In the Bureau of Local Services, a cancer division has been created with Walter B. Lacock, M.D., as Director.

"ACTION FOR SAFETY" A NEW ARRIVAL

In July, the National Commission on Safety Education of the National Education Association (1201 16th St., N.W.,

Washington 6, D. C.), began publication of *Action for Safety*, a monthly newsletter. Its purpose is to give information about the activities of the Commission and significant developments in safety education. Presumably available for the asking.

BALTIMORE JOINS THE MARYLAND MEDICAL CARE PROGRAM

In June, Baltimore's Mayor, Health and Welfare Commissioners, Johns Hopkins Hospital, and the University of Maryland Medical School, concluded arrangements for providing medical care clinic services for public assistance clients of the City Welfare Department. Thus Baltimore was brought into the state-wide medical care program for Maryland, in accordance with the recommendations of the Special Study Committee on Medical Care Needs of Baltimore City made early in 1947.

CALIFORNIA SURVEY OF CHRONICALLY ILL

By act of the 1947 state legislature, the California State Department of Health has a plan for an extensive investigation of the "problems involved in the reduction of deaths and disability from cancer and other chronic diseases." The outline of the plan was approved by the State Board of Public Health in November, 1947, and an advisory committee which was appointed at that time has held its initial meeting. Recommendations and estimated program costs for the survey will be placed before the legislature in 1949.

FIRST GRANTS FOR RESEARCH IN HUMAN REPRODUCTION

The February *Journal* (p. 311) reported on the program of research in human reproduction to be undertaken by the National Committee on Maternal Health. In July announcement was made of the first research grants in this program—5 grants totaling \$21,918—

for basic research seeking to throw light on factors governing fertility control and problems of infertility.

The 5 studies will be carried on at the University of Illinois, The Johns Hopkins University, Michael Reese Hospital (Chicago), the Worcester Foundation for Experimental Biology (Shrewsbury, Mass.), and the University of Witwatersrand, Johannesburg, South Africa. The grants were recommended by the National Research Council's Committee on Human Reproduction which is coöperating with the National Committee on Maternal Health in this program.

THE STATE OF CHILD HEALTH SERVICES

The first reports of the nation-wide study of Child Health Services, which the American Academy of Pediatrics has had in progress for three years under the direction of John P. Hubbard, M.D., have been published. Three are now available, of which two concern North Carolina, the pilot state for the study.

Child Health Services in North Carolina was originally published as a supplement to the *North Carolina Medical Journal* and is now available in reprints. It gives the background of the national study as well as a detailed account of the existing child care situation in the state. It finds North Carolina children at a disadvantage as to medical care in relation to those of other states and children in isolated rural areas at a disadvantage in relation to those near cities.

How Well Does North Carolina Provide for the Health of Its Children is the brief and graphic presentation of the same material geared to general public health education needs.

The third report currently published is *Health Services for the Rural Child* by Dr. Hubbard and others, and originally presented at the National Conference on Rural Health of the American Medical Association in February, 1948,

and first published in the *Journal of the American Medical Association*. This has extensive tabular material on hospitals, physicians, and dentists by states and counties.

Each report is available from the American Academy of Pediatrics, Study of Child Health Services, 2346 Massachusetts Ave., N.W., Washington 8, D. C., the second mentioned at \$1, the others presumably without charge.

BRITISH MEDICAL ASSOCIATION DECIDES TO COÖPERATE IN THE NATIONAL HEALTH SERVICE ACT

The British Information Services, in June, reported that "the last major obstacle to putting into effect the National Health Service, which provides all citizens who wish to use it with medical care, irrespective of their income was removed when on May 5, as a result of a plebiscite among its members, the British Medical Association decided that the profession would not refuse to coöperate in carrying out the National Health Service Act which went into operation on July 5."

Certain misgivings of the profession had led the British Association to advise its members to refuse to enter the scheme. This deadlock was broken when the Minister of Health gave assurance on the following points:

1. Full-time salaried service, which the profession opposes, would not be instituted without further legislation.
2. Every doctor in the Service would be completely free to publish his views on the organization and administration of the Service.
3. The Medical Practices Committee, which has power to schedule areas as over-doctored and prevent entrants into the public service in these areas, will review areas so scheduled after two years.

NEW OFFICERS OF NATIONAL NURSING AGENCIES

At the Biennial Nursing Convention of the American Nurse's Association, the National Organization for Public Health Nursing, and the National League for

combines the best use of medical knowledge and the best attack on sociological problems. This is particularly true of the distinguished career of Dr. Martha May Eliot.

Dr. Eliot is a member of a most distinguished family that has consistently made its contribution to the public welfare. She graduated from Radcliffe and received her medical degree from The Johns Hopkins School of Medicine. She then made a noteworthy study on rickets for the U. S. Children's Bureau and shortly became a member of the Bureau's staff. Since 1941 she has been associate chief of the Bureau and in 1947 was on the staff of the International Children's Emergency Fund Committee of the United Nations. As a member of this committee she made two trips to Europe in the interest of child health. To the medical profession and to the sociologist she is particularly known as the author of the Emergency Maternal and Infant Care program.

This year she was elected the first woman president of the American Public Health Association in recognition of her leadership in the public health field, particularly in maternal and infant care.

For her outstanding contributions to that very vital area of public health, which are admired by the medical profession, by the sociologists and by all humane and thoughtful people, I present her to you for the degree Doctor of Humane Letters, *honoris causa*.

President Allan Valentine, in conferring the degree, said:

Major contributor to the health of countless children, respected national leader of men in public health, you have personally united for human welfare those coy and nervous allies the physician and the sociologist, thus turning the past impossible into the future inevitable.

GRANGE RESOLUTION ON LOCAL HEALTH UNITS

The National Grange at its 81st annual meeting in Columbus, Ohio, in November, 1947, adopted the following resolution presented by its Interim Committee on Health:

Whereas:

1. A third of the population of the United States, particularly in rural areas, is without an organized local health department directed by a full-time health officer.

2. Twenty thousand of 38,000 different local governmental jurisdictions and 70,000 of 108,000 school districts are each attempting to operate their own health services.

3. Such small units of government cannot expect to have enough tax money to attract the necessary trained workers to carry out a public health service to which the people are entitled:

Therefore, Be It Resolved, that we favor:

1. The enactment of state laws authorizing the creation of 'county-wide, city-county, or multi-county units of health jurisdiction.

2. The employment of professionally qualified full-time health officers at appropriate salaries.

3. Requirements by law that health departments carry on certain essential standard activities.

This is one of a number of similar resolutions adopted by other agencies that took part in the Princeton Conference on Local Health Units. The Grange's Interim Committee on Health, of which Joseph W. Fichter, Ohio State Master is the Chairman, and Lloyd W. Halvorson, Grange Economist is Secretary, in June began a series of letters to state Grange officials, particularly health chairmen. The first letter pointed out that 40,000,000 persons are without the services of a full-time local health officer and urged Grange support of the local health unit's program adopted by the Princeton Conference and of federal and state legislation to assist local areas whose own resources are inadequate for maintaining their own health even after combining units of government to form a jurisdiction of at least 50,000 persons.

STANDARDIZED ANTIGENS

Arrangements have been made for the New York City Department of Health to furnish standardized Venereal Disease Research Laboratory cardiolipin—lecithin antigen—Mazzini and Kolmer antigens to the 20 serologic laboratories of the Department of Hospitals. Technicians from the laboratories of the Department of Hospitals will be trained in the use of these antigens in the laboratories of the Department of Health.

N.O.P.H.N. RESOLUTION ON LOCAL PUBLIC HEALTH SERVICES

The following Resolution was passed

half of children in this country and abroad. Active for more than three decades with the United States Children's Bureau, and its Chief since 1934, she has contributed immeasurably toward the Bureau's high standards of research and the development of its nonpartisan health and welfare services. A woman of rare courage and statesmanship, she has achieved noteworthy success in her chosen field.

Miss Lenroot also received the degree of Doctor of Humane Letters from Russell Sage College in Troy, N. Y., at the Thirty-first Commencement of the College on May 30.

SOUTHERN BRANCH, A.P.H.A., ANNOUNCES 1949 MEETING

George A. Denison, M.D., Secretary-Treasurer of the Southern Branch, A.P.H.A., who is Health Officer of the Jefferson County Board of Health, Birmingham, Ala., has announced on behalf of the Southern Branch that the 1949 Annual Meeting will be held April 14-16, inclusive, in Dallas, Tex., with headquarters at the Baker Hotel.

NORTHERN CALIFORNIA PUBLIC HEALTH ASSOCIATION MEETING

The Northern California Public Health Association held a dinner meeting on June 4 in Berkeley, at which the topic under discussion was "Shall Health Department Administration Be Combined with Public Hospital and Medical Administration."

Officers for 1948 have been reported as follows:

President—Harold F. Gray, Berkeley
President-Elect—C. Martin Mills, M.D., Richmond
Vice-President—Fannie T. Warncke, Oakland
Treasurer—Eugene M. Howell, Stockton
Secretary—L. Amy Darter, Berkeley
Representative on Regional Board, Western Branch, A.P.H.A.—Kenneth Haworth, M.D., Eureka

ARIZONA PUBLIC HEALTH ASSOCIATION

At its Annual Meeting held in Douglas, April 23-24, the Arizona Public

Health Association elected new officers as follows:

President—Oscar V. Cooper, Phoenix
President-Elect—Marion Sprague, Phoenix
Vice-President—George W. Marx, C.E., Phoenix
Secretary—Helen Rotthaus, Phoenix
Treasurer—Mary Peterson, Phoenix

DENVER ORGANIZES ITS HEALTH AND HOSPITAL STRUCTURE

A Bureau of Health and Hospitals has been created in the Department of Health and Charity of the City and County of Denver, Colo. The function of this bureau will be to plan and administer the programs and services previously administered by the Department of Hospitals and the Department of Health of the City.

The creation of the new bureau coincides with the return of Dr. Lloyd Florio to his position as Professor of Public Health and Preventive Medicine at the University of Colorado School of Medicine. Dr. Florio has been on leave from the School of Medicine for the past year and was appointed Health Officer of the City and County of Denver to implement the programs outlined in a survey under the direction of Dr. E. G. McGavran completed in the early months of 1947.

The newly created bureau will have a single board which will exercise advisory and delegated functions over both the health and hospital programs. Dr. Florence R. Sabin will continue in her post as Manager of Health and Charity for the City and County of Denver. The Director of the new Bureau of Health will be Dr. James P. Dixon, who previously served in the capacity of Medical Director of the Denver General Hospital.

Dr. Dixon says that it is the intent not only to further administrative efficiency, but also to work out procedures whereby programs of preventive and curative medicine can be effectively coordinated and integrated.

PERSONALS

Central States

ROBERT BARR, M.D.,† hitherto Chief of the Section of Departmental Administration, and earlier Director of the Division of Local Health Services, has been made Chief of the Section of Special Services, Minnesota Department of Health. At the same time the Division of Local Health Services, headed by PERCY T. WATSON, M.D.,* has been transferred to the Section of Special Services. Dr. Barr succeeds VIKTOR O. WILSON, M.D.,* who became Rochester, Minn. Health Officer on May 15 and is in turn succeeded by J. W. BROWER† in the Section on Administration.

RUTH BISHOP has been appointed as Resident Lecturer in Public Health Nursing, School of Public Health, University of Michigan, Ann Arbor. Miss Bishop has had staff nurse, student instructor, and supervisor experience with the Visiting Nurse Association, Cleveland; the Hillsdale County and Wayne County Health Departments in Michigan; as well as 2 years in the Army Nurse Corps.

LEROY DAVENPORT, D.V.M.,† is the new consultant in Veterinary Medicine of the Division of Communicable Diseases, Illinois State Department of Health. He was formerly Assistant to the Superintendent of the Illinois Division of Livestock Industry.

FLOYD M. FELDMAN, M.D.,* has resigned as Health Officer of Rochester, Minn., to accept appointment as Medical Director in the U. S. Public Health Service where he has been placed in charge of the Central Coordination and Analysis Office, Tuberculosis Study Section, Washington, D. C.

VERNON G. MACKENZIE,† who recently returned from a 9 month assignment with the Public Health Section of the American Mission for Assistance to

Greece, on July 1 became Officer in Charge of the Federal Security Agency's Water and Sanitation Investigations Station in Cincinnati. He succeeds HAROLD W. STREETER,† who retired after 34 years with the U. S. Public Health Service.

DONALDSON F. RAWLINGS, M.D.,† was appointed Chief, Division of Maternal and Child Health, Illinois Department of Public Health, effective July 6, to succeed RUTH DUNHAM, M.D.,† who resigned to accept a commission in the U. S. Public Health Service.

CHARLES F. SUTTON, M.D.,† has succeeded RICHARD F. BOYD, M.D.,* as Director of Local Health Administration, Illinois State Health Department, having previously served as Assistant Director.

VIKTOR O. WILSON, M.D.,* has resigned as Director of the Division of Child Hygiene, Minnesota State Department of Health, Minneapolis, to become Health Officer of Rochester, Minn., succeeding FLOYD M. FELDMAN, M.D.,* resigned.

Eastern States

LEVERETT D. BRISTOL, M.D., Dr.P.H.,* of Bethayres, Pa., has been appointed Chief of the Division of Cancer Control, Pennsylvania State Department of Health, Harrisburg. Dr. Bristol has recently served as Commissioner of Health and Welfare in the State of Maine and formerly was Director of Health, American Telephone and Telegraph Company.

JOHN E. FARRELL, Sc.D.,* Executive Secretary of the Rhode Island Medical Society, and of the Council of the New England State Medical Societies, was elected Secretary-Treasurer of the National Conference of Presidents and Other Officers of State Medical Associations at the 4th annual meeting of that group in Chicago in June.

DOUGLAS H. FRYER, M.D.,† of Phila-

delphia, Pa., accepted a position, beginning August 1, as Commissioner of Health, Columbia County, Hudson, N. Y.

F. C. LAWLER, Sc.D.,* formerly with the J. T. Baker Chemical Company, Phillipsburg, N. J., has recently been appointed Director of the Vermont Laboratory of Hygiene, Burlington, Vt.

JAMES L. MCCARTNEY, M.D.,† has been elected President of the Nassau Neuropsychiatric Society recently organized by the private practising neurologists and psychiatrists of Nassau County, New York.

HERBERT R. MORGAN, M.D., formerly Senior Fellow in Virus Diseases, National Research Council, at the Thorndike Memorial Laboratory of the Boston, Mass., City Hospital, has been appointed Associate Professor of Epidemiology, School of Public Health, and Assistant Professor of Internal Medicine, Medical School, University of Michigan, Ann Arbor.

E. R. NAILLARD, M.D., on July 1, was appointed Director of the new laboratory and research bureau of Nassau County, New York, Health Department.

BASIL O'CONNOR,† Chairman of the American National Red Cross, and President of the National Foundation for Infantile Paralysis, in May was awarded a gold medal of the National Institute of Social Sciences. Under his guidance, the Institute stated, the National Foundation "has achieved a high and permanent place in the land, offering new hope for stricken youth to face courageously a brighter future."

C. A. SARGENT, M.D.,† for many years District Health Officer of the New York State Department of Health, has been appointed Commissioner of

Health of Syracuse, N. Y., succeeding H. BURTON DOUST, M.D.†

Southern States

BRIG. GEN. LEON A. FOX, M.C., U.S.A.,* was made an Honorary Commander of the Most Excellent Order of the British Empire on July 22. The award, presented by Sir Oliver Frank, the British Ambassador to the United States, was in recognition of General Fox's service and aid to the British Armies while serving as Field Director of the United States Typhus Commission.

BRUCE UNDERWOOD, M.D.,† was recently appointed Health Officer of Kentucky to succeed PHILIP E. BLACKERBY, SR., M.D.,† deceased. Dr. Underwood has had 6 years' experience as a local Health Officer in Kentucky and Florida and most recently has been in private practice in Morganfield, Ky.

Western States

JOHN D. FOUTS, M.D.,† is the Director of the newly formed Bellingham-Whatcom County, Washington, Health District. He recently completed the work for an M.P.H. degree at Columbia University. Previously, he was Health Officer of King County whose health services have been merged with those of Seattle.

WARREN F. FOX, M.D.,* formerly Health Officer of Riverside County, California, recently became Health Officer of the newly organized full-time health department of the City of San Bernardino.

GEORGE C. GIBSON, M.D., in July succeeded FRANK B. QUEEN, M.D., as Director of the Cancer Control Section, Oregon State Board of Health, Portland. Dr. Gibson recently completed a 2 years' surgical residency at the Pondville Cancer Hospital in Massachusetts.

W. PHILIP PHAIR, D.D.S., became Di-

* Fellow A.P.H.A.
† Member A.P.H.A.

NEWS FROM THE FIELD

rector of Dental Health of the Washington State Health Department, Seattle, after receiving his M.P.H. degree at the University of Michigan. MARGARET W. ROBINSON,† Research Assistant for the Research Foundation for Alcoholism, Seattle, Wash., has recently been appointed Executive Secretary of the Foundation.

Deaths

DONALD A. CAMPBELL, M.D.,† Neosho-Newton County Health Officer, Neosho, Mo., Elected Member 1943 (Health Officers Section).

O. R. GILLETTE, M.D.,* City Health Officer of Colorado Springs for 39 years, died in July at the age of 74. (Health Officers Section).

ROBERTS A. HEARN, M.D.,† Staff Physician, American Legion Hospital, Battle Creek, Mich. Elected Member 1943 (Industrial Hygiene Section).

A. W. JONES,* Secretary and Manager, Tuberculosis and Health Society, St. Louis, Mo. Elected Member 1925, Elected Fellow 1934 (Public Health Education Section).

CLEMENTINE J. PRIOR† of Yakima, Wash. Elected Member 1935 (Laboratory Section).

BENJAMIN B. ROBBINS, M.D.,† Health Officer, Bristol, Conn. Elected Member 1927 (Health Officers Section).

WILLIAM M. SILL, M.D.,† Superintendent of Public Health, Jamestown, N. Y. Elected Member 1926 (Health Officers Section).

C. H. WATSON,† Senior Sanitarian, Bannock County Health Unit, Pocatello, Idaho. Elected Member 1943 (Engineering Section).

STEPHEN E. WHITING,* Consulting Engineer of Swampscott, Mass. Elected Member 1935, Elected Fellow 1940 (Industrial Hygiene Section).

CONFERENCES AND DATES

American Association for the Advancement of Science. Centennial Meeting. Washington, D. C. September 13-17.

American Chemical Society. Three Sessions in Washington, D. C., St. Louis, Mo., and Portland, Ore. August 30-September 17.

American Congress of Physical Medicine, Hotel Statler. Washington, D. C. September 7-11.

American Dental Association. Chicago, Ill. Week of September 12.

American Dietetic Association. Boston, Mass. October 18-22.

American Hospital Association. 50th Anniversary Convention. Atlantic City, N. J. September 20-24.

American Occupational Therapy Association. Hotel Pennsylvania, New York, N. Y. September 7-11.

American Public Health Association—76th Annual Meeting. Boston, Mass. November 8-12.

American Public Welfare Association. Southwestern Region. Topeka, Kan. September 23-24.

American Public Works Association. Boston, Mass. October 17-20.

American Society of Planning Officials. New York, N. Y. October 11-13.

American Water Works Association:

Iowa Section. Hotel Wahkonsa, Fort Dodge, Iowa. October 5-6.

Ohio Section. Mansfield-Leland Hotel, Mansfield, Ohio. October 7-8.

Michigan Section, Flint, Mich. September 22-24.

New York Section, New York, N. Y. September 14-17.

Rocky Mountain Section, Cheyenne, Wyo. September 16-17.

Southwest Section. Buccaneer Hotel, Galveston, Tex. October 10-13.

West Virginia Section, Clarksburg, W. Va. September 29-30.

Civil Service Assembly of the United States and Canada. Ottawa, Canada. October 4-7.

College Physical Education Association. 52nd Annual Convention. Hotel La Salle, Chicago, Ill. December 27-28.

Florida Public Health Association, Dixie Sherman Hotel. Panama City, Fla. October 7-9.

Indiana State Medical Association. Indianapolis, Ind. September 26-29.

Michigan Public Health Association. Grand Rapids. December 1-3.

National Association of Housing Officials. Seattle, Wash. October 13-16.

National Pest Control Association. Royal York Hotel, Toronto, Canada. October 18-20.

National Recreation Congress. Hotel Fontenelle. Omaha, Nebr. September 26-October 1.

National Safety Council. Stevens Hotel, Chicago, Ill. October 18-22.

National Technical Conference of the Illuminating Engineering Society. Hotel Statler, Boston, Mass. September 20-24.

New York State Association of Milk Sanitarians. Buffalo, N. Y. September 22-24.

Ninth International Congress of Industrial Health. London, England. September 13-17.

North Dakota Public Health Association. Minot, N. D. October 28-29.

Public Works Congress and Equipment Show of American Public Works Association. Boston, Mass. October 17-20.

Southern Branch, American Public Health Association. Baker Hotel, Dallas, Tex. April 14-16, 1949.

How Can You Help Overweights?

Suggest they use the medically sound, Ry-Krisp reducing plan—available in FREE booklets.

SEND FOR: "Design for Reducing" C566 (1200 calorie diet for women; 1800 calorie diet for men).

"Through the Looking Glass" C966 (1500 calorie diet for teen-age girls).

RAILSTON PURINA COMPANY, Nutrition Service
JPH-L Checkerboard Sq., St. Louis 2, Mo.

Directory of Health Service

BLACK & VEATCH

CONSULTING ENGINEERS

4706 Broadway, Kansas City 2, Mo.

Water Supply Purification and Distribution; Electric Lighting and Power Generation, Transmission and Distribution; Sewerage and Sewage Disposal; Valuations, Special Investigations and Reports.

ANALYSTS • CONSULTANTS

BACTERIOLOGISTS

Industrial and Sanitary Problems

Bendiner & Schlesinger, Inc.

Third Avenue and Tenth Street
New York 3, N. Y.

Telephone ALgonquin 4-2300

Serving the field of Public Health over 50 yrs.

THE MERIT SYSTEM SERVICE

A Personnel Administration Service
in the Field of Public Health

Available to
State and Local Health Departments
and

Examinations Merit Systems Field Consultation
American Public Health Association
1790 Broadway, New York 19, N. Y.

GUARDING AGAINST CRYSTALLURIA

in sulfonamide therapy

is conveniently and effectively accomplished with

Kalak

REG. U.S. PAT. OFF.

BALANCED ALKALINE WATER

Refreshingly pleasant to take, because highly carbonated; effective, because it supplies substances that are not foreign to plasma.

Kalak—The Balanced Alkaline Water is indicated whenever alkalization is desirable: to alkalinize the urine, replenish the alkali reserve, increase the fluid intake, produce a mild diuretic effect, prevent crystalluria in sulfonamide medication, and to counteract acidosis from drugs, such as the salicylates.

Available at pharmacies in bottles
of 6, 12, and 24 ounces

KALAK WATER CO., of NEW YORK, INC.

30 Rockefeller Plaza, New York 20, N. Y.

for
Safer Control

Ratopax

The Ideal Raticide for Municipal Use.
Universally acclaimed by BOARDS of HEALTH

Write us for information.

BIOCERTA CORPORATION

303 FIFTH AVENUE • NEW YORK 16, N.Y.



OUR JOB

IS TO MAKE
YOUR JOB EASIER

DIXIE CUPS

American Journal of Public Health and THE NATION'S HEALTH

Volume 38

October, 1948

Number 10

Recent Developments in the Treatment of Syphilis*

EVAN W. THOMAS, M.D.

*Departments of Medicine and Dermatology and Syphilology, New York University
College of Medicine and the Department of Medicine and Dermatology and
Syphilology, Third Medical Division, Bellevue Hospital, New York, N. Y.*

VALUES OF PENICILLIN

The advent of penicillin, especially in its new slowly absorbed preparations, has greatly simplified the treatment of syphilis. All stages of the disease can now be treated in a relatively short time with better therapeutic results than formerly. Although penicillin is not a panacea for every case of syphilis, no previous antisyphilitic agent can compare with it in ease of administration, safety, and therapeutic effectiveness. An occasional patient may require the use of bismuth, arsenicals, or fever therapy, but most syphilitics can now be treated satisfactorily with penicillin alone.

At least 2 years of follow-up observations are required for the proper evaluation of any schedule of antisyphilitic treatment; and in spite of careful planning, the optimum time of penicillin treatment for early syphilis has not yet been thoroughly established. When the antibiotic first became available for antisyphilitic treatment in

1943, it was used in aqueous or saline solution. To insure reasonably continuous therapeutic action, individual injections had to be given every 2 to 6 hours, and patients had to be hospitalized. During the war, most cases of early syphilis were treated over periods of from 4 to 8 days, the great majority having been treated for 7½ days. We now have adequate information regarding the optimum total dosage of penicillin for the treatment of early syphilis within 8 days, but the data on more prolonged periods of treatment are still in the process of compilation. The time-dose relationships of therapy with aqueous solutions of penicillin are very different from those with slowly absorbed preparations. The introduction of penicillin in oil and beeswax (POB) made it possible to treat syphilis with single daily injections but most of the data on prolonged follow-up studies of patients treated for early syphilis with POB are on 8 day schedules of therapy. Furthermore, within the past few months, preparations of penicillin which are even more slowly absorbed than POB

* Special Review Article, prepared at the request of the Editorial Board.
Aided by grants from the U. S. Public Health Service.

given every 2 to 4 hours over a period of $7\frac{1}{2}$ days, a total dose of 2.4 million units has given as good results as 5 million units. Regardless of whether individual injections were given every 2 or 3 hours over a period of $7\frac{1}{2}$ days, the results of treatment of early syphilis at Bellevue Hospital were the same whether the total dose was 2.4 million units or 4.8 million units. The addition of daily injections of 0.04 gm. arsenoxide for 8 days to total doses of from 1.2 million to 2.4 million units of penicillin failed to give significantly better therapeutic results than 2.4 million units alone in $7\frac{1}{2}$ days.

The cumulative "failure" rates for all schedules of therapy of early syphilis with aqueous solutions of penicillin in total doses of from 2.4 to 4.8 million units in $7\frac{1}{2}$ days have been about 20 per cent. The "failure" rates were computed on the basis of the number of patients kept under observation; the "failures" included all cases that had to be retreated because of reinfection, infectious relapse, serologic relapse, and definite seroresistance.

Failure rates of 20 per cent in the treatment of early syphilis are far from satisfactory, but many of the so-called failures were probably reinfections. Therefore, it is impossible to judge the effects of the treatment of early syphilis solely from statistics based on the retreatment of patients. The only satisfactory criterion of a reinfection following rapid treatment of early syphilis is the development of a new chancre at a different site from the original one, and even this criterion was not used in compiling cumulative "failure" rates following rapid treatment of early syphilis. Had it been used, the percentage of "failures" would be somewhat lower, but unfortunately patients can be reinfected following rapid treatment of early syphilis without developing a chancre. Less than 50 per cent of women who are originally infected

with syphilis have chancres which are observed by the patient or examining physician. The appearance of secondary lesions may be the first observed sign of a reinfection in both women and men, and in some cases the only evidence of a reinfection may be a rise in the quantitative serologic tests for syphilis (serologic relapse). Thus, the actual effects of treatment with aqueous solutions of penicillin were undoubtedly better than the statistics indicate. Nevertheless, the treatment of early syphilis with aqueous solutions of penicillin over periods of from 4 to 8 days has not produced maximum therapeutic results, and we have no comparable data on more prolonged periods of therapy with aqueous solutions.

RESULTS OF TREATMENT OF EARLY SYPHILIS WITH POB

Although injections of from 300,000 to 600,000 units of POB do not have to be given more frequently than once a day, the total dosage of penicillin required for the treatment of syphilis over a given period of time seems to have been much the same, whether the penicillin was given in aqueous solution or in oil and beeswax. At Bellevue Hospital in the latter part of 1945 and early months of 1946 we treated over 800 cases of early syphilis with 600,000 units of POB daily for 8 days. One series was treated with two injections of 300,000 units 8 hours apart each day, and another series with single daily injections of 600,000 units. There was no significant difference in the results of treatment in the two series. I have no personal experience with daily injections of only 300,000 units of POB in the treatment of early syphilis but the available data from other sources³ indicate that the cumulative "failure" rates are much the same, whether a total dose of 2.4 or 4.8 million units is given over 8 days. In our series of patients treated for 8 days with 4.8 million units

of POB the cumulative "failure" rates for a follow-up period of 2 years or more are similar to those for 2.4 million units of penicillin in aqueous solution in 7½ days, viz., about 20 per cent.

Data on 15 day schedules of penicillin therapy for early syphilis cannot yet be compared satisfactorily with those on 8 day schedules because of the marked difference in the time of follow-up observations and the varying conditions under which patients were treated.

At Bellevue Hospital we began to treat early syphilis with daily injections of 600,000 units of POB for 15 days late in 1947. The series so treated is not entirely comparable with earlier series because the reservoir of infectious syphilis was appreciably lower in the latter part of 1947 and first half of 1948 than in the preceding 4 years. The chances of reinfection by promiscuous individuals is greater when the reservoir of infectious syphilis is high than when it is low.

But, in spite of uncontrollable variables, a 15 day schedule of therapy for early syphilis now seems superior to one of 8 days. At Bellevue Hospital, of 134 patients treated for early syphilis with 600,000 units of POB daily for 15 days and observed from 4 to 9 months, only 2 have had to be retreated and both of them were probably reinfectd. It is quite possible that daily injections of 300,000 units of POB would have given similar results to 600,000 units daily. Chargin, Sobel, Rein, and Rosenthal⁴ have reported relapses in less than 5 per cent of patients treated for secondary syphilis with 300,000 units of POB daily for 16 days after a follow-up period of from 6 to 10 months.

POSSIBLE SCHEDULES OF TREATMENT OF EARLY SYPHILIS WITH PROCAINE PENICILLIN IN OIL AND ALUMI- NUM MONOSTEARATE

As single injections of 300,000 to

600,000 units of procaine penicillin G in oil and 2 per cent aluminum monostearate give blood concentrations of penicillin for about 4 days, daily injections of this preparation should be unnecessary in the treatment of syphilis. A Committee on Venereal Diseases of the National Institute of Health is now studying the treatment of early syphilis with the following schedules of therapy using procaine penicillin in oil and aluminum monostearate:

1. A single injection of 2.4 million units
2. Weekly injections of 1.2 million units for 2 weeks
3. Weekly injections of 1.2 million units for 4 weeks.

The use of schedule 1 should give results very similar to those obtained by injections of 40,000 units of penicillin in aqueous solution every 3 hours for 60 injections or of daily injections of 300,000 units of POB for 7 or 8 days. The advantages of treating early syphilis with a single treatment are so great from a public health point of view that this treatment should be given careful trial under controlled conditions, but it cannot be advised as yet. The optimum period of treatment for early syphilis now seems to be 15 or more days. Therefore, schedules 2 and 3 are likely to give better results than schedule 1.

Other possible schedules of treatment with procaine penicillin in oil and aluminum monostearate are injections of 600,000 units two or three times a week for 2 to 3 weeks. At least another 2 years or more will be required before we can state with assurance the optimum time during which penicillin should be given in the treatment of early syphilis but at present it does not seem likely that treatment need be given for more than 2 to 3 weeks.

RESPONSE OF SEROLOGIC TESTS FOR SYPHILIS FOLLOWING RAPID TREAT- MENT OF EARLY SYPHILIS

The goal of therapy in the treatment

of early syphilis is cure, with the achievement of seronegativity by all patients. Serologic tests for syphilis (STS), however, do not become negative immediately after treatment. In cases of seropositive primary syphilis about 80 per cent of those satisfactorily treated on our service became seronegative within six months after treatment and of those satisfactorily treated for secondary syphilis only about 60 per cent became seronegative within 6 months after treatment. The remaining 20 and 40 per cent respectively required varying periods before the STS became completely negative. Some patients had small amounts of reagin in the blood for more than 2 years after treatment, but in such cases the quantitative tests became relatively low within 6 months after treatment. The prolonged presence of small amounts of reagin in the blood for many months after treatment for early syphilis does not necessarily mean a continuing syphilitic infection because we found that retreatment did not hasten the reversal of such positive tests to negative and that in the course of time the STS became negative without further therapy unless a relapse occurred.

On our service we made the more or less arbitrary rule that patients who have positive Kahn tests in dilutions of 1-8 or quantitative complement-fixation tests of 15 or more, 9 months after treatment, should be retreated. Very few patients treated for early syphilis will have such relatively high quantitative STS 9 months after treatment unless they have relapsed. Relapse is detected either by the appearance of new early lesions or by marked, sustained rises in quantitative STS from previous levels.

TREATMENT OF RELAPSING EARLY SYPHILIS

At Bellevue Hospital the cumulative "failure" rates of patients retreated for

"relapsing" early syphilis with at least 2.4 million units of penicillin in 8 days have been about 20 per cent. Many of these patients probably had reinfections rather than relapses. In cases of genuine relapse it is advisable to treat over a longer period than 8 days. A few of our patients had to be retreated two or three times for repeated relapses. But none as yet has failed to respond to penicillin, and we have no absolute failures in our entire series, provided repeated courses of penicillin were given. For a first relapse, patients should be retreated with no less than 6 million units of penicillin over a period of at least 15 days. Those who relapse a second time should receive 9 million units over a period of at least 21 days. Rarely it may be advisable to supplement the penicillin therapy with arsenicals and bismuth. In such cases, I believe the treatment with arsenicals and bismuth should be given after the course of penicillin has been completed. This procedure prolongs the therapy and may be more effective than combining the arsenicals and bismuth with penicillin therapy over a period of only 2 or 3 weeks.

TREATMENT OF LATE NEUROSYPHILIS WITH PENICILLIN

Prior to the advent of penicillin, late neurosyphilis was one of the most difficult manifestations of syphilis to treat. Antisyphilitic therapy with heavy metals and arsenicals often checked a syphilitic infection of the central nervous system but it failed to arrest the process permanently in over 50 per cent of cases whether the disease was asymptomatic or symptomatic. In our experience at Bellevue Hospital, fever therapy (malaria or electropreyxia) caused permanent arrest of neurosyphilis, as determined by spinal fluid examinations, in about 85 per cent of cases and, so far, penicillin has proved superior even to fever therapy in the treatment of all

types of neurosyphilis, including general paresis.

During the first three years of trial with penicillin, some investigators⁵⁻¹⁰ reported that fever therapy was superior to penicillin in the treatment of general paresis. They maintained that the best therapy was a combination of penicillin and fever. They based their conclusions on the clinical response of patients rather than on spinal fluid examinations. At Bellevue Hospital, Dattner and I¹¹ have long contended that the most reliable guide to the arrest of a syphilitic infection of the central nervous system is the spinal fluid examination. Following successful therapy, the cells in the spinal fluid should be less than 4 per cu. mm. 3 to 4 months after treatment, and there should be an appreciable fall in increased total protein determinations. Over a prolonged period of observation, the total protein determinations of the spinal fluid should fall to normal, and the colloidal gold and quantitative Wassermann tests should gradually become negative. In some of our malaria-treated cases the Wassermann reactions of the spinal fluid failed to become negative for more than 5 years after treatment but, as long as increased total protein determinations were falling and quantitative Wassermann and colloidal gold tests were declining toward negative reactions, we have not found that further antisyphilitic treatment helped to improve clinical symptoms and signs which are often caused by permanent damage in the central nervous system.

Most investigators¹²⁻¹⁶ have now agreed that the response of the spinal fluid tests following penicillin therapy of neurosyphilis has been as good, if not better than, the response after fever therapy, and numerous authorities have stated that the clinical improvement after penicillin was comparable to that after fever therapy. In England, both

Nicol¹⁷ and Martin,¹⁸ who have had much experience with malaria therapy of general paresis, have reported that penicillin was superior to fever therapy. Nicol says: "One of the most striking clinical features (of penicillin therapy in general paresis) was the physical and mental improvement in many patients."

It must always be recognized that no spirocheticidal agent can replace scar tissue with functioning parenchyma. Consequently, in cases of advanced neurosyphilis it is frequently impossible to restore normal function in spite of the total arrest of a syphilitic infection. Therefore, the spinal fluid tests furnish a better guide to the effectiveness of treatment of neurosyphilis than clinical signs and symptoms.

On the basis of follow-up spinal fluid examinations, 88.3 per cent of 301 patients treated at Bellevue Hospital for various types of neurosyphilis with penicillin alone and followed up for 9 to 48 months had satisfactory results after treatment with from 2 to 9 million units of penicillin given over a period of from 12 to 20 days. Most of the patients who had to be retreated received less than 6 million units of penicillin at the time of their first treatment. So far, only 1 patient has failed to respond satisfactorily after a second course of penicillin. Among the patients who had satisfactory results after penicillin therapy were 5 who had had much previous treatment with malaria therapy, bismuth, and pentavalent arsenicals. As we have observed over 500 patients treated at Bellevue Hospital for neurosyphilis with malaria and electropvrexia in previous years, I have no hesitancy in stating my belief that penicillin has proved superior to fever therapy in the treatment of neurosyphilis, including general paresis.

Schedules of penicillin therapy for neurosyphilis—From our experience at Bellevue Hospital, late neurosyphilis should be treated with no less than 6

million units of penicillin over a period of at least 15 days and preferably 3 weeks. Most of our patients were treated with 40,000 units of penicillin in aqueous solution every 3 hours for 150 injections (19 days). More recently, we have treated neurosyphilis with daily injections of 600,000 units of POB for 15 days. With the use of procaine penicillin in oil and aluminum monostearate, it is probable that injections of 600,000 units three times a week for 3 weeks will give comparable results to 40,000 units of penicillin in aqueous solution every 3 hours for 150 doses.

TREATMENT OF LATE SYMPTOMATIC SYPHILIS OTHER THAN NEUROSYPHILIS

The data on penicillin treatment of late symptomatic syphilis, other than neurosyphilis, are less abundant than on the treatment of early syphilis and neurosyphilis. Nevertheless, except for two reports,^{19, 20} of gummas which failed to respond to penicillin, all types of late syphilis have responded well to penicillin therapy. Of 26 cases of late bone syphilis and cutaneous lesions treated at Bellevue Hospital with penicillin and observed for more than 2 years, all had satisfactory healing and none had relapsed.

To avoid Herxheimer reactions in cases of cardiovascular syphilis and syphilis of the liver, it is advisable to begin treatment with bismuth; but after several weeks of bismuth injections, the treatment can be completed with penicillin. Although the published reports of penicillin therapy of cardiovascular²¹⁻²⁴ and liver syphilis include relatively small series of patients, the results of treatment have been as satisfactory as could be expected.

Schedules of penicillin treatment of late symptomatic syphilis—From the data now available, late symptomatic syphilis, other than neurosyphilis, should

be treated with from 4 to 6 million units of penicillin over a period of not less than fifteen days. If procaine penicillin G in oil and aluminum monostearate is used, injections of 600,000 units two or three times a week for 3 weeks should prove adequate therapy in most cases.

TREATMENT OF LATE LATENT SYPHILIS

By definition, late latent syphilis is asymptomatic; it is diagnosed solely by history and positive STS. The spinal fluid must have been examined in all cases of latent syphilis and found to be normal before the diagnosis can be made.

As the STS do not become negative in most patients treated for late syphilis for many years after treatment, it is difficult to evaluate the effects of therapy in latent cases. Obviously, however, the kind and amount of anti-syphilitic treatment which has proved effective in late symptomatic syphilis should be adequate for the treatment of late latent cases.

In the follow-up of patients treated for late latent syphilis quantitative STS should be obtained at regular intervals. As long as the quantitative tests show a gradual trend toward negative reactions or fail to show marked, sustained rises from previous levels, further anti-syphilitic treatment is not advised. The policy of treating late syphilis, symptomatic or asymptomatic, until the STS have become completely negative cannot be too strongly condemned. At least 70 per cent of patients treated for late syphilis with any known form of antisiphilitic therapy will continue to have positive STS for more than 5 years after treatment, and some will continue to have positive STS for the rest of their lives. To treat patients for late syphilis with the sole purpose of reversing positive STS to negative is a serious error; it involves misrepresentation to the patient because there is

no evidence that continued antisyphilitic therapy will in any way hasten the reversal of positive STS to negative in well treated cases. Late latent syphilis can in most cases be satisfactorily treated with from 4 to 6 million units of penicillin over a period of 2 to 3 weeks.

CONCLUSIONS

1. Penicillin is now the antisyphilitic agent of choice for the treatment of all stages and types of syphilis.
2. So far, the best results in the treatment of early syphilis seem to have been obtained with daily injections of from 300,000 to 600,000 units of POB for 15 days.
3. Procaine penicillin G in oil and 2 per cent aluminum monostearate can now be substituted for POB, and individual injections of this preparation do not have to be given as frequently as with POB. Probably two injections of 600,000 units of this preparation a week for 2 or 3 weeks will accomplish as much as daily injections of 300,000 units of POB for 15 days.
4. Neurosyphilis should be treated with at least 6 million units of penicillin over a period of not less than 15 days and preferably 3 weeks. Injections of 600,000 units of procaine penicillin in oil and aluminum monostearate three times a week for 3 weeks should prove sufficient therapy for most cases of neurosyphilis.
5. For late symptomatic and late latent syphilis from 4 to 6 million units of penicillin should be given over a period of not less than 15 days.
6. In most cases of late syphilis, whether symptomatic or asymptomatic, it is impossible to reverse positive serologic tests for syphilis to negative within 5 or more years. Such patients should be observed after treatment with quantitative serologic tests at regular intervals. Marked rises in quantitative tests from previous levels, sustained for several weeks or months, are an indication for further therapy.

REFERENCES

1. Eick, H., Morrison, H. J., and Fleischman, R. The Effect of the Method of Administration on the Therapeutic Efficacy of Soluble Penicillin in Experimental Syphilis. *Ann. Intern. Med.*, 79:163, 1944.
2. Eick, H., Morrison, H. J., and Roman, M. J., Rein, C. R., and Kitchen, D. K. Newer Repository Penicillin Products. *J.A.M.A.*, 137:1517, 1948.
3. Romansky, M. J. The Current Status of Calcium Penicillin in Beeswax and Peanut Oil. *Am. J. Med.*, 1:395, 1946.
4. Heller, J. R., Jr., Bowman, R. W., and Price, E. V. Rapid Treatment of Early Syphilis: Progress Report, December, 1947. *Ven. Dis. Inform.*, 29:103, 1948.
5. Chargin, L., Sobel, N., Rein, C. R., and Rosenthal, T. The Treatment of Early Syphilis with 300,000 Units of Crystalline Penicillin G in Peanut Oil and Beeswax (POB) for 16 Consecutive Days. (In Press.)
6. Gilpin, S. F. Neurosyphilis. In *Progress of Neurol. and Psychiat.* Vol 2, 1947, p. 282.
7. Heyman, A. Treatment of Syphilis of the Central Nervous System with Penicillin. *Am. J. M. Sc.*, 213:661, 1947.
8. Leavitt, H. M. Neurosyphilis. *Arch. Derm. & Syph.*, 56:233, 1947.
9. O'Leary, P. A., Brunsting, L. A., and Ockerly, O. Penicillin in the Treatment of Neurosyphilis. *J.A.M.A.*, 130:698, 1946.
10. Rose, A. S., and Solomon, H. C. Neurosyphilis. *Am. J. Psychiat.*, 103:524, 1947.
11. Solomon, H. C. Penicillin in Neurology and Psychiatry. *Dig. Neurol. & Psychiat.*, 14:132, 1946.
12. Dattner, B., and Thomas, E. W. The Management of Neurosyphilis. *Am. J. Syph., Gonorr. & Ven. Dis.*, 26:21, 1942.
13. Callaway, J. L., Noojin, R. O., Flower, A. H., Jr., Kuhn, B. H., and Riley, K. A. The Use of Penicillin in the Treatment of Syphilis of the Central Nervous System. *Am. J. Syph., Gonorr. & Ven. Dis.*, 30:110, 1946.
14. Dattner, B. Neurosyphilis and the Latest Methods of Treatment. *Med. Clin. of North America*, 32:107, 1948.
15. Gammon, G. D., Stokes, J. H., Steiger, H. P., Steele, W. H., Beerman, H., Ingraham, N. R., Jr., Gyorgy, P., Rose, E., Lentz, J. W., Ornstein, A., and Scott, D. Penicillin Therapy Alone in Neurosyphilis. *Ann. Int. Med.*, 25:412, 1946.
16. Koteen, H., Doty, E. J., Webster, B., and McDermott, W. Penicillin Therapy in Neurosyphilis. *Am. J. Syph., Gonorr. & Ven. Dis.*, 31:1, 1942.
17. Scully, J. P., Falk, M. S., and Stokes, J. H. The Serologic Response in Penicillin-Treated Symptomatic Neurosyphilis. *Am. J. Syph., Gonorr. & Ven. Dis.*, 32:224, 1948.
18. Nicol, W. D. Penicillin in Neurology. *Brit. M. J.*, May 24, 1947.
19. Martin, J. P. The Treatment of Neurosyphilis with Penicillin. *Brit. M. J.*, 1:922, 1948.
20. Hahn, R. D. Late Gummatous Syphilis Resistant to Treatment with Penicillin. Case Report. *Am. J. Syph., Gonorr. & Ven. Dis.*, 31:542, 1947.
21. Hill, W. R. Problems Arising in Treatment of Syphilis with Penicillin. *New England J. Med.*, 235:919, 1946.
22. Dolkart, R. E., and Schwenlein, G. X. The Treatment of Cardiovascular Syphilis with Penicillin. *J.A.M.A.*, 129:515, 1945.
23. Flaum, G., and Thomas, E. W. Penicillin Therapy of Cardiovascular Syphilis. *Am. Heart J.* (In Press.)
24. Russek, H. J., Cutler, J. C., Fromer, S. A., and Zolman, B. L. Treatment of Cardiovascular Syphilis with Penicillin. *Ann. Int. Med.*, 25:957, 1946.
25. Tucker, H. A., and Farmer, T. W. Penicillin in Cardiovascular Syphilis. *Arch. Int. Med.*, 80:322, 1947.

Some Unmet Needs in Tuberculosis Control—A Challenge for the Future*

WILLIAM P. SHEPARD, M.D., F.A.P.H.A.

Third Vice-President, Metropolitan Life Insurance Company, Past President, National Tuberculosis Association, San Francisco, Calif.

THERE appear to be three major unmet needs in tuberculosis control: capital, greater skill, and broader vision.

I. CAPITAL

I wish to speak first of the need for capital, not just money, not donations, not increased budget, but capital for an investment which promises good returns.

Dr. Florence R. Sabin, retiring President of the Western Branch, American Public Health Association, is the latest of our great public health leaders to suggest that the economic aspects of public health work have been insufficiently stressed. Humanitarians as they are, public health workers have been overwhelmed with the enormous human values of saving life and preventing illness. They sometimes forget the money values. We must depend on more or less hardheaded businessmen to support our work. Perhaps it is time we ceased thinking of ourselves as mendicants and assumed the role of investment counselors.

Today in public health and especially in tuberculosis control we have good methods, tested and proved effective over the years; we have professional competence, both administrative and medical; we have organizational competence attested by our results. We have skilled services to offer which will bring rich returns, both humanitarian

and financial. These are items worth buying.

Good Health Is Good Business

Using a recent report of the National Planning Association under the title, *Good Health Is Good Business*, Dr. Sabin^{1,2} has illustrated how the economic aspect of public health may be used to good advantage in our search for capital. I will not repeat all of her figures which will be published soon, or go into detail concerning their derivation. Just let me recite certain high points to illustrate the method.

It is estimated that this country spent about \$174,000,000 in 1943 for the care and control of tuberculosis. When the tuberculosis death rate becomes about one-fourth of its present figure, that is, about 10 per 100,000 per year this expenditure can be reduced to about \$37,000,000, a saving of \$137,000,000, a year. The death rate of 10 per 100,000 will be reached between 20 and 25 years from now at the present rate of decline. It is a reasonable assumption that this time could be speeded up if we greatly increased present effort and expenditure. In fact, some think the death rate might be reduced by three-fourths in 10 years.

In addition to the \$174,000,000 we spent in 1943 for the care and control of tuberculosis, we lost in that year \$348,000,000 worth of goods and services which could have been produced by those now disabled with tuberculosis.

* Presented at the Forty-fourth Annual Meeting, National Tuberculosis Association, New York, N. Y., June 18, 1948.

It is estimated by the National Planning Association that this amount could be reduced to \$35,000,000, a saving of \$313,000,000 a year.

Over and above these staggering amounts, we lost \$229,000,000 in 1943 in the future net earnings of male heads of families who died of tuberculosis that year. It is estimated that this could be reduced to \$22,000,000 a year, a saving of \$207,000,000.

Are we not justified in asking Mr. United States, Incorporated, if he wishes to save the sum total of these amounts; namely, \$657,000,000 a year?

How Much Would It Cost?

Mr. United States, Incorporated, is bound to be interested as would any businessman. His first question is, "How much will it cost?" This, too, is roughly estimated by the National Planning Association as follows:

If in the next 10 years we were to x-ray every inhabitant of this country aged 15 and over twice; follow up all suspects thus found with standard x-rays and complete examinations; follow up all contacts thus found with x-rays and careful examinations, the total cost would be about \$13,560,000 a year.

The National Planning Association estimates the cost of hospital and medical care for the 133,000 patients hospitalized at \$173,000,000 a year.

They estimate the cost of health education over this period as \$12,000,000 a year.

The cost of rehabilitation would come to something like \$22,000,000 a year.

The cost of family relief for the afflicted wage earners would come to something like \$58,000,000 a year.

It is also estimated that \$3,000,000 a year is needed for medical research.

Pensions for tuberculous veterans are assumed to continue at their present rate of \$38,000,000 a year during the 10 years.

The cost of constructing new beds for areas now inadequately supplied is estimated at \$377,750,000 but these facilities would be worth about \$310,000,000 at the end of 10 years, when they might be turned over to other uses, leaving a net cost of about \$6,800,000 a year for a period of 10 years for hospital construction. There are a few other miscellaneous items.

Altogether the National Planning Association estimates that it would cost about \$328,000,000 a year for 10 years to reduce the tuberculosis death rate to something like a fourth of its present level. After that the cost would be reduced to approximately \$37,000,000 a year, much of which would go for research. That is the prospectus for Mr. United States, Incorporated, investor: spending \$328,000,000 to save \$657,000,000. A 10 per cent return in 10 years would be a good investment. This offers a 200 per cent return!

Perhaps the time has come to present this whole matter to the nation as a good business proposition. We may as well face the costs squarely even though they seem astronomical to us. The return can be estimated with some accuracy and Mr. United States, Incorporated, cannot lose.

We may well stress the fact that this type of investment is different from most other expenditures of public funds. For example, expenditures for the police department have only an indirect effect on crime prevention, one much less tangible. Expenditures for fire departments do result in a little more tangible results in fire prevention, but no more tangible than ours. As for hospital expenditures, there is no end to the plea of hospital superintendents for more and better hospitals. Similarly with relief expenditures, we never have enough. The expenditure which we propose, large as it seems to us, is self-limited. Once completed, it will save in one year twice what it cost each year!

This, then, illustrates our need for capital and suggests a method by which the search for an investor may be approached. The figures presented here may not be exact, but the principle of investing a certain amount for a good return is sound. We may not have, at this moment, all the facilities needed in the way of personnel, but given the funds we can soon get them. Mr. United States, Incorporated, may well be interested both as a taxpayer and a purchaser of Christmas Seals.

II. GREATER SKILL

We already have much skill and much knowledge in public health matters and especially in tuberculosis control. We have had almost a half century of experience. We have a smooth working organization internally and externally. Relations were never better within our own organization and with our various state and local organizations. We have proved our adaptability to change.³ We are prepared for the future, whatever may be the developments in a preventive vaccine or an antibiotic for the cure of tuberculosis. We now have the best case finding device yet found in the mass miniature x-ray. We can well be proud of our good results and our outstanding success over the years.

In our field, however, the best is none too good. We cannot be satisfied with anything short of perfection. Public health workers have always been characterized by their interest in evaluating and appraising their work. They find out how well or how ill they are doing, even if it hurts. Few social movements have been more constructively critical of their own methods. We have learned over the years to do things because they work, and to drop things that do not work. This is one of the major reasons for our great strength today and for the gratifying public support accorded us.

In our search for even better methods we must keep certain questions con-

stantly before us. They need not be detailed here, but they include such things as these:

Some Suggestions for Self-Appraisal

Are you using modern methods of health education, or being satisfied with publicity alone? Are you reaching as many groups as you should, especially special racial groups among whom the tuberculosis rate is high? Are you spending as much on special racial groups as their needs justify?

Does your mass x-ray program include careful preliminary educational preparation and follow-up? Is it carefully integrated with and supported by the health department, county medical society, affected industries, and all existing community group leaders?

Is your health department adequately staffed and financed for modern tuberculosis control? If not, what are the reasons and what are you doing about it? Are you familiar with your state and local health department needs in general and exerting every effort to supply these needs through proper legislation and appropriation, bearing in mind that no voluntary agency can control tuberculosis adequately in the absence of a strong health department? Are you aware of your community's overall health needs, beyond tuberculosis control, and actively participating with the health council or other community-wide agency to supply these needs?

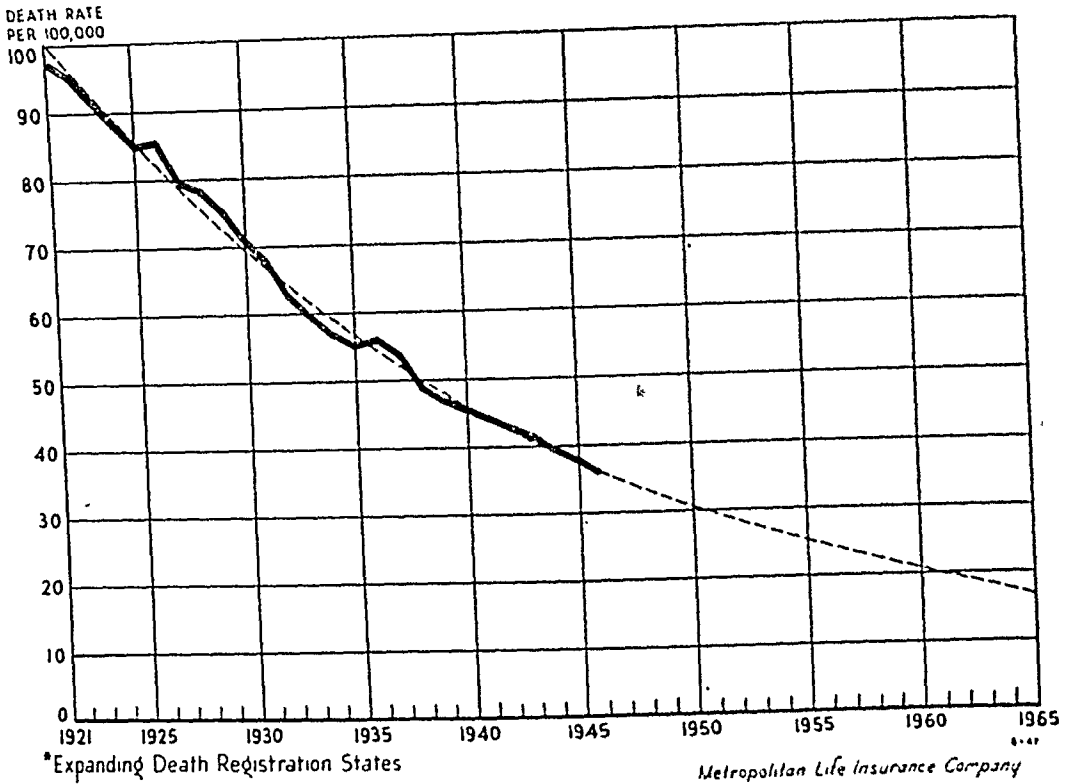
Are your practising physicians aware that each and every one of their offices is a case finding center, and does each of them know what community facilities are available for the detection of tuberculosis and the safeguarding of the well?

Is your sanatorium efficiently operated as evidenced by prompt admission, low per cent of recalcitrant patients, high per cent of early cases and cures, reasonable costs? Have you sufficient beds for newly discovered cases?

Do you periodically seek the counsel

CHART 1

DECLINE IN TUBERCULOSIS MORTALITY IN THE UNITED STATES* SINCE 1921



of the National Tuberculosis Association to see what their experience has been with your problems, most of which are common to all associations?

These are but a few of the items of self-appraisal necessary to greater efficiency. Others are available from the Gunn-Platt report,⁴ or from the National Tuberculosis Association.

III. BROADER VISION

Broader vision is our final major need. We have already spoken of our mendicant attitude. To this, perhaps, should be added myopia. The time has come to look farther ahead.

Mortality Trend

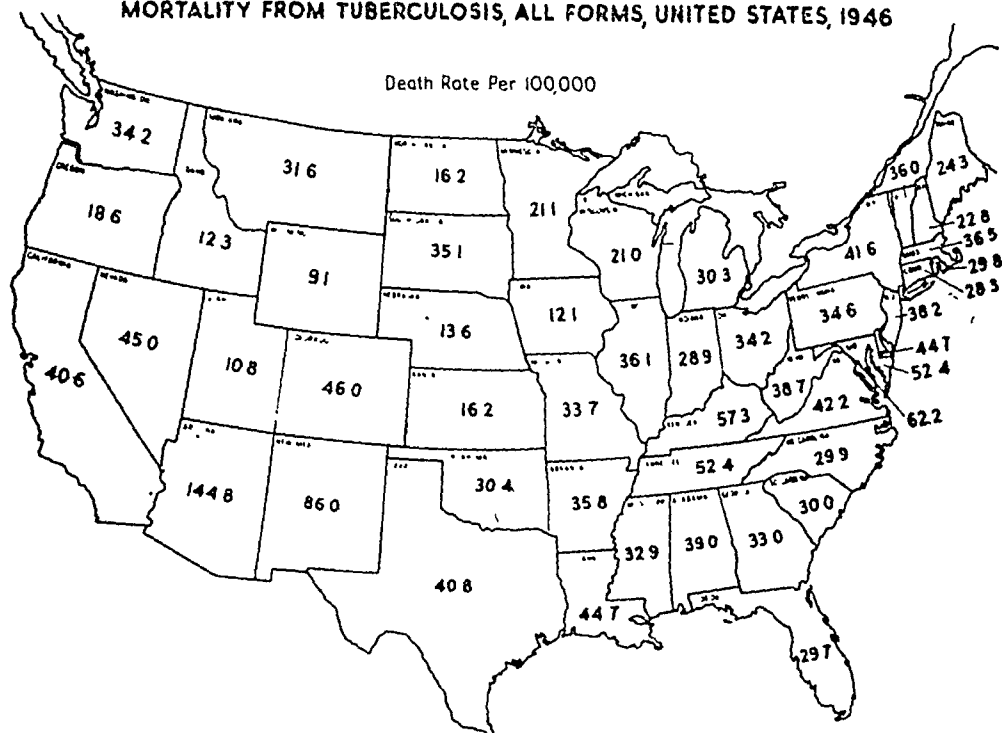
As we look at Chart 1⁵ we see one of the most astounding socio-biological phenomena of man's history. It is not

new, but it helps myopia. This chart happens to go back only to 1921, but it shows our experience with the tuberculosis death rate per 100,000 population for the past 25 years. If it went back 75 years more, it would show approximately the same steady downward trend. Note where the trend line finishes in the year 1965 when tuberculosis mortality in this country will be less than 20 per 100,000 per year. Already it is below 40. If this trend continues, the death rate will be less than 10 in from 20 to 25 years.

The matter is even more urgent. If you will look at Chart 2⁶ where 1946 death rates by state are displayed, you will see that the national death rate is heavily weighted by a few states at the top of the list whose rate is excessive. Actually, there are already 35 states out

CHART 2

MORTALITY FROM TUBERCULOSIS, ALL FORMS, UNITED STATES, 1946



of the 48 having death rates below 40 per 100,000 population. There are 17 states having death rates below 30, and 8 states having death rates below 20. Indeed, tuberculosis is already a very minor cause of death in Nebraska, Idaho, Iowa, Utah, and Wyoming, where it kills fewer than 15 per 100,000 per year.

Chart 3⁷ shows what we mean by minor causes of death. Note the enormous death rates from heart disease and cancer as compared with tuberculosis even today. Where will the tuberculosis rate be in 10, 20, and 40 years from now? Where will the National Tuberculosis Association be 20 and 40 years from now?

We, of the National Tuberculosis Association, have been told before that 3 choices confront us: liquidate, curtail, or expand.⁸ Before deciding this question, let us take a quick review of our

assets again and then look at our liabilities.

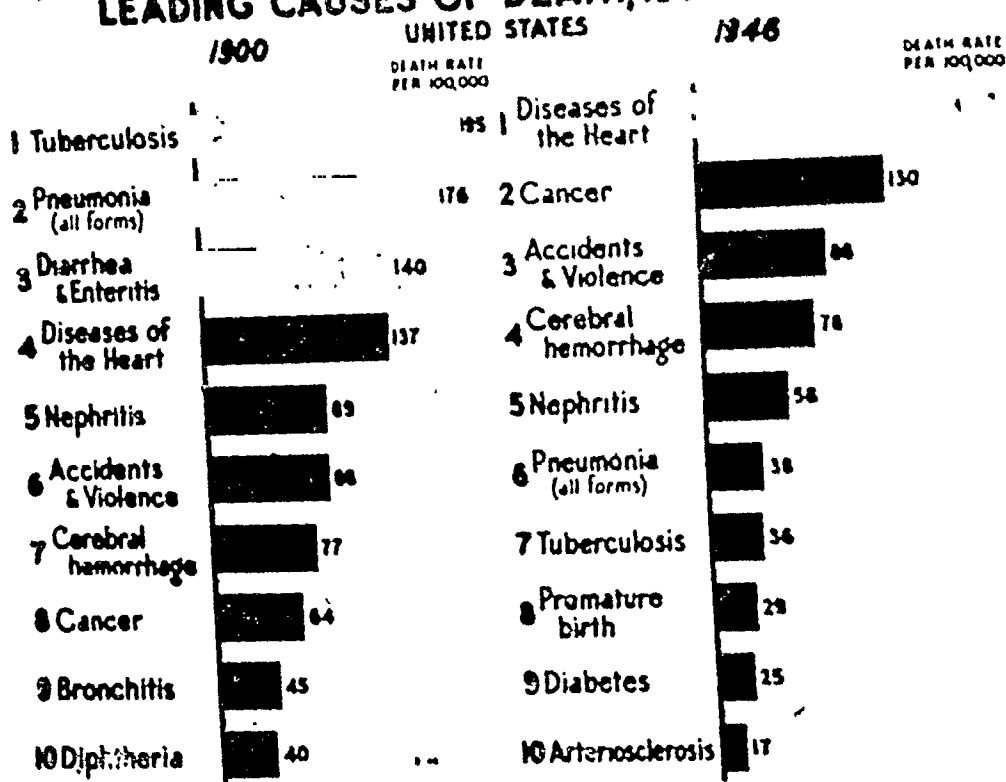
Shall We Liquidate These Assets?

Among the assets we have some 3,000 local associations. They have about 50,000 board members. We employ about 1,500 trained workers on a full-time basis, many of them with years of experience, well trained by that experience and by academic qualifications, their competence improving daily. There are at least 250,000 people in this country who are in some way connected with the tuberculosis control movement in a voluntary capacity, donating varying amounts of their valuable time, doing it for the cause, not for personal gain.

We have knowledge of community organization, of health education, and public health administration. We have experience and some skill in influencing

CHART 3

LEADING CAUSES OF DEATH, 1900 AND 1946



legislation in the right direction and in obtaining appropriations where it seems reasonable to ask the taxpayer to support portions of the tuberculosis control work. We have learned the proper role of the voluntary agency in relation to the tax-supported agency and in relation to other agencies in various health fields. We have shown our adaptability by changing direction as new scientific developments appear. We have outstanding public support and a fund raising device which is unparalleled. As workers in the public health field we have full knowledge of the proper use of the various specialists in this field; such as nurses, statisticians, health educators, physicians, and so forth.

Can We Liquidate These Liabilities?

Among our liabilities we have already spoken of lack of capital and our desire

for even greater skill. The only other serious liability is our past failure to recognize 3 facts:

1. We have never controlled tuberculosis without attention to the general health needs of the community. We have always worked with health departments, with schools, with the problems of nutrition, health habits, need for medical care and hospitalization, the special aspects of industrial health, the importance of medical education, and the great importance of research.

2. We do health education, not solely tuberculosis education.

3. We can rather easily turn our skills to other fields, once tuberculosis control is well in hand.

Altogether we appear to be a healthy, going concern. Assets far outweigh liabilities. There is still great need for our services. Liquidation and curtailment are out of the question. Our only choice is to expand.

Exploring the Possibilities of Expansion

In what direction might the N.T.A. logically consider expansion? Time will not permit discussion of all the possibilities, but the following are some of the most intriguing:

Local Health Councils

We are beginning to realize that, regardless of the headquarters structure of the national health agencies and their interrelationships with each other, they flourish only by rendering service locally. They are the flower of the roots arising in the grass—a lesson we in the tuberculosis field learned long since. These roots only flourish when fertilized by local service.⁹

Each community has its own health problems, many of them like other communities, a few of them unique.

The solution of these problems must be reached locally by local people, not by imposing a program from the top. Local groups dedicated to the solution of health problems must be autonomous.

Because of these conditions, and thanks to the pioneering of a few well established local health councils, many such councils are being formed with surprising rapidity throughout the country. They consist of representatives of all health agencies, both official and voluntary, in a given community and are dedicated to the study and solution of all community health problems. With increasing frequency they seek expert advice from the national agencies, sometimes on social hygiene, again on tuberculosis, again on cancer, and so forth.

In many places the local tuberculosis association is virtually a health council, or at least is in a key position to activate and implement one already existing. It has been a valuable experience for our local tuberculosis associations to learn to facilitate their cooperation with other health agencies. We are learning, as are other members of these local health councils, that credit for an accom-

plishment is a secondary matter and that credit can best be shared with many. Paul de Kruif quotes J. W. Livingston as saying, "You can get anything done if you don't care who gets the credit."

Active participation in, and financial and moral support of, local health councils would seem a modern, proper, and legitimate use of our funds and personnel.

Heart Disease

Heart disease is more important than tuberculosis economically, socially, and from the health standpoint. It already imposes a greater burden on our populace than does tuberculosis. It is a field in which we have a legitimate interest since we can hardly examine or x-ray human chests without at least considering the heart. There are a striking number of similarities between the heart disease control program and that of tuberculosis control. These are especially startling in the field of acute rheumatic fever, now a leading killer among children.¹⁰ In several localities and in some states we already have a good start toward combining the tuberculosis and heart disease control movements. This, too, would seem a legitimate and proper way to direct our energies.

Chronic Illness

If we segregate the entire problem of chronic illness, including as it does heart disease and tuberculosis, we are appalled at its size and seriousness. It is an enormous burden which grows heavier as the population ages. Little is being done about it. It is a field with which we are not unfamiliar, since tuberculosis is usually a chronic disease. The recently published joint statement on "Planning for the Chronically Ill," issued by the American Hospital Association, the American Public Welfare Association, the American Public Health Association, and the American Medical

Association,¹¹ is well worth careful study. It points out the need for more institutional care, a field in which we are well versed. Incidentally, it presents the possibility of using tuberculosis sanatoria when they are virtually empty in the not too distant future, for the care of the chronically ill. The report points out the need for more medical care, a field in which we have been blessed by the whole-hearted coöperation of the medical profession for many years.

The report says there is a hopeful side to the problem of the chronically ill in the field of rehabilitation; again, a field in which we have had considerable experience. There is great need for more home nursing care. We know where to get and how to use public health nurses. Altogether, this field of chronic illness looks like a great and impressive challenge and one in which we are not inexperienced or without skill.

Maternal and Child Health

Since the demise of the American Child Health Association in 1935, there has been no great national organization prepared to render service through local affiliates in the field of maternal and child health. The recent nation-wide study of child care facilities made by the American Academy of Pediatrics discloses surprising deficiencies in this nation's care of its children.¹² The infant and maternal death rates are still distressingly high in many places, and in the very places where modern medical and hospital care are lacking. It will take all the power of an aroused and informed public to remedy these deficiencies. Again, we have experience and ability in helping localities discern and remedy their health problems, and in working with organized medicine. The Academy of Pediatrics will need some such support as ours if results are to be obtained with a minimum of delay.

School Health

With but few exceptions, the school health field remains in a distressing state. Relatively few schools have sufficient numbers of school physicians, nurses, and teacher-health-specialists to do more than a token job of what we know how to do. Physical defects, many of them correctable, are overlooked or neglected in an appalling number of school children. We have learned from the Astoria studies and a few other places how to do effective health work in schools. We have the support of the education profession. We are lacking in public health personnel which is specially trained for school work.

Tuberculosis associations have had a long and fruitful partnership with the schools. We have often subsidized school nurses and physicians. We are accustomed to dealing with boards of education. We know how to prepare good health teaching material. This challenge might well engage us.

Personnel Training and Placement

The public health progress of the nation is seriously impeded by lack of competent personnel. In no area is this more apparent than among the voluntary health agencies. We have the oldest and best organized personnel training and placement program of any of the national voluntary health organizations. We have been giving in-service training for years. We have recruited, trained, placed, and replaced competent personnel for our locals. We are in touch with the accredited schools of public health and know how best to use them to supplement our needs. If we did nothing else new but to further develop our personnel training facilities for ourselves and the other health agencies, we would render a great service.

Other Special Problems

I need not go further than to leave

these few illustrations of some directions in which we might turn our attention. Others are the field of cancer control, of mental hygiene, and diabetes. In each of these we bring some special skill and meet a challenge worthy of our mettle.

Fund Raising and Interrelationships

It is at the point of fund raising and the interrelationships of various agencies that our best plans are likely to fail. With our great propensity in this country for voluntary organization we often over-organize to the detriment of the cause to which we are dedicated. Disagreements over internal administration, fierce interorganizational jealousies, complications, overlapping, and duplication unfortunately occur. Thus, sometimes we see the absurd spectacle of the individual suffering needlessly while the experts argue over which is to help and how.

Let us start by looking at the average town or city and the average individuals in it. It is safe to assume that this average "Midtown" needs good sanitation, tuberculosis control, venereal disease control, cancer deaths reduced, something done about heart disease, all the protection there is from polio, modern facilities for mental hygiene, prevention of blindness, prevention of deafness, and so forth. It is also safe to assume that much the same people are laboring to meet these needs in each of these average "Midtowns." They are the public spirited, generous, socially minded people who are your board members or someone else's, or who work for the Community Chest, or the League of Women Voters, or the Parent-Teacher Association. It is also pretty much these same people who do the fund raising, first for one cause, then the other.

It is on fund raising for so many worthy causes that they weary. They are justly entitled to relief. We must spare their energies and conserve their

interest. There has been some thought that we might be able to finance the national voluntary health agencies in a combined or federated fund raising drive similar to that of the War Chest. I do not believe this can be done at present.

It is the inalienable right of the free American citizen to give to whomever he pleases and for whatever purpose interests him. One will give generously to tuberculosis because of personal experience. Another is more concerned with cancer or diabetes or heart disease. The reasons for each one are his own and he is entitled to them. He is not interested in a nebulous, anonymous cause called public health. Therefore, he will be less generous with any plan of federated fund raising except when it can be placed under one great cause, such as the War Chest. The experience of the Community Chests has proved this. They have, on the whole, collected less in their communities than would have been collected by each agency separately with separate fund raising drives.

To be sure, the individual donor may be annoyed with multiple drives, but so is he annoyed with the rival advertising claims of the virtues of 20 different automobiles, or soaps, or cereals. Nevertheless, he enjoys the freedom to choose his own brand of car. He takes greater pride in it because he picks it. So it is with his donations. Annoyed though he may be, it is his birthright in a democracy to make a free choice. Our job is telling him frankly what is needed, why, what his dollar will do, and keeping him informed on what his past dollars have done. He is also entitled to know that we use his money economically and with the greatest possible efficiency.

Is it too much to anticipate that the time may come when:

1. Tuberculosis associations will have the Great White Plague practically conquered, though continuing to hold the fort through permanent application of control measures and ever more generous support of research.

2. Tuberculosis associations will be playing a leading role in local health councils throughout the country, both financially and in terms of service. In some places they may actually become local health councils by having expert medical advice on various health problems other than tuberculosis and special board committees on such problems. In other places they may become the major financial and staff support of existing health councils.

3. Tuberculosis associations will be changed to tuberculosis and health associations and tell the public frankly what they are doing in the other challenging fields of public health.

4. Christmas Seals will be offered as usual, but for various purposes, and other appeals made to the same mailing list during the year, now for one purpose and again for another.

5. We say to the public something like this, "You have helped us conquer tuberculosis through your generous support over the years. It could easily become a great menace again, hence we need your continued support to hold our gain."

"The lessons we have learned and the skill we have developed in tuberculosis control can now be turned partly to other fields where the need is great."

"Please send the amount you would like us to devote to tuberculosis now. Later in the year we will give you an opportunity to help us with heart disease control (or cancer, diabetes, etc.)."

The amount sought and its proposed use will depend upon *local* needs, discerned by *local* people, and used *locally* except for a reasonable percentage for the particular national agency whose services are needed. The amount sought will not be a "quota" demanded by a national agency. Its use will be for a program constructed locally, not "imposed" by the national. The local agency will be wise to consult the national in order to take full advantage of its expert knowledge and broad experience. Thus, the national earns its percentage by rendering local service.

Is this too much to hope for? With our 50 year record of success in community health leadership, I do not believe it is.

Such a plan need not affect the existing structure of the national health agencies. They should be supported by a modest percentage of local funds collected, just as the National Tuberculosis Association is supported. They would continue to explore, develop and imple-

ment the best possible methods in their fields and be ready to offer them to local units as requested. Their experts would be available to locals at any time. They would continue studies of the overall national health problems and continue to integrate their work with the national government agencies. Their fund raising would be confined to the large donors, corporations, and individuals who wish their money used nationally. Finally, they would integrate their work with each other more closely through the National Health Council, just as we shall all soon be doing through local health councils.

There is a continuing need for various independent national health agencies, with separate fund raising campaigns, though closely coördinated through the National Health Council.

On the local basis, there is logic and economy in a single voluntary health organization, either a local health council with branches, or a tuberculosis and health association with committees of the board and divisions of the staff covering various fields. Incidentally, diagrams of such a plan were worked out for the National Health Council by Armstrong in 1921 and 1922 and encouraged by Dr. Linsley Williams, then Managing Director of the National Tuberculosis Association.

IV. SUMMARY

The future never presented more important challenges. Our unmet needs may be classified under Capital, Greater Skill, Broader Vision. Capital will be forthcoming as our work becomes better recognized as a good investment and as we develop courageous business methods. Greater Skill is inevitable with continued self-appraisal and sharing of experience. Broader Vision is urgent since it will lead to greater service, better health, and prolonged lives for all.

There is no thought of abandoning

tuberculosis control. We know this adversary well enough to realize that it will threaten us again in war or famine. We are strong enough now, however, to hold our tuberculosis gains while we attack new enemies which are destroying our people.

REFERENCES

1. Sabin, F. Presidential Address, Western Branch, A.P.H.A., Salt Lake City, May 25, 1948. In Press
2. Good Health is Good Business. *Planning Pamphlet No. 62*, Joint Subcommittee on Health, Agriculture, Business and Labor, National Planning Association, 800 21 Street, N. W., Washington, D. C., Feb., 1948.
3. Shepard, W. P. Steady Does It. *Trans. of the 43rd Annual Meeting of the NTA*, 1947.
4. Gunn, S. M., and Platt, P. S. *Voluntary Health Agencies—An Interpretative Study*. The Ronald Press Company, N. Y., Second Printing, Mar., 1946.
5. Leading Causes of Death, 1900 and 1946, United States, MLI Co. *Stat. Bull.*, 29:4 (Apr.), 1948, p. 2.
6. Decline in Tuberculosis Mortality in the United States since 1921. MLI Co. *Stat. Bull.*, 28:11 (Nov.), 1947, p. 2.
7. Mortality from Tuberculosis (All Forms), United States, 1946. Map prepared by MLI Co. Statistical Bureau, June, 1948.
8. Shepard, W. P. Tomorrow's Tuberculosis Associations. *Am. Rev. Tuberc.*, 1, 3:244-250. (Sept.), 1944.
9. Shepard, W. P. Memorandum to the National Health Council, Aug., 1946. Personal Communication.
10. Wheatley, G. M. Can Rheumatic Fever be Attacked by Applying Knowledge Gained in Fighting Tuberculosis? New Jersey: Passaic County Tuberculosis Association. Feb. 10, 1948. In Press.
11. Planning for the Chronically Ill (Joint statement of recommendations by the American Hospital Association, American Public Welfare Association, American Public Health Association, American Medical Association), *J.A.M.A.*, 135:343-347, (Oct. 11), 1947. *A.J.P.H.*, 37, 10:1256-1266 (Oct.), 1947.
12. Rusk, H. A. Pediatrics Academy Survey Seeks To Expand Child Care. *New York Times*, June 13, 1948, p. 22.

Best Sellers in the Book Service for September

An Appraisal Method for Measuring the Quality of Housing:

Part I. Nature and Uses of the Methods, 1945.....	\$1.00
Part II. Appraisal of Dwelling Conditions. 3 Vols. 1947.....	5.00
Communicable Disease Control. Anderson. 2nd ed. 1948.....	5.00
Control of Communicable Diseases. 6th ed. 1945.....	.35
Diagnostic Procedures and Reagents. 2nd ed. 1945.....	4.00
Local Health Units for the Nation. Emerson. 1945.....	1.25
Planning the Neighborhood, 1948.....	2.50
Public Health Law. Tobey. 3rd ed.....	4.50
Standard Methods for the Examination of Dairy Products. 9th ed. 1948.....	4.00
Standard Methods for the Examination of Water and Sewage. 9th ed. 1946.....	4.00
35 Year Index of the American Journal of Public Health, 1911-1945. 1948.....	7.00

Order from the Book Service

AMERICAN PUBLIC HEALTH ASSOCIATION

1790 Broadway

New York 19, N. Y.

Physical Disability: A National Problem

HOWARD A. RUSK, M.D., AND EUGENE J. TAYLOR

*Department of Rehabilitation and Physical Medicine, New York University
College of Medicine, New York, N. Y.*

THE lack of a systematic approach requiring the reporting of cases of physical disability to a central agency, together with varying subjective interpretations of "what constitutes a handicap," makes it difficult to stake out the boundaries of the field of rehabilitation and services to the handicapped in any quantitative fashion.

Although a census of such conditions has been proposed on several occasions (legislation calling for an exhaustive census of the physically handicapped was introduced in Congress by Senator Johnson of Colorado on March 15, 1948¹), there has never been a complete survey of the extent of disability in the United States. The most comprehensive source of information at present is the National Health Survey, conducted by the U. S. Public Health Service in 1935-1936.² In this survey, 800,000 families in 83 cities and 23 rural areas of 19 states were studied. The reliability of this study has been demonstrated in other extensive surveys on the extent of chronic disease and crippling conditions,³⁻⁷ and although results are not

strictly comparable, due to different methods of enumeration, they bear out the fact that the National Health Survey is probably the best source available for such statistics, although later studies indicate that its results are conservative.

Regardless of the inadequacies of existing yardsticks, numerous requests for statistics on the extent of disability have made a compilation of the following known existing data seem advisable.

ORTHOPEDEICALLY HANDICAPPED ADULTS

In the National Health Survey, an orthopedic impairment was defined as "a permanent handicap which has been depriving the afflicted person of the natural use of some portion of his skeletal system. The term 'skeletal' has reference to the tissues of the bones, joints, and the neuromuscular mechanisms concerned with the functions of the tissues. In detail, it refers to lost, crippled, paralyzed, or deformed individual members of the body."⁸

It was reported that the estimated number of persons in the United States

TABLE 1
Estimated Orthopedic Impairments—1940

Ages	Males		Females	
	Orthopedic Impairments		Orthopedic Impairments	
	Non-disabling	Incapacitating	Non-disabling	Incapacitating
Under 15	79,700	13,200	53,500	12,500
15-24	145,000	13,300	68,700	12,300
25-44	310,100	35,600	150,700	24,100
45-64	594,100	76,500	190,300	34,100
Over 65	336,400	69,900	163,300	49,500
Total	1,636,100	208,500	626,500	132,500

[1381]

with orthopedic impairments in 1940 was 2,603,000, of whom 341,000 were afflicted with incapacitating impairments, and of whom 1,844,600 were males and 759,000 were females.⁹

The distribution of these cases by sex, age, and degree of incapacity is indicated in Table 1.

The annual incidence of new cases of orthopedic impairments was estimated at 94,440¹⁰ distributed by sex, age, and extent of incapacity as shown in Table 2.

Kessler has estimated that on the basis of the 1940 census, there were approximately 2,000,000 disabled adults, exclusive of the war disabled, the chronically ill, the blind, the deaf and the hard of hearing.¹¹

During the period of November, 1941, to August, 1945, 4,828,000 registrants for Selective Services between the ages of 18 and 37 years were rejected for military service. Of this group, 510,000, or 10.6 per cent, had manifestly disqualifying defects; 367,000, or 7.6 per cent, had musculoskeletal defects; and 235,400, or 4.9 per cent, neurological defects.¹²

THE AMPUTEES

The number of amputees in the United States has been variously estimated at from 500,000 to 2,000,000. The most generally accepted figure, including amputations of all types, is approximately 900,000, with an annual increment of 75,000.¹³ The number of major amputations has been estimated at

400,000 with an annual increment of 40,000.¹⁴

According to the National Health Survey, it was estimated that in 1940, 673,200 persons had lost one or more toes, 65,700 persons had lost one hand or arm, 114,800 persons had lost one foot or leg, and 11,600 persons had lost two or more major members (both hands; both feet; or one or both hands and one or both feet).¹⁵ It must be noted that these figures do not include estimates of limbs lost by men in military services during World War II, approximately 20,500 of whom had major amputations,¹⁶ or of injury due to the great industrial activity associated with the war (it has been estimated that 65,000 war workers had major amputations as a result of accidents).¹⁷

CRIPPLED CHILDREN

Prior to the White House Conference on Child Health and Protection in 1930, the usual figure given for the ratio of crippled children was 2.5 per 1,000. Kessler, in later studies, estimated the ratio to be 3.72.¹⁸ The Committee on the Physically and Mentally Handicapped of the White House Conference reported that there were 368,325 crippled children in the United States in 1933,¹⁹ or 3 per 1,000. In 1944, there were 373,177 registered crippled children according to the Children's Bureau.²⁰

CEREBRAL PALSY

Reliable statistical surveys on the in-

TABLE 2

Annual Incidence of New Orthopedic Impairments

Ages	Males		Females	
	Orthopedic Impairments		Orthopedic Impairments	
	Non-disabling	Incapacitating	Non-disabling	Incapacitating
Under 20	11,630	1,160	5,920	1,050
20-39	19,750	890	2,540	300
40-54	10,560	2,330	4,350	740
55-64	7,400	2,500	4,320	1,120
Over 65	6,190	2,850	6,020	2,520
Total	55,530	9,730	23,150	6,030

cidence of cerebral palsy have been very meager, and most references are based on the published reports of Phelps.²¹

Phelps has reported an annual birth incidence of 7 per 100,000 total population, 15 per cent of whom die in the first 5 years of life.²² This would mean that the total number of cases in the United States based on a life-expectancy of 50 years would be approximately 336,000. At the present time, there are some 40,000 such children listed on state crippled children's registers, but the U. S. Children's Bureau estimates there are 175,000 such children in the nation.²³

POLIOMYELITIS

As with other types of disability statistics, it is difficult to estimate the extent of disability resulting from poliomyelitis. The number of cases reported in 1945 was 13,514, as compared with 19,029 in 1944; 12,450 in 1943; 4,033 in 1942; 9,068 in 1941; 9,826 in 1940; 7,343 in 1939; and 1,705 in 1938. "Cases reported," however, means only the cases which have come to the attention of the health authorities. In some states, only paralytic cases are reported; in other states, non-paralytic cases are included.²⁴

A sampling survey of approximately 1,900,000 men examined for selective service registration from April, 1942, to December, 1943, indicated that 6 out of each 1,000 showed definite signs of having had infantile paralysis sometime during their lives.

It is estimated that of infantile paralysis victims in this country, 50 per cent recover completely, 25 to 30 show light residual paralysis, 15 to 20 per cent show marked residual paralysis, and 5 to 10 per cent die.

EPILEPSY

Estimates on the number of persons in the United States subject to convulsive disorders vary from 1/2 million to

1 1/2 million.²⁵ As there is no standard method of determining disability, there are no figures available on the number of persons disabled by epilepsy, but approximately 50,000 such persons are institutionalized.²⁶

DISEASES OF THE HEART AND ARTERIES

It is estimated that, in the United States, there are between 9,000,000 and 10,000,000 persons suffering from diseases of the heart and arteries,²⁷ and where surveys have been conducted, from 0.3 to 6 per cent of the childhood population and 0.6 to 1 per cent of the young adult population have been found to be afflicted with rheumatic fever.²⁸ In a further study of 1,000 children followed for a period of 10 years after an initial diagnosis of rheumatic fever, it was found that 344 had been forced by residual heart disease to limit their activities; 135 of these were so incapacitated that they were forced to lead a sedentary existence, and 209 were restricted, in that they could not participate in competitive sports.²⁹

Of the 4,828,000 men between the ages of 18 and 37 rejected by Selective Service from November, 1941, to August, 1945, 317,000, or 6.6 per cent, were disqualified because of cardiovascular difficulties.³⁰

DIABETES MELLITUS

It is estimated that there are from 725,000³¹ to 1,000,000 known diabetic persons in the United States, and another 1,000,000 who are unknown.³²

TUBERCULOSIS

It has been estimated that the number of clinically significant, active cases of tuberculosis in the United States is approximately 300,000.³³ Because of varying interpretations of the need and efficacy of rehabilitation of the tuberculous, the lack of rehabilitation facilities, and the lack of any objective standards for the functional capacities of the

ex-tuberculous, there are no figures on the number of persons in the United States needing rehabilitation following tuberculosis. Siltzbach has estimated that "upward of 60,000 persons of the 'good chronic' infective group in the United States are eligible for and could derive benefit from employment under sheltered conditions," and states that the total number of patients, nationally, requiring rehabilitation services is approximately 150,000.³⁴ In 1944, Emerson estimated that three-fourths of all those stricken with tuberculosis would, at some time, need rehabilitation services.³⁵

THE ACOUSTICALLY HANDICAPPED

In common with most types of disabilities, there are no accurate statistics on the number of acoustically handicapped persons in the United States. Estimates of the number of persons who suffer a hearing loss (ranging from a slight loss to almost total deafness) range from 7,000,000 to 14,000,000,³⁶ while an estimated 800,000 persons wear hearing aids³⁷ as compared with an estimated 1,600,000 who need them.³⁸

Estimates of the number of hard-of-hearing children range from 2 to 12 per cent of the population up to a figure of 3,000,000.³⁹ The Office of Vocational Rehabilitation has estimated that there are at least 33,000 deaf civilians and 206,000 who are hard-of-hearing who are eligible for services from state vocational rehabilitation agencies.⁴⁰ During the 1947 fiscal year, the federal-state vocational rehabilitation agencies rehabilitated 954 deaf men and women, and 2,439 who were hard-of-hearing.

During the war years, 13,000 service men were given aural rehabilitation in Army and Navy centers.⁴¹ On January 10, 1947, 42,191 veterans of World War II were receiving disability compensation payments for disease and disabilities of the ear, while 16,594 (as of March 4, 1947) service-connected and

1,077 (as of March 23, 1947) non-service-connected compensation claims for such disabilities were being paid World War I veterans.⁴² The Veterans Administration has stated that within 20 years, the number of World War II veterans needing aural rehabilitation may be expected to increase to 200,000.⁴³

THE VISUALLY HANDICAPPED

The most generally accepted figure on the number of blind in the United States is 230,000,⁴⁴ with an annual incidence of new cases of blindness at 6.6 per 10,000 population.⁴⁵

As of January, 1948, the number of blind children enrolled in residential schools or classes for the blind was 5,876. Of these, 5,344 were in residential schools, and 532 in braille classes in public schools. There are no reliable statistics available on the number of blind children outside residential schools and classes for the blind, but the best estimate on the total number of blind school age children in the United States is about 10,000.⁴⁶

Because of varying interpretations and legal definitions of "visually handicapped," or "partially seeing," figures vary on the number of such persons in the nation. It is estimated, however, that there are some 9,000 children at present in 620 special classes for the visually handicapped in 221 cities, and that some assistance is given to a small number of such children in rural areas. The total number of children in need of such special services has been estimated at 50,000.⁴⁷ Estimates have been made by Hathaway that one child in every 500 should be included in this group.⁴⁸

DISORDERS OF SPEECH

There are no accurate figures on the number of adults with speech disorders, but it has been estimated that approximately 10 per cent of all school children in the United States have some form of

speech difficulty, and that in 5 per cent, the disorders are of a serious or complex nature.⁴⁹ The White House Conference of 1930 reported that 1,000,000 school children between ages 5 and 19 had speech disorders sufficiently severe as to require treatment, and noted that this did not include those who left school before the age of 18.⁵⁰ Numerous school surveys have indicated that at least 3 to 5 per cent of all school children have speech disorders serious enough to demand special assistance.

SUMMARY

Although reliable statistics and data on the numbers of disabled are incomplete, there is certainly sufficient information to conclude that (1) the totals are tremendous, (2) the rehabilitation needs of but a small percentage are being met, and, (3) in most instances those needs could be met more effectively. A scientific enumeration of the total number of disabled in the nation would be helpful for future planning, but our primary efforts could profitably be directed toward providing more and better services for the millions of cases already known.

REFERENCES

1. S. 2319. A Bill To Provide for a Survey of Physically Handicapped Citizens. Introduced by Senator Johnson of Colorado on March 15, 1948, and referred to the Committee on Post Office and Civil Service.
2. The Magnitude of Chronic Disease Problems in the United States. *The National Health Survey, 1935-1936*. Washington: U. S. Public Health Service, 1938.
3. Bigelow, G. H., and Lombard, H. L. *Cancer and Other Chronic Disease in Massachusetts*. Boston: Houghton-Mifflin, 1933.
4. Jarrett, Mary C. *Chronic Illness in New York City*. New York: Columbia University Press, 1933.
5. Downes, Jean. Findings of the Study of Chronic Disease in the Eastern Health District of Baltimore. *Midwest Med. Fund Quart.*, Oct., 1944.
6. Munger, Claude W., and Jarrett, Mary C. *The Care of Chronic Disease in Pittsburgh and Allegheny County*. Pittsburgh: Federation of Social Agencies, 1947.
7. Unpublished survey of Chronic Disease in New Haven, Connecticut, by the School of Public Health, Yale University College of Medicine, 1943.
8. Kistner, Bernard D. The Physically Handicapped. *Pub. Health Rep.* 58, 43:1573-1592, (Oct. 22), 1943.
9. Karpinos, *ibid.*, Table 2.
10. Karpinos, *ibid.*, Table 3.
11. Kessler, Henry H. *Rehabilitation of the Physically Handicapped*. New York: Columbia University Press, 1947, p. 17.
12. Physical Examinations of Selective Service Registrants in the Final Months of the War. *Med. Stat. Bull. No. 4*, Washington: National Headquarters, Selective Service System, June 1, 1946, p. 36.
13. Testimony of Mrs. Agnes Schnaus, American Federation of the Physically Handicapped. Report of the Subcommittee to Investigate Aid to the Physically Handicapped, House of Representatives, 78th Congress, 2nd Session, p. 1097.
14. Klopsteg, Dr. Paul W. *Terminal Reports on Artificial Limbs*. Washington: National Research Council Committee on Artificial Limbs, 1947, p. 7.
15. Schnaus, *ibid.*, p. 1099.
16. Klopsteg, *ibid.*, p. 7.
17. Schnaus, *ibid.*, p. 1099.
18. Kessler, Henry H. *The Crippled and Disabled*. New York: Columbia University Press, 1935, p. 36.
19. White House Conference on Child Health and Protection Committee on Physically and Mentally Handicapped. *The Handicapped Child*, New York: Appleton-Century, 1933, p. 134.
20. *Facts About Crippled Children*. Washington: Government Printing Office, 1945, p. 1.
21. Perlstein, M. A. *The Problem of Cerebral Palsy Today*. New York: Association for the Aid of Crippled Children, 1947, p. 9.
22. Phelps, Winthrop. Recent Significant Trends in the Care of Cerebral Palsy. *South. M. J.*, 39:132 (Feb.), 1946.
23. U. S. Children's Bureau, Social Security Administration, Federal Security Agency, Press release of Apr. 14, 1947.
24. All figures from publications of the National Foundation for Infantile Paralysis.
25. Glaser, M. A., and Irons, M. Is the Epileptic a Safe Motor Vehicle Driver. *J. Nerv. & Ment. Dis.*, 103:21 (Jan.), 1946.
26. Sands, Harry. Epileptic Child Can Lead a Normal Life. *The Child*, 10:189 (June), 1946.
27. Statement of Dr. Rolla E. Dyer, Assistant Surgeon General, U. S. Public Health Service in memorandum of May 28, 1947.
28. Paul, J. R. *Epidemiology of Rheumatic Fever and Some of Its Public Health Aspects*. New York: Metropolitan Life Insurance Co., 1943.
29. Jones, T. D., and Bland, E. F. Rheumatic Fever and Heart Disease; Completed 10 Year Observations on 1,000 Patients. *Tr. A. Am. Physicians*, 57:265, 1942.
30. *Med. Stat. Bull. No. 4*, *op. cit.*, p. 36.
31. Spiegelman, M., and Marks, H. Age and Sex Variations in the Prevalence and Onset of Diabetes Mellitus. *A.J.P.H.*, 36:26 (Jan.), 1946.
32. Joslin, Elliott P. Diabetes in 1948. *Am. Diabetes Forecast* 1:16 (Jan.), 1948.
33. Statement of Holland Hudson, National Tuberculosis Association before the Subcommittee to Investigate Aid to the Physically Handicapped, House of Representatives, 1st sess. July 10, 1945, p. 1521.
34. Siltzbach, Louis E. *Clinical Evaluation of the Rehabilitation of the Tuberculous*. New York: National Tuberculosis Association, 1944, p. 57.
35. Testimony of Dr. Haven Emerson before the Subcommittee to Investigate Aid to the Physically Handicapped, House of Representatives, 78th Congress, 2nd sess. October 3, 1944.
36. Statement of Dr. C. Stewart Nash, President of the American Hearing Society in press release of September 1, 1946.
37. Silverman, S. R., and Taylor, S. G. The Choice and Use of Hearing Aids in Hearing and Deafness: A Guide for the Layman, edited by Hallowell Davis, M.D., New York: Murray Hill Press, 1947, p. 211.

38. Statement of Estelle Samuelson, Executive Secretary, New York League for the Hard of Hearing, by telephone, February 14, 1946.

39. Silverman, S. R. Hard of Hearing Children, in *Hearing and Deafness*, *ibid.*, p. 354.

40. Press release, Office of Vocational Rehabilitation, Federal Security Agency, Washington, D. C., November 10, 1947.

41. Canfield, Norton. Rehabilitation of the Deafened. An address before the Colorado State Medical Society on September 13, 1946.

42. Compilation of the Claims Statistics Service, Office of the Assistant Administrator for Claims, Veterans Administration, Washington, D. C., October 1, 1947.

43. Statement of Dr. C. Stewart Nash, *ibid.*

44. Yahres, Herbert. *What Do You Know about*

Blindness. New York: Public Affairs Committee, 1947, p. 4.

45. *Pub. Health Rep.*, 56:46 (Nov.), 1941.

46. Berthold, Lowenfeld, Director of Educational Research, American Foundation for the Blind, Letter of March 15, 1948.

47. Hathaway, Winifred. *Education and Health of the Partially Seeing Child*. New York: Columbia University Press, 1947, p. 3.

48. Hathaway, Winifred. *Education and Health of the Partially Seeing Child*. New York: Columbia University Press, 1943, p. 26.

49. Johnson, Wendell. Some Children You Should Know, in *Children Who Are Exceptional*. Chicago: National Congress of Parents and Teachers, 1945. p. 24.

50. White House Conference on Child Health and Protection, *ibid.*

The Participation of Puerto Rico in the Federal Health and Hospital Program*

E. GARRIDO MORALES, M.D., DR.P.H., F.A.P.H.A.

*Hospital Administration Consultant, U. S. Public Health Service,
San Juan, Puerto Rico*

THERE is perhaps no other community under the American flag where there is greater need for health and hospital facilities than the Island of Puerto Rico. An extremely high population density, together with a peculiar socioeconomic structure and a tropical environment results in widespread unemployment, comparatively low wages, low standards of living, and a high incidence of disease, notably diarrhea and enteritis, tuberculosis, hookworm, and malaria.

The seriousness of these health problems is evident if we realize that during the past several years diarrhea and enteritis and tuberculosis, 2 preventable diseases susceptible to control measures, have been responsible for approximately one-third of the total number of deaths registered on the Island. Out of a total of 27,570 deaths from all causes recorded on the Island during the year 1946, 4,697 were certified as diarrhea and enteritis and 4,317 were reported as caused by tuberculosis. Maternal and infant mortality is higher in Puerto Rico than in comparable communities in continental United States. Only 20 per cent of the total births recorded on the Island during the fiscal year 1947 occurred in hospitals and 71 per cent of the total deaths registered during the year 1946

were certified by physicians without attendance for the last illness.

Intestinal parasite infestations are extremely common, especially in mountainous districts of the Island, and although it is generally accepted that the severity of infections has decreased as a result of sanitation and treatment programs sponsored by the Insular Health Department during the last 25 years, the proportion of infected persons remains extremely high. Malaria is endemic and, although there has been a considerable reduction in the mortality rate as well as the parasite index during the last 15 years, the disease still remains as a major public health problem since there are numerous anopheline breeding areas which are potential foci of infection.

Although there are few reports on the incidence of syphilis in Puerto Rico, it has been estimated that approximately 10 per cent of the urban and 5 per cent of the rural population have a positive serology, presumably of syphilitic origin. Out of 32,000 blood specimens examined from selectees on the Island during World War II, 12.8 per cent showed a positive serology.

According to the Organic Act of Puerto Rico approved by the United States Congress during the year 1917, the Commissioner of Health is in charge of all matters pertaining to health and charities on the Island. In harmony

* Presented before the Seventh Annual Meeting of the Puerto Rico Public Health Association held in San Juan, Puerto Rico. February 11, 1948

with the provisions of the Organic Act, the Insular Department of Health has 3 divisions, namely: Public Health, Hospitals, and Public Welfare.

It is an accepted fact that provision of health services under full-time medical officers is a fundamental need of every community. During the year 1926, the first full-time health unit was organized in the municipality of Rio Piedras. By 1938 the entire population of the Island covering 76 municipalities was served by health units under full-time medical officers. A program of rural medical dispensaries, which was being operated by the Puerto Rico Reconstruction Administration, was transferred to the Insular Department of Health during the year 1938 and a total of 33 dispensaries were operated during the fiscal year 1941, and 55 during the fiscal year 1942. At the present time the Insular Health Department operates 76 health units out of which 51 are in rented buildings; 10 sub-units in urban communities, out of which 7 are in rented buildings; and 83 rural medical dispensaries, out of which 5 are in rented buildings. A total of 22 tuberculosis clinics for diagnosis and ambulatory pneumothorax treatment are operated as a part of the health unit program.

During the past 10 years the U. S. Public Health Service has been carrying out coöperative programs through grants-in-aid to the Insular Health Department for the solution of many health problems, particularly venereal diseases, tuberculosis, and general health. Programs related to maternal and child health, child welfare, and aid to crippled children are being carried out in coöperation with the U. S. Children's Bureau, which functions under the Federal Security Agency.

Funds made available to the Insular Health Department during a period of 10 years, totalled \$84,752,776 out of which \$4,588,675 were allotted by the

U. S. Public Health Service for General Health, Venereal Diseases, and Tuberculosis Control. Beginning with the fiscal year 1944, approximately one-third of these funds are expended for public health, one-third for hospital care of the indigent, and one-third for public welfare.

The employment of trained personnel is essential to the success of any public health or medical care program. Unfortunately there are not enough physicians, registered nurses, laboratory technicians, sanitarians, health educators, and other technical personnel to carry out the medical and public health work that is needed on the Island but this is also true to some extent on the Continent. Progress, however, has been made and the provision of fellowships by the University and the Insular Department of Health, together with the establishment of a department of public health for graduate training at the School of Tropical Medicine, are steps forward in the right direction.

The per capita income in Puerto Rico is extremely low as compared with similar communities in the Continental United States. According to a survey carried out by Mountin, Pennel, and Flock¹ during the year 1935, 90 per cent of a representative group, including 6,000 families in Puerto Rico, had an income of less than \$500 per year while only 4 per cent earned \$1,000 per year or more. The average annual income per family was estimated to be approximately \$230. Another survey conducted during the year 1941 among 2,000 rural and urban wage earners' families scattered throughout the Island revealed that the average annual income per family was \$341. The 1941 study was sponsored by the Insular Department of Labor and the Works Progress Administration. Although it is believed that these incomes are higher at the present time, the fact still remains that the great majority of the people on the

Island cannot afford to pay for medical services, including hospitalization.

With the exception of mental, tuberculous, and contagious patients, which are cared for in Insular institutions operated by the Department of Health, the care of the indigent sick has been a responsibility of the different municipalities. During the year 1935, a survey carried out by the U. S. Public Health Service revealed that the Insular Health Department operated a psychopathic hospital for 1,000 patients, 4 tuberculosis hospitals with a capacity for 1,400 beds, a contagious hospital for 50 beds, and a leper colony for 90 patients.

The survey revealed that the type of medical services rendered by the great majority of the 76 municipalities of the Island was not in accordance with modern medical practice. Data collected showed that during the year 1935 there were 97 general hospitals with a capacity of 3,588 beds on the Island. Out of this number, 61 with 2,017 beds were owned by municipal governments, 2 with a capacity of 130 beds were owned by the Insular Government, and 34 with a total of 1,441 beds were private. Out of a total of 76 municipalities on the Island, with a population of approximately 2 million people, 61 owned municipal hospitals, 7 of which were not used for the care of patients and 15 did not have a hospital building. First-class municipalities operated 5 hospitals with a capacity for 757 beds, 22 second-class municipalities operated hospitals with a capacity for 718 beds, and 34 third-class municipalities operated hospitals with a capacity for 542 patients.

Expenditures for all purposes in the 76 municipalities during the year 1935 totalled \$5,594,545, out of which \$2,705,320 was expended by five first-class municipalities, \$1,760,316 by 22 second-class municipalities, and \$1,128,907 by 34 third-class municipalities. First-class municipalities used 18.1 per

cent of their total expenditures for medical care as compared with 19.8 per cent and 16.5 per cent of total expenditures, respectively, used by second- and third-class municipalities for the same purpose.

There was no x-ray or clinical laboratory in any of the hospitals located in third-class municipalities. Out of 22 hospitals located in second-class municipalities, 4 had some laboratory facilities and only 1 had x-ray equipment. Three out of 5 hospitals located in first-class municipalities had laboratory equipment and 4 had x-ray machines. Kitchen and laundry equipment were inadequate for the demands in municipal hospitals of all categories.

During the year 1935 there were 131 physicians employed by municipalities for the care of the indigent sick out of a total of 436 registered on the Island. Only 87 graduate nurses were employed in the medical care program of these municipalities.

According to a survey conducted by the Insular Health Department during the latter part of the year 1947, there were 1,298 beds for the care of mental patients, 2,254 beds for the care of tuberculosis patients, and 6,753 beds in general hospitals on the Island. Out of the total mental beds, 1,000 are government owned and 298 are private. Out of the total beds reported for tuberculosis patients, 1,892 are owned by the Insular Government and 362 are in private hospitals. There have been no additional beds provided for the care and treatment of mental patients since the year 1929, and only 400 additional beds at the Cayey Hospital, which has not begun to operate, have been provided for tuberculosis patients since the year 1935. A preventorium for approximately 100 beds was converted into a sanatorium for children of school age during the year 1942.

General hospital beds operated by the Insular Government increased from

130 in 1935 to 1,287 in 1947 through the construction of 4 district hospitals during the year 1938. Three out of these 4 district hospitals are on the approved list of the American Medical Association and the American College of Surgeons.

The number of beds in municipal hospitals increased from a total of 2,017 reported during the year 1935 to 2,145 recorded during the 1947 survey, or 128 beds in a period of 12 years. The expenditures reported for medical care in all municipalities increased from \$1,023,564 during the year 1935 to \$2,780,643 during the year 1947, or an increase of 171.6 per cent. First-class municipalities expended \$488,335 during the year 1935 as compared with \$1,179,468 during the year 1947; second-class municipalities increased their expenditures from \$349,371 to \$932,676 during the same period, and third-class municipalities from \$185,858 to \$668,499. Data collected by the Insular Health Department during the 1947 survey of hospital facilities, as well as a personal inspection of a large number of municipal hospitals visited during the years 1935 and 1947, seem to warrant the statement that with the exception of the municipal hospital in the city of San Juan, and perhaps 1 or 2 other municipalities, there has been no improvement in the quality of medical services provided by municipal hospitals at present as compared with conditions revealed by the 1935 survey. Only 6 municipal hospitals had x-ray equipment in 1947 as compared with 5 during the year 1935, and 5 had laboratory facilities during 1947 as compared with 7 which reported such facilities during the 1935 survey. Twenty-nine out of 55 municipal hospitals registered during the year 1947 had no graduate nurse. One first-class municipality which operated a hospital for 175 beds reported no graduate nurse working on the staff although this hospital employed

10 physicians and 56 nurses aides.

Professional and other civic groups on the Island agree that medical care furnished by the municipalities is far below the standards of modern medical practice. Since the Insular Government, through its Department of Health, already operates a medical care program, including the maintenance of institutions for the care of mental and tuberculous patients, as well as 4 general hospitals, it is highly desirable that the Insular Health Department be made responsible for the operation of the medical care program for the entire Island. In the event this could not be worked out, then the Department of Health should participate financially in the support of such medical care programs in all municipalities willing to adopt standards of care promulgated by the Commissioner of Health with the advice of the Insular Hospital Council.

Public Law 725 of the 79th Congress provides federal assistance to states and territories for the construction of health centers, mental, tuberculosis, general, and chronic hospitals, after a survey of needs has been carried out and a state-wide plan formulated, to serve the entire population.

The law authorizes the Surgeon General of the U. S. Public Health Service to promulgate regulations, with the advice of the Federal Hospital Council.

The Hospital Survey and Construction Act authorizes the expenditure of \$3,000,000 to assist states and territories in the survey and planning phase of the program, and \$75,000,000 annually for a period of 5 years to assist states in the provision of physical facilities. No funds are authorized in the law for the maintenance of hospitals. The appropriation Act as passed by Congress this year provides that states' applications for construction funds and approval of their application by the Surgeon General would constitute contractual obligations on the part of the

federal government. Up to \$75,000,000 can be obligated during the fiscal year 1947-1948. Puerto Rico has been allotted \$2,461,875 for the construction of hospitals during the fiscal year ending June 30, 1948. If Congress appropriates every year the sum authorized by Public Law 725, during a period of 5 years Puerto Rico will have available \$12,309,375 of federal funds for the construction of health centers, hospitals, and related facilities. Non-federal funds are to be available for two-thirds of every project that is constructed. There must be reasonable assurance that funds will be available for maintenance after completion of the facility.

In accordance with the provisions of Public Law 725, 79th Congress, and the regulations promulgated by the Surgeon General of the U. S. Public Health Service, the Island of Puerto Rico needs 10,190 beds for mental patients; 11,593 beds for tuberculous patients; 9,174 general hospital beds, and 4,018 beds for chronic illnesses. The survey carried out by the Insular Health Department during the latter part of the year 1947, revealed that there was a total of 1,298 acceptable beds for mental patients on the Island out of which 1,000 were owned by the Insular Government and 298 were private. This leaves a total of 8,892 beds required to supply the need for this type of patients. The survey further showed that there were 2,254 beds for the isolation of tuberculosis patients out of which 1,892 were owned by the Insular Government and 362 were in private hospitals leaving a total of 9,339 to be constructed in order to supply the needs of $2\frac{1}{2}$ beds per annual death taking the average for the 5 year period 1940-1945.

Beds in general hospitals totalled 6,753 out of which 1,287 were operated by the Insular Government, 2,145 by the municipalities, and 3,321 were maintained by private institutions. Of the private hospital beds 2,241 were in pro-

prietary hospitals and 1,080 in non-profit institutions. A total of 908 beds (364 municipal and 544 private) in general hospitals were considered not acceptable for obvious reasons, leaving a total of 5,845 acceptable general hospital beds for the entire Island and a total of 3,329 general hospital beds required for the needs of the Island.

Only 60 beds for chronic illnesses were revealed by the survey with 3,958 required to meet the needs of the Island.

It is very difficult to estimate the approximate cost of a construction program of health centers and hospital facilities such as that needed for Puerto Rico, not only because of the unsettled condition in the construction industry which is unquestionably subject to changes in a long-range program such as that contemplated, but also because construction estimates for the continental United States are not applicable to Puerto Rico for obvious reasons. However, after careful consideration of available data it has been estimated that a total of \$101,443,000 is required for the construction of the overall program in Puerto Rico which includes 25,518 hospital beds. This estimate includes 8,892 beds for mental patients at \$4,000 per bed, 9,339 beds for tuberculous patients at \$4,000 per bed, 3,329 general hospital beds at \$5,000 per bed, and 3,958 beds for chronic patients at \$3,000 per bed. Construction of health centers is not included in this estimate because there are no final figures available as to the number of these centers needed for the Island in accordance with federal standards. However, since the entire population covering 76 municipalities is now served by health services and 58 health units or sub-units in urban communities, and 5 rural medical dispensaries are located in rented buildings, we believe that \$3,000,000 will be required to provide physical facilities, for health services which are now located in rented buildings.

Estimated funds required for the maintenance of additional hospital facilities needed in Puerto Rico, based on present expenditure by the Insular Department of Health for the maintenance and operation of similar institutions totalled \$21,508,500 per annum.

This estimate is based on an annual expenditure of \$1,500 per bed for general hospitals, \$800 for tuberculosis hospitals, \$750 for mental institutions, and \$600 for chronic hospitals.

High government officials are of the opinion that Insular funds required for construction, maintenance and operation of such a comprehensive hospital program, would not be available in the future. It is believed, however, that funds will be available to construct and operate a substantial part of the program. Upon recommendation of the Hon. Jesus T. Piñero, Governor of Puerto Rico, the Insular Legislature on May 7, 1947, approved Act No. 50 (House Bill No. 1374). This law designates the Commissioner of Health, with the advice of an Insular Hospital Board, to carry out an inventory of existing hospital facilities, formulate an Island-wide plan of needs, and supervise the construction program. Act No. 50 appropriates the sum of \$92,000 for survey and planning and \$5,225,000 for the construction of needed hospitals and health centers. Since non-federal funds are to be available for two-thirds of the construction cost of projects, funds already appropriated by the Insular Legislature are slightly over what is needed to match the federal allotment for the fiscal year ending June 30, 1948. It is expected that funds will be appropriated during the present session of the Insular Legislature to match the federal allotment for the fiscal year 1949.

The Federal Hospital Survey and Construction Act requires that each hospital constructed with federal participation must provide a reasonable volume of hospital services to persons unable

to pay, except in cases when such a requirement is not feasible from a financial standpoint. Since it has been estimated that approximately 80 per cent of the Island's population is unable to pay for medical services, presumably the great majority of hospitals to be constructed under the provisions of Public Law 725, 79th Congress, will be sponsored by Insular or municipal governments.

In accordance with the provisions of the Federal Hospital Law, however, private non-profit institutions are eligible for federal participation. Project applications must be submitted through the Commissioner of Health and should be in accordance with the Insular hospital plan. In all cases the facilities to be built must meet minimum federal standards, there must be reasonable assurance that funds will be available for the operation of the facility after the project has been completed and licensure legislation providing minimum standards for the maintenance and operation of hospitals receiving federal aid must be enacted by the Insular Legislature by July, 1948.

Before closing I should like to state that the formulation of a sound Island-wide health and hospital plan is the responsibility of the Commissioner of Health of Puerto Rico with the advice of the Insular Hospital Council. Before the plan is submitted for the approval of the Surgeon General of the U. S. Public Health Service it is required that a public hearing be held. Representatives of the medical and allied professions, as well as members of different professional and civic organizations, will have the opportunity to make suggestions. The Surgeon General will approve the Insular plan if it conforms to the federal act and regulations.

REFERENCE

1. Mountin, Pennel, and Flock. Illness and Medical Care in Puerto Rico. *Pub. Health Bull.*, No. 237, June, 1947.

Coördination of Preventive and Curative Services in Maryland

WILLIAM H. F. WARTHEN, M.D., M.P.H., F.A.P.H.A.

Health Officer of Baltimore County, Towson, Md.

THE origins and purposes of the program for supplying medical care to those in the counties of Maryland who would not otherwise receive it have been reviewed and the techniques of administering the fee-for-service plan described.¹ It has been pointed out that the delegation of administrative responsibility for the program was made possible by the pattern of organization of full-time county health departments which have been developed during the last two decades in all of the 23 counties of Maryland.² Some concern, however, has been expressed by those who have recently studied the Maryland plan about the justification of health department administration of medical care unless the official health agency can make all the proved preventive services available to clients of the medical care program.³ In May of 1947, a little more than two years after the law was passed creating a Bureau of Medical Services, Dr. Robert H. Riley, Director of the Maryland State Department of Health, appointed a committee of staff members* to study, discuss, and make recommendations concerning the ways and means for establishing policies to

promote closer coördination between the preventive and the curative services of the department. The committee has found that medical care in Maryland is logically a function of the State Department of Health. It has been determined as well that much has already been accomplished in integrating the preventive and curative services of local health departments, but much more can and should be done in this highly important endeavor.

THE COUNTY ADVISORY COMMITTEE ON MEDICAL CARE

One of the first decisions reached by the Maryland state-wide Council on Medical Care whose establishment was provided for in one of the sections of the Medical Care Law, was the creation in each county of a County Advisory Committee on Medical Care.

The membership of this Advisory Committee as originally suggested was to include 3 physicians nominated by the county medical society; 1 representative of the county or district dental society, and 1 pharmacist chosen by the Maryland Pharmaceutical Association. The Executive Secretary of the County Welfare Board, the Chairman of the Board of County Commissioners or his delegate, and the county health officer were to serve *ex officio*. The health officer was to serve as Chairman. The Council further recommended that additional members named by the health officer should be chosen from minority racial groups, from the Department of

* Committee on the Coördination of Preventive and Curative Services: P. F. Prather, M.D., Deputy State Health Officer of Washington County, W. B. Johnson, M.D., Deputy State Health Officer of Dorchester County, William A. Harris, M.D., Deputy State Health Officer of Charles County, Dean Roberts, M.D., Chief, Bureau of Medical Services, Maryland State Department of Health, W. Ross Cameron, M.D., Chief, Division of Cancer Control, Maryland State Department of Health, William H. F. Warthen, M.D., Deputy State Health Officer of Baltimore County, Chairman.

Education, the local hospitals, and existing special lay health organizations.

The health officers of the several counties at once organized committees on medical care in accordance with recommendations of the Council. It was soon evident from the experience of many counties that the health officer could develop a close working relationship between the practitioners of medicine and the health department by the active operation of such a committee on medical care. The most valuable function of such a committee is to advise the health officer in regard to local situations in the county so that he may plan and carry out more intelligently and effectively a program adjusted to the needs of his particular area.

The effective functioning of an advisory committee on medical care or other similar counseling group depends largely upon the success of the individual health officer in bringing together the key people in the official agencies and in the important professional and lay groups. A well organized advisory committee is important evidence of successful leadership on the part of a health officer.

The frequency of meetings of a committee may vary with the needs and conditions in individual counties, but there never should be less than 4 meetings each year. A regular monthly meeting is often desirable, but where the committee is large, subcommittee meetings may be held at shorter intervals and the meetings of the whole committee less frequently. Some health officers may wish to enlarge the membership of the committees, as was recently recommended by the State Council, and to expand the advisory function of the committee to cover all functions of the health department, preventive or curative.

THE COUNTY HEALTH DEPARTMENT AND THE PRIVATE PHYSICIAN

At the beginning of the medical care

program each health officer presented the proposed plan to his county medical society for its endorsement. It is both wise and proper for the health officer to make periodic reports to the society on the progress of the various phases of the program. The frequency of these reports must, of course, depend upon the judgment of the health officer.

A personal interview between the health officer and every new physician who establishes a practice in the county is a valuable means of promoting a close working relationship between these practitioners and the health department. In this interview, the medical care and preventive program can be fully explained. In some counties the health officer may be able to visit periodically all the private physicians practicing in his county. Where this is possible, the health officer is able to keep the practitioner fully informed regarding his working connection with the services of the health department.

Another valuable aid in securing the fullest coöperation between the health department and the private practitioners of medicine is a regular visit by the public health nurse to the private physicians in her district. The purpose of the visit should be to explain to the physician the ways in which she may be helpful in his work with his own patients. Such visits by the public health nurse are, however, of value only when the health officer has already established a friendly coöperative relationship with the particular physician to be visited.

The Committee on Coördination recognizes the need for a more effective program of public health education and of better public relations, particularly with the professional groups primarily concerned. A striking example of poor practice in such matters is the large number of mimeographed sheets now sent in unsealed envelopes to physicians. This practice should be changed at once

if public health information is to be gotten to the private physician in such a way as to produce effective action.

PATIENT MASTER INDEX FILE OF PREVENTIVE AND CURATIVE SERVICES

At the present time each county health department maintains a separate file of records for each specialized program. A single patient or family may have records in as many as four or five of these files, but the files are seldom crossed-indexed or coördinated. For example, when a patient comes to a maternity hygiene clinic there is no simple way of determining whether or not this patient has also received service from any other department program, such as tuberculosis or medical care. In order to provide a simple means for assembling all the pertinent data concerning a particular patient, a master index file should be maintained in each health department. This file would contain a separate card for each individual served by any program, preventive or curative, of the health department.

The card should include the name, color, sex, date of birth, and, to prevent confusion of patients with the same name, the name of the head of the family. There would be entered on each card the type of any clinical record already on file in the health department and the place in which it is to be found. The type and location of records may be indicated by abbreviations or coded numbers if that seems desirable. Inactive records should be easily recognizable. It is most important that the individual cards be filed in alphabetical order by surname and be readily available, completely summarized, and easy to use.

The maintenance of a master index file in each county health department should be made the duty of one individual who is charged with the responsibility for making all entries and keeping the file current and in satisfactory

order. Provision must be made for all new information regarding active or closed cases to be reported at once by field and clinic workers to the person in charge of the file.

PERIODIC REVIEW OF MEDICAL CARE CASE SUMMARY RECORDS

The Medical Care Case Summary Record used in local health departments in Maryland contains information which, if carefully reviewed by the health officer, gives valuable aid in determining the amount, kind, and quality of care that is being given. A periodic review of these records is perhaps the best means of becoming familiar with the overall operation of the program in a county and with the individuals receiving care as well. These summary sheets are made up from the *Medical Reports of Services Rendered* and *Dental Reports of Services Rendered*, which are the monthly statements of the services rendered by individual physicians or dentists. These service records have been designed to give the maximum possible amount of useful information without being unduly burdensome to physicians and dentists rendering care under the program.

The medical care clerk should in the course of her daily work, set aside for review by the health officer or his representative, groups of summary records on the basis of the following criteria: (1) cases costing more than \$50 in a period of 6 months, excepting obstetrics and surgery, or cases costing more than \$25 in a period of one month, with the same exceptions; (2) all cases showing use by a client of two or more physicians in any one month, unless one of the two is a consultant; (3) all cases having multiple diagnoses; (4) all cases needing special attention such as reportable diseases, cancer, heart disease, or diabetes.

The health officer may set aside a regular time for reviewing the informa-

tion on the summary records which have been chosen by the medical care clerk on the basis of the criteria cited above. In this review, evidence of inadequacy of medical care or of abuse of the program by vendees or vendors may be noted, any apparent discrepancy between the diagnosis as recorded by the physician and the amount and character of service reported as given may be recognized, and the health officer may be able to judge if the preventive measures offered by the health department have been fully utilized, or if the case is in need of hospitalization.

The county advisory committee on medical care can and should play an active part in assisting the health officer in reviewing any of the summary records that present special difficulties or that cannot be handled in a routine manner. The committee can be of invaluable assistance to the health officer in difficult and puzzling cases, particularly when the health officer feels need of the advice of medical men better acquainted than himself with current clinical procedures.

When found necessary, or advisable, the health officer should confer personally with the physician treating a patient whose records present any unusual features and should discuss with him the findings about which question has arisen. Any action of a health officer in disposing of difficult or controversial cases should take into account the available diagnostic, clinical, and rehabilitation services available in the community. Each health officer should work out a method of his own for the disposition of especially difficult cases. He may, for example, after consultation with his county advisory committee, decide to form a subcommittee consisting of physician members who would sit with him individually or collectively when he confers in his own office with a particular physician who appears, from the data on the case summary

record of cases treated by him, to be incompletely informed or to have misinterpreted the provisions of the program or who seems to be abusing the service.

The health officer should always keep in mind that these situations are the most liable of all his relations with physicians to give rise to misunderstanding and resentment. Each case should be handled with extreme care and with the utmost tact and consideration. To suggest even indirectly that the physician is neglecting the patient on the one hand, or making unnecessary visits on the other, will almost always arouse antagonism and may permanently destroy the possibility of maintaining good relations between the physician and the health department.

CONSULTATION SERVICES

The medical care program should not establish consultation services which in any way duplicate those already in operation. Every effort should be made, however, to encourage full utilization of existing clinics by patients who are eligible under the medical care program, as well as by patients who are eligible under other health programs. Physicians should be encouraged to refer such patients as are in need of consultation services to the orthopedic, cardiac, and hearing clinics sponsored by the crippled children's program. The services of the chest clinics are also fully available to clients of the medical care program. The medical care program discovers many patients with complicated gynecological problems who are greatly in need of consultation services; and consultation clinics in gynecology will soon be developed by the Bureau of Child Hygiene.

The Bureau of Medical Services should endeavor to supplement existing consultation services by the establishment, as soon as is practicable, of consultation clinics in such fields as ophthal-

mology, internal medicine, surgery, and in any other fields in which such service is needed and not now available. The medical staffs of these consultation clinics should possess the highest possible professional qualifications. They should preferably be licentiates of the appropriate specialty board or have equivalent training and experience. Wherever practicable, use should be made of members of the faculties of the medical schools of the state.

PUBLIC HEALTH NURSING VISITS TO MEDICAL CARE PATIENTS

The health department should make every effort to have a public health nurse visit each case or family as soon as possible after admission to any of its services. The visit should be designed both to determine the health needs of the patient and his family and to give any necessary nursing care. The nurse should always attempt to teach someone in the home to render as much of the necessary nursing care as possible so that too frequent nursing visits will not be required.

Before inaugurating such a nursing system, the health officer should discuss with his advisory committee the method of arranging with the attending physicians for nursing visits. In most cases it would seem advisable for the health officer to present the matter to every eligible physician at the beginning of the program, either individually or at a meeting of the county medical society. This should do much to avoid misunderstanding on the part of physicians and prevent the development of any feeling that the nurses are in any manner checking up on attending physicians.

All cases enrolled in the medical care program should, as far as practicable, be visited periodically by the public health nurse. Such visits will frequently bring to the attention of the nurse other persons in the family who need either preventive or curative service which might

be provided by the health department. All cases should be visited which have not been seen by the nurse within the period specified in the nursing policy of the department. This period will vary according to the need of individual cases and will of course be dependent upon the nursing personnel available. The actual planning of the frequency of visits will, therefore, be based on the judgment of the health officer. In all visits of this nature and in all plans for the care of patients and families visited, the public health nurse should be guided by the *Nursing Manual of the Maryland State Department of Health*.

PHYSICAL EXAMINATIONS

It is evident to everyone familiar with the medical problems in the social and economic classes from which come most of the patients receiving medical care under the state program, that there exists in this group a great reservoir of unrecognized, and therefore untreated, disease and defect. Ideally, it would perhaps be advisable to provide a system whereby all recipients of the service would receive a complete physical examination at the time of their enrollment and at stated periods thereafter.

The economic and technical difficulties in the way of establishing such a system are at present so great, however, that it is obviously impracticable to attempt to put it into effect at this time. It is, therefore, all the more important that the facilities for diagnosis now available should be used to the fullest possible extent.

Two of the most valuable aids to diagnosis, an x-ray of the chest and a chemical and microscopic examination of the urine, can now be provided without difficulty through the existing facilities of local departments of health. It would, therefore, seem the part of wisdom to explore the possibility of furnishing these two diagnostic services to every

new case enrolled for medical care. The results of this exploratory procedure may well point the road to a practicable plan for more comprehensive examinations in the future.

CHILD HYGIENE SERVICES

Present prenatal clinics and obstetrical consultation clinics should be enlarged and expanded and new clinics organized in areas where there is need for increased service to medical care patients, and the present policy of calling the attention of private physicians to the availability of these services should be continued. Child health conferences should similarly be enlarged and new services inaugurated in areas as need arises. This need can frequently be determined on the basis of the distribution within the county of medical care patients less than 6 years of age. Here again, as in maternity hygiene, it is important to interest private physicians in utilizing these child health conferences.

School health service in Maryland is rendered as a joint activity of the departments of education and health and the coördination of preventive and curative medical services for this age group is an extremely complicated matter. It is to be hoped that the joint State School Health Council will be of assistance in this matter, and it is recommended that in each county there be formed a county school health council with the health officer and the superintendent of schools serving as co-chairmen. In this local group the Parent-Teacher Association, the medical society, and the dental society should also be represented. These councils should have regular monthly meetings if they are to succeed in securing the necessary improvement in the coördination of school health with other health department services.

DENTAL SERVICES

The complexities involved in rendering either preventive or curative dental

services by public agencies make it a major problem in public health. Among the difficulties are: (1) the almost universal prevalence of dental caries, the results of previous failure to treat dental caries and the recurrent character of dental diseases; (2) the inadequacies of present facilities for dental services; and (3) the great lack of appreciation on the part of the public of the importance of oral health, of the value of preventive dental practices, and of "preventive-curative" care for the young age group.

Preventive-curative services include those operative procedures carried out, usually in younger children, as a means of preventing incipient and small defects from becoming gross. This activity is the one that promises the best results so far as future dental health is concerned. It is essential to the success of such a service that it be concentrated on the full meeting of all the dental needs of as many individuals as possible rather than the partial meeting of the needs of larger groups. The eventual evaluation of a dental health program may well be based on a high ratio of the number of teeth conserved by filling as against the number extracted.

Restorative dental service includes those procedures necessitated by previous failure to employ the foregoing "preventive" practices, and in older age groups is based principally on the necessity for: (a) masticatory functions; (b) appearance, as influencing employability; and (c) health as it is influenced by lack of functions and by appearance.

There is obvious need for a closer correlation between health departments and the dental profession if we are to make full use of the profession as part of our general public health activity. A clearer understanding of health department activities by members of the dental profession would well serve both groups, and in the hands of the general

practitioner of dentistry lies the ultimate solution to the problem of dental health.

LABORATORY SERVICES

It is recognized that any program which seeks to correlate preventive and curative services in county health departments will of necessity require an increasingly large volume of service by the public health laboratory for patients of the medical care program. The need for laboratory service is obvious if patients enrolled under the medical care program are to receive adequate service.

Current information concerning laboratory services should be available to all participating in the program. Physicians and department staff members should be advised at once as to extensions or other changes in the service, and efforts should be made to induce them to make full and discriminative use of it.

REHABILITATION SERVICES

The curative services provided by the health department can be substantially strengthened by coördination with the vocational rehabilitation program of the State Department of Education. This rehabilitation program offers a very complete range of services to persons who have a physical disability which constitutes a vocational handicap. For such persons the rehabilitation program provides the following services:

1. General medical examination by the family physician
2. Consultation and diagnostic services when necessary
3. Physical restoration which may include surgery
4. Certain types of medical, dental, and psychiatric treatment
5. Prosthetic appliances including artificial limbs
6. Hearing aids
7. Vocational training, counseling, guidance, and job placement

The services indicated above are available only to persons who offer a reason-

able prospect of placement in remunerative employment. In the review of its cases the health department should keep constantly in mind the possibility of referral of suitable cases to the rehabilitation program.

In order to make full use of the service, the county health departments should receive current literature regarding the rehabilitation services available. It may invite representatives of the rehabilitation service to discuss their program with the staff of the county health department, and may also request the local representative of the vocational program to review periodically with the health officer the records of those cases suitable for rehabilitation.

CONCLUSIONS

Three years after its inauguration in Maryland the medical care program shows satisfactory progress toward absorption into the regular routine of the county health departments. Much still needs to be done to bring the existing preventive services into more perfect alignment with curative services as exemplified by the medical care program. The committee has carefully explored all the factors which in its judgment may so far have had a bearing upon the success of this absorption. It has considered as well those factors which may in the future influence the smooth and speedy establishment of a closer working relationship between the preventive and curative services in the interests of a broadened and more efficient public health service to the people of the state by the several county health departments. The general conclusion has been reached that medical care, as it has been established and applied in Maryland, is properly a function of the state health department and its component local health units. This opinion is concurred in by the deputy health officers who have participated in the discussions of the committee and by those vitally

and immediately concerned in the central office who have been consulted or have supplied material to the committee.

The major assignment of the committee has been the task of bringing into existence a list of ways and means for improving immediately and at long range, whenever possible, the preventive and curative services of the county health departments and for effecting as rapidly as is reasonable a complete integration of these two services. The assignment has been accepted and the task assumed by the committee, and the results of its work are shown in summary form in a series of recommendations. It is with guarded hope for the soundness and lasting practicability of these recommendations that the committee submits them.

RECOMMENDATIONS

1. The county advisory committee on medical care is, when wisely directed by the health officer, a useful instrument in enhancing close working relationships between the health department, the private physician, and other key individuals in official and nonofficial agencies. Such a committee should meet regularly. Serious and immediate consideration should be given to enlarging the membership to include those individuals familiar with school health and general community activities.

2. Periodic reports of the progress of various phases of the complete health department program should be made by the health officer to the county medical society. The frequency and character of these reports must rest entirely with the judgment of the health officer.

3. The health officer should include in his duties a personal interview and conference with each new physician who establishes a practice in the county. This conference should include a thorough review of all health department activities.

4. An effort should be made by the health officer to establish a regular procedure for visits by the public health nurse to the private physicians in her district. This is possible only when the health officer has been able to achieve a friendly, coöperative relationship with the physicians to be visited.

5. There is evident need in the county health departments for a more effective program of public health education and of pub-

lic relations, particularly those directed toward professional groups. The committee recommends that a special committee be appointed to study this problem.

6. Each county health department should establish as soon as practicable a master index file, alphabetically arranged, of individuals receiving services, both preventive and curative, from the health department. This file should be maintained in readily usable and current condition and should form the basis for planning for all services of the health department.

7. The Committee on Coördination of Preventive and Curative Services is strongly of the opinion that it is a highly important and almost necessary procedure in each health department to institute and systematize a review of the data currently entered on the case summary records in order to maintain a satisfactory current knowledge of the way in which the medical care program is being carried out in the county. Review of the information on these records should be a critical one carried out routinely by the health officer or his representative.

The county advisory committee on medical care should play an active part in assisting the health officer in reviewing those records which present special difficulties and cannot be handled in a routine manner.

The attending physician should be asked to make a special review and report on cases which the health officer has found to be receiving continuous care over an unusually long period. The special precautions necessary in this procedure are suggested.

8. Effort should be made to supplement existing consultation services by the establishment of new consultation clinics in such fields as ophthalmology, internal medicine, and surgery, and in any other field in which such services are needed and cannot be made available through existing services.

Physicians staffing consultation clinics should carry the highest possible professional qualifications and be licentiates of the appropriate specialty board or have equivalent training and experience. If possible, they should be members of the faculty of an approved medical school. These consultation services might well be developed under the guidance of a committee representing the University of Maryland School of Medicine and The Johns Hopkins School of Medicine.

9. A continuing effort should be made by county health departments to develop the ideal of having the public health nurse visit each case or family as early as possible after admission to health department services in

order to determine the health needs of the patient and family and to give the necessary nursing care. Before inaugurating this service the health officer should discuss with his advisory committee on medical care the method of clearance of such visits with the patient's physician.

The public health nurse should be guided by the *Nursing Manual of the Maryland State Department of Health* in making visits and planning the care of the patient and family.

10. Consideration should be given to the need for providing routine physical examinations for recipients of medical care, but before attempting to develop any such program, it is believed by the committee to be essential that a careful "pilot" study be conducted in a selected area.

11. Present prenatal clinics and obstetrical consultation clinics should be enlarged, expanded, and organized in new geographical areas as indicated by the demand, to furnish increased care to medical care patients and also to suitable individuals not included in the medical care program.

Wherever possible, application for maternity care in the medical care program should result in an immediate home visit by a public health nurse to determine the need of the patient for existing services and to explain to the patient the availability of these services.

Child health conferences should be enlarged and new ones inaugurated in geographical areas where the need is demonstrated. The standards of need for these conferences should be restudied in terms of distribution within the county of medical care patients less than 6 years of age.

Wherever possible, application for pediatric care should be made the occasion for an immediate visit by a public health nurse. The purpose of the visit should be to determine the need of the patient for existing health department pediatric services, to explain to the patient the availability of these services,

and wherever possible to arrange for enrollment of the infant or child in a child health conference if only for immunization purposes.

Each county health department should adopt the policy of calling to the attention of private physicians and of educators and parents the availability of certain public services for school aged children.

12. Vigorous efforts should be made by the health officer to bring about as soon as possible a closer coördination of the program of the health department with the individual practitioners of dentistry. Specific recommendations as to ways of improving distribution of dental health information to private dentists may be forthcoming, when and if a committee is formed to study public health education and public relations among professional groups as suggested in Recommendation 5 above.

13. It is recommended that laboratory services be enlarged as necessary to meet the growing demands to be placed upon it by patients actually treated clinically in the medical care program.

Steps should be taken to keep the private physicians of the county currently informed concerning the exact nature of the laboratory services which are available.

14. The curative services provided by the health department can be substantially strengthened by coördination with the vocational rehabilitation program of the State Department of Education.

REFERENCES

1. Riley, Robert H. Medical Care in Maryland. *A.J.P.H.*, 36, 8:908-911, (Aug.), 1946.
2. Roberts, Dean W. The Health Department and Medical Care. *A.J.P.H.*, 37, 3:259-263, (Mar.), 1947.
3. Kline, Howard M., Terris, Milton, Hapney, Cozette, and Kramer, Nathan A. *The Maryland Medical Care Program, A Report by the Staff of the Subcommittee on Medical Care, Committee on Administrative Practice*. New York: American Public Health Association, 1948. 151 pp.

Comparison of the Immunogenic and Anaphylactogenic Properties of Rocky Mountain Spotted Fever Vaccines Prepared from Infected Yolk Sacs and from Infected Tick Tissue*

DAVID LACKMAN, PH.D., F.A.P.H.A., AND R. R. PARKER, PH.D.

Senior Assistant Scientist, Rocky Mountain Laboratory; and Director, Rocky Mountain Laboratory, U. S. Public Health Service, Hamilton, Mont.

THE purpose of this study was to determine whether the protein present in the routine yolk-sac and tick-tissue (*Dermacentor andersoni*) vaccines against Rocky Mountain spotted fever as prepared for distribution by the Rocky Mountain Laboratory differed in immunizing value and in ability to produce anaphylaxis in the guinea pig.

METHODS

The lots of vaccine used were standardized by determining nitrogen content and complement-fixing activity against convalescent, Rocky Mountain spotted fever guinea pig sera. For each test both the yolk-sac vaccine and the tick-tissue vaccine were adjusted to the same nitrogen content. Dosages used were from 0.004 mg. to 0.160 mg. total nitrogen. Quantities below those giving complete immunity were purposely chosen so that any differences existing between the vaccines could be detected.

Male guinea pigs were used for the potency tests. Each was injected subcutaneously with the immunizing dose of

vaccine 10 days prior to receiving, intraperitoneally, a challenge dose of blood taken from a guinea pig infected with Rocky Mountain spotted fever. Temperatures were taken daily for 12 to 16 days following challenge. The criteria for immunity were the absence of scrotal swelling and reddening and of a rise in temperature above 39.6° C. At the end of this period they were tested for sensitivity by injecting 1 ml. of the original vaccine intracardially.

TEST DATA AND DISCUSSION

Four tests were made. In each test, a lot of yolk-sac vaccine was compared with a lot of tick-tissue vaccine; equal numbers of guinea pigs receiving each vaccine. The analysis of the vaccine lots used is given in Table 1.

It will be noted that the yolk-sac vaccines contain about three to four times as much total nitrogen as the tick-tissue vaccines. Therefore, the yolk-sac vaccines were diluted three to four times more than the tick-tissue vaccines to bring both preparations to the same nitrogen content.

The results of vaccination are given in Table 2.

* Presented before the Medical Bacteriology Section of the Society of American Bacteriologists at the 48th General Meeting in Minneapolis, Minn., May 12, 1948.

TABLE 1

Data on Vaccine Lots Used

Yolk-sac Vaccine				Tick-tissue Vaccine			
Lot Number	Total N mg./ml.	Complement- free mg.	Complement- free mg. N	Lot Number	Total N mg./ml.	Complement- free mg.	Complement- free mg. N
S-102 *	0.250	1:16	255	S-106 *	0.335	1:4	255
S-114 *	0.339	1:2	20	S-117 *	0.112	1:16	154
S-104 *	0.435	undiluted	11	S-118 *	0.112	1:16	255
S-139 *	0.421	1:2	24	A-1	1.435	1:128	445

* These vaccines passed the preliminary potency tests set up by the U. S. Bureau of Animal Industry.

TABLE 2

Results of Vaccination

	Yolk-sac vaccine	Tick-tissue vaccine
Number vaccinated	65	51
Number developing intercurrent infection	17	12
Number developing Rocky Mountain spotted fever after challenge	31	21
Number showing immunity	20	35
Percentage showing immunity	39%	69%

In each test, 6 normal guinea pigs were injected with the challenge material; all 24 of these animals developed typical Rocky Mountain spotted fever. From the table it can be seen that, of the 51 guinea pigs injected with yolk-sac vaccine and challenged, 20, or 39 per cent, were protected; in the group of 56 vaccinated with equivalent doses of tick-tissue vaccine, 35, or 63 per cent, proved to be immune.

In interpreting these results it should be borne in mind that the yolk-sac vaccines as distributed contain three to four times more nitrogen than the tick-tissue vaccines, whereas, in our experiments, dilutions containing equal amounts of nitrogen were used. In actual practice, if the recommended dosages were used, a patient would receive three to four times the amount of nitrogen with the yolk-sac vaccine as with the tick-tissue vaccine. From the practical standpoint these results indicate that both preparations are about equally active in inducing immunity in guinea pigs to Rocky Mountain spotted fever.

The results of the tests for anaphylactic sensitization are given in Table 3.

From the table it can be observed that 58.5 per cent of the guinea pigs injected with yolk-sac vaccine showed anaphylaxis, whereas none of the guinea pigs injected with an equal amount of tick-tissue vaccine and tested with tick-tissue vaccine showed sensitivity. Guinea pigs recently recovered from spotted fever, and some normal ones, were also injected intracardially with the materials used in challenging for sensitivity as controls upon its primary toxicity; no reactions were noted. Therefore, the reactions obtained in the guinea pigs vaccinated with yolk-sac vaccine probably are due to true anaphylactic sensitization. In evaluating these results it should be pointed out that there is no well established connection between anaphylactogenic properties of an antigen in guinea pigs and the production of sudden deaths in human beings (such reactions often occur on the first injection) by the administration of a foreign protein. Thus, the safety of a product for administration to human beings would depend on

TABLE 3

Results of Tests for Anaphylactic Sensitization

	Yolk-sac vaccine	Tick-tissue vaccine
Number of vaccinated guinea pigs tested with homologous material	41	31
Number showing severe to fatal anaphylaxis	24 (58.5%)	0
Number vaccinated with tick-tissue vaccine and challenged with yolk-sac vaccine		13
Number of these animals showing sensitivity		0

the number of persons naturally sensitive to the protein in question rather than on its ability to produce anaphylaxis in the guinea pig.

CONCLUSIONS

Rocky Mountain spotted fever vaccines prepared from infected yolk sacs

and from tick tissue were about equally active in producing immunity in guinea pigs. The protein present in the tick-tissue vaccines failed to produce anaphylaxis in guinea pigs, whereas that present in yolk-sac vaccines produced anaphylaxis in 58 per cent of the guinea pigs tested.

SUSTAINING MEMBERS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

American Bottlers of Carbonated Beverages,
Washington, D. C.

Amos Company, Inc., Elkhart, Ind.

Association for the Aid of Crippled Children,
New York, N. Y.

Borden Company, New York, N. Y.

Chlorine Institute, Inc., New York, N. Y.

Difco Laboratories, Inc., Detroit, Mich.

Diversey Corporation, Chicago, Ill.

Equitable Life Assurance Society of the United
States, New York, N. Y.

John Hancock Mutual Life Insurance Company,
Boston, Mass.

Hoffman-La Roche, Inc., Nutley, N. J.

Holland-Rantos Company, Inc., New York, N. Y.

International Association of Ice Cream Manu-
facturers, Washington, D. C.

International Equipment Company, Boston, Mass.

Josam Manufacturing Company, Cleveland, Ohio

Lederle Laboratories Division, American Cyana-
mid Co., New York, N. Y.

Liberty Mutual Insurance Company, Boston, Mass.

Life Insurance Co. of Virginia, Richmond, Va.

Macmillan Company, New York, N. Y.

George W. Merck, Rahway, N. J.

Metropolitan Life Insurance Company, New
York, N. Y.

National Life Insurance Co., Montpelier, Vt.

Oval Wood Dish Corp., Tupper Lake, N. Y.

Prudential Insurance Company of America,
Newark, N. J.

Sealright Company, Inc., Fulton, N. Y.

Sharp and Dohme, Inc., Glenolden, Pa.

E. R. Squibb and Sons, New York, N. Y.

Sun Life Insurance Company, Baltimore, Md.

Travelers Insurance Company, Hartford, Conn.

Union Central Life Insurance Company, Cin-
cinnati, Ohio.

Upjohn Company, Kalamazoo, Mich.

West Disinfecting Co., Long Island City, N. Y.

Western and Southern Life Insurance Company,
Cincinnati, Ohio.

Winthrop-Stearns, Inc., New York, N. Y.

Wyeth, Inc., Philadelphia, Pa.

Laboratory Procedure for Evaluating Practical Performance of Quaternary Ammonium and Other Germicides Proposed for Sanitizing Food Utensils

GEORGE R. WEBER, PH.D., AND LUTHER A. BLACK,
PH.D., F.A.P.H.A.

S. A. Scientist; and Principal Bacteriologist, Milk and Food Sanitation Laboratory, Water and Sanitation Investigations, U. S. Public Health Service, Cincinnati, Ohio

THE evaluation of the germicidal efficiency of quaternary ammonium compounds has caused much controversy.¹ It has been recognized by most investigators that no single procedure for testing germicides supplies the complete information necessary for the use of any one compound under all types of applications. Furthermore, a testing procedure suitable for one type of germicide may not be applicable in all details to the testing of another germicide. DuBois² reported that "little effort has been made to develop a laboratory technique for the evaluation of sanitizing agents, without the need of a practical trial." It was hoped, "that such a technique can be satisfactorily evolved through a suitable combination of the methods described."

Following practical experience in the use of quaternary ammonium germicides for sanitizing food utensils, an effort was made to find a laboratory method suitable for the evaluation of such compounds. A number of proposed methods or variations of proposed methods were reviewed. Portions of techniques which appeared to be most suitable were selected from this series of procedures, and in some cases modified in order to formulate a labora-

tory procedure simulating actual practical performance of germicides when used for food utensil sanitizing.

REVIEW OF METHODS

The principal methods suggested for evaluating germicides³ are generally of two types. One involves a comparison of the germicidal value of the test substance with a standard disinfectant (e.g., phenol coefficient), the other involves the actual determination of rate of death under standard conditions (e.g., survivor curve, in which times required to kill definite percentages of test organisms are compared).

Phenol-coefficient methods

The phenol-coefficient⁴⁻⁶ type of procedure has been in use for many years in germicide evaluation for regulatory purposes and to prevent gross fraud. Much opposition has been expressed relative to the use of the phenol-coefficient procedure for evaluation of quaternary ammonium compounds. The reporting of "skips" and "wild pluses"¹ is quite common. Several modifications of the phenol-coefficient test have been proposed in an effort to compensate for what have been stated to be shortcomings of the procedure

when applied to quaternary ammonium compounds and other non-phenolic types of germicides.

In the phenol-coefficient method, the exposure period is longer than is recommended⁷ or is practical for food utensil sanitation. The concentration of germicide employed bears no apparent relationship to that which would be required for sanitizing food utensils. The phenol coefficient is an abstract number and no means appears available for interpreting the phenol coefficient in terms of exposure times and germicide concentrations necessary for food utensil sanitation. The suggestion has been made⁸ that twenty times the phenol-coefficient concentration would be satisfactory as a "use" concentration for certain types of applications.

Because of the surface activity of quaternaries, some investigators¹ indicate that the standard loop used for transfer would not carry a standard amount of testing suspension. Pipettes (Kahn)⁹ have been substituted in an effort to overcome this difficulty. Since a positive transfer tube of broth may result presumably from one (or a few) living organisms, as well as from numerous surviving bacteria, quantitative estimations by plating have been proposed¹⁰ in order to ascertain the extent of killing in those instances where complete killing is not obtained.

If one or a few bacteria are splashed on the walls of the medication tube and later mixed into the germicide, these organisms are not exposed to the germicide for the full period. In order to reduce the possibility of splashing, Pressman and Rhodes¹¹ devised a modified procedure in which the test organisms are carefully placed in the medication tube before the beginning of the test. Following this, the germicide was added without mixing. Other investigators have employed this principle in testing.¹²

Some doubt has been expressed as to whether negative transfer tubes actually

represented 100 per cent kill in the medication tube. Klarmann and Wright¹ devised a "semi-micro" modification of the phenol coefficient, in which only one-tenth the usual volume of germicide-culture mixture was employed in order that the entire mixture might be cultured. Cade¹³ has swabbed the inside of medication tubes and subsequently "swished" the swab in a tube of melted agar, with or without plating, to ascertain if test organisms were surviving.

In order to compensate for the fact that the concentration of germicide employed in the phenol coefficient bears no direct relationship to the concentration to be employed under practical food utensil sanitizing, Mallmann, *et al.*¹⁴ have proposed a modification in which the actual "use dilution" of germicide is employed in the testing procedure.

Some investigators have felt that a test organism dried on a glass surface more nearly approached practical conditions than one suspended in the germicidal solution. In this connection, Johns¹⁵ has proposed the use of glass slides, previously dipped in a culture of test organism and allowed to dry. Mallmann, *et al.*¹⁴ have employed glass rods or rings previously "seeded" with the test organism and then dried. In a study of the efficiency of machine dishwashing, Mallmann, *et al.*¹⁶ have included a test organism in a utensil soil. Following the dishwashing, the utensils were swabbed in order to ascertain the number of surviving bacteria on the utensil surface.

In the phenol coefficient the number of test organisms per ml. of test solution is rather well established in that a constant amount of a standard broth culture is added. However, different test organisms are employed (generally *Eberthella typhosa* or *Staphylococcus aureus*).⁸

Survivor-curve methods

While basically several types of ger-

micide testing procedures are related in some manner to the phenol coefficient, one which has been recognized for a good many years is the survivor-curve type.¹⁷ In 1897 Ikeda¹⁸ was able to show that when the logarithms of the numbers of surviving bacteria were plotted against the elapsed time, a straight line was obtained. The rate of disinfection was found to be logarithmic and generally in agreement with the rate calculated for a monomolecular reaction. Buchanan and Fulmer³ (1930) reported that pseudomonomolecular reactions are of far more concern in biology than are the true monomolecular reactions. Sigmoid-type curves are frequently observed. Numerous workers have used the survivor curve for ascertaining the efficiency of germicides, and this type of procedure does simulate more nearly actual practical application of germicides, in many instances, than does the phenol coefficient. The survivor-curve procedure has been used for evaluation of such germicides as chlorine^{19, 20} and chloramines. It was this type of testing procedure that made possible several fundamental studies relative to coefficients of temperature, concentration, and pH. Recently this type of procedure has been used for ascertaining germicidal efficiencies of quaternary ammonium compounds.^{21-23, 12}

DuBois and Dibblee²³ observed in death rate studies on a high molecular quaternary ammonium compound, employing *Bacillus metiens* spores, that there was an almost immediate reduction in plate count of 60 to 75 per cent. However, even after 6 hours, only about 90 per cent of the spores were killed. McCulloch²⁴ has reported that quaternary ammonium compounds have a tendency to "agglomerate" test organisms, thus reducing the plate colony count without necessarily reducing the viable cells. From this, it is indicated that when the logarithms of the surviving bacteria are plotted against time of exposure, the

slope of the resulting curve does not necessarily provide a true index to the rate of disinfection as it apparently does for some germicides, since this curve tends to become asymptotic, paralleling the exposure-time axis. Apparently for this reason some investigators^{22, 24} have preferred to select exposure times required for 100 per cent kill for comparative purposes, rather than a lesser percentage such as 99, 99.9 etc.

Other details of methods reviewed

Since quaternary ammonium compounds are relatively new germicides, until recently we have not had available satisfactory inhibitors for inactivating the germicides, similar in action to that of sodium thiosulfate with chlorine. Even at the present time, there is some question as to the limiting ratio of inhibitor³² to quaternary effective in protecting different types of test organisms from both bactericidal and bacteriostatic action. However, some of the recently proposed methods^{25, 26, 6, 21, 12} for evaluating the germicidal efficiency of quaternaries include the use of inhibitors.

In reviewing procedures for testing quaternaries, it was noted that the volume of testing solution in the various tests, ranges from 0.55 ml. to 500 ml. Presumably the larger volume is employed in some instances in order to increase the ratio of volume to glass surface to reduce the possible effect of glass surface upon the cationic germicides. Other advantages of a larger volume appear to be to furnish sufficient material for side tests and to stabilize temperatures, particularly where high or low temperatures are to be maintained.

Generally, proposed procedures have employed either a standard nutrient broth or a standard agar medium for culturing, except in those instances where quaternary inhibitors were added to the medium. Cultures, when grown on an agar medium, were generally suspended

in a buffered medium or water. A variety of test bacteria, both Gram-negative and Gram-positive, spore-formers and non-spore-formers, has been employed for evaluating quaternaries. The number of test organisms per ml. of test solution employed by various investigators varied somewhat. In one procedure it was as low as about 1,000, whereas in another it was as high as 900×10^6 .

Exposure intervals varied from 1 second¹³ to 30 minutes.¹⁴ In certain instances^{12, 22} attempts have been made to have an exposure period which would normally take place in food utensil sanitizing.

Other details such as type of container, cover of container, addition or absence of organic matter, etc., varied considerably.

PRELIMINARY INVESTIGATIONS

1. Selection of survivor-curve method

After reviewing the available methods for evaluating quaternary ammonium compounds (and other germicides) proposed for food utensils sanitizing, it appeared that none quite completely met all the necessary requirements. We have endeavored therefore to devise a method which is simple and which more nearly simulates practical conditions of application. An attempt was made to employ only equipment which would normally be found in any bacteriology laboratory. The survivor-curve type of procedure was selected because it more nearly represented actual practical conditions of food utensil sanitizing than did the phenol-coefficient type.

2. Number of test organisms

One problem considered was that of the number of test organisms per ml. of germicide solution. To determine this, plate counts were made of artificially contaminated dish water and compared with standard swab-rinse plate counts from food utensils (glasses) dipped in

the dish water and allowed to drain for 15 minutes (rins up). For these studies a pure culture of *Escherichia coli* was employed. It was observed that an average ratio of bacteria per ml. of dish water, to bacteria per utensil (glass) submerged, drained and swabbed, was about 100/1 for both heavily and lightly contaminated dish waters. This would appear to indicate that a feasible number of test organisms per ml. of test solution (corresponding to dish water) would be 100 times the highest counts found normally on food utensils. Records from U. S. Public Health Service mobile laboratories of food utensil plate counts made during the recent war in various areas of the United States indicate that high counts ranged from several hundred thousand to about 1 or 2 million bacteria per food utensil (usually glasses), as indicated by a standard swab-rinse plate count²⁷ procedure. Therefore, it appears that from about 1 million to 100 million test organisms per ml. would be a reasonable range for numbers of test organisms to correspond to actual practical conditions. Since it is known that the greater the number of test organisms, other conditions being equal, the longer the killing time,³ lower counts would have a shorter killing time and would appear to give a false indication of the true effectiveness of the germicide under adverse conditions of heavy loads of contamination. A test solution containing 100 million bacteria per ml. of test solution would appear to correspond to a heavy load of contamination in dishwashing.

3. Volume of germicide-bacteria mixture

The volume of test solution was next determined. It was, of course, desirable from several points of view to have a small volume of solution. This would require less germicide, less water for diluting, fewer actual test microorganisms, and more convenient receptacles in which to carry out the tests. One of

the arguments for a large volume of test solution would be that of maintaining a high ratio of liquid to surface in order to reduce any adsorption of cationics to glass surfaces. Several reports have been made relative to the adsorption of cationics upon surfaces. DuBois²⁸ found from 17 to 31 per cent of certain quaternary ammonium compounds adsorbed to filter paper but it is indicated that lesser amounts were adsorbed to glass surfaces. Eckfeld and James²⁹ reported that in Petri plates, the quaternary was removed from the agar gel, and adsorbed onto the glass. When nutrient agar was spread over glass in an extremely thin layer, growth of *Staphylococcus aureus* was obtained, whereas in the thicker layers it was not. The results were explained as, "due to the adsorption of sufficient of the quaternary from the agar in close proximity to the glass to permit bacterial development."

In order to determine just how great the adsorption of cationics on glass was, a recently developed procedure for titration of quaternaries³⁰ was employed. It was observed by titration that when the amount of surface was increased greatly, by using large amounts of glass wool submerged in quaternary solutions, a considerable amount of quaternary (about 65 per cent) was adsorbed. This adsorption appeared to take place largely in the mesh of the glass wool where agitation could not diffuse it thoroughly. However, when 10 ml. portions of quaternary solutions (200 p.p.m.) were transferred serially through ten test tubes by both pouring and pipetting, from 98 to 100 per cent of the quaternary was recovered by titration.

It would appear that adsorption does take place and is of considerable significance where extreme ratios of surface to volume are maintained and where agitation is not great, e.g., with a mesh of glass wool, in agar media etc. On the other hand, if conditions are such that the ratio of glass surface to volume of

solution is in the range which would be encountered in the ordinary handling of solutions for testing, indications are that with thorough mixing, losses of quaternary by adsorption will be of little significance. It would appear that adsorption of cationics onto glass surfaces would not be of such a magnitude or of such permanence that small samples (10 ml.) thoroughly mixed could not be used in a testing procedure. It is not indicated that this mixing needs to be extreme, but only that which would ordinarily be employed for obtaining a uniform bacterial suspension. In connection with the adsorption of quaternaries to glass²⁹ surfaces from agar, it is of interest to note that Quisno, *et al.*³¹ (1946) reported that agar reduces the germicidal efficiency of quaternary ammonium compounds, and they suggest that this reduction is due to physical adsorption. Agar media have been relied upon to neutralize quaternaries in connection with certain types of testing procedures. However, other inhibitors appear to be more effective.^{32, 33}

In connection with adsorption of cationics by surfaces, we have found that simply by forcing a cotton plug to the bottom of a test tube containing 10 ml. of a quaternary (200 p.p.m.), about 40 per cent was adsorbed immediately and little change was noted, even after standing for 24 hours. The use of cotton plugs, filter paper, and similar substances, in such a manner as to permit contact with quaternaries in a test solution, is not recommended. Glass caps are to be preferred for covering medication tubes.

4. Test organism in suspension versus test organism dried to glass surface

Since some investigators¹⁴⁻¹⁶ have devised procedures in which the test organisms were dried on a glass surface rather than suspended in a solution, limited comparative studies were made using these two principles. Glass micro-

scope slides were dipped in a suspension of a test organism (*Escherichia coli*), drained for 30 minutes at 37° C., and submerged for definite exposure periods in a solution of a quaternary. One hundred per cent kill was obtained in about the same exposure period as when approximately the same concentration of test organisms was employed, suspended in the germicide solution. The method in which the test organisms are dried on the surface of glass slides, has merit in "measuring the ability to kill organisms present on a surface in a film of organic matter."¹⁵ However, it did not appear to lend itself as well as to the use of inhibitors for instantaneous neutralization of the quaternaries as did methods in which the test organisms were suspended freely in the germicide. Since exposure periods required to produce 100 per cent kill were approximately the same for both types of procedures, for simplicity, the one in which the test organism was suspended in the germicide was selected.

5. Selection of test organism

A variety of test organisms has been employed in proposed testing procedures. Generally, it has been observed that Gram-negative non-spore-forming bacteria (e.g., *Escherichia coli*) are more resistant to quaternaries than are Gram-positive microorganisms (e.g., *Staphylococcus aureus*). The use of Gram-negative non-spore-forming test organisms would appear to be a good choice. Reports³ indicate that cultures about 24 hours old show least fluctuation in resistance. Studies reported¹² show that *Escherichia coli* demonstrated resistance to quaternary ammonium compounds approximately equivalent to pathogenic organisms such as *Salmonella schottmülleri*, *Shigella dysenteriae*, and *Eberthella typhosa*, but there was no significant factor of safety. For most of our studies, a strain of *Escherichia coli*²² used in other studies at this Station or

of *Staphylococcus aureus* 209 was employed. A few other test organisms also were used.

6. Choice of end point

Frequently, in comparing germicides by the survivor-curve type of procedure, an end point of something less than 100 per cent kill is used, e.g., 99.9, 99, etc. Because, however, of the reported clumping and "agglomerating"^{23, 24} we have selected 100 per cent kill. Selecting a lesser percentage kill did not appear feasible in view of reports which indicate that the death rate with quaternaries is not constant.

7. Temperature

Generally, temperatures previously employed for testing have been 20° C. We have used 25° C. since it appeared to be nearer to room temperature and might be considered to be about the lowest to which dish rinses would ordinarily drop. Also, 25° C. is generally easier to maintain during testing than is 20° C., especially where special water baths are not available.

8. Exposure times

Exposure times were selected as 15, 30, 60, 120, and 300 seconds. The selection of the shorter exposure periods was based on observations in the field showing the need of sanitizing food utensils within this time under certain practical conditions. Regulations⁷ generally require that utensils sanitized by chemicals be exposed for 120 seconds. The 300 second exposure was designed²² to give additional information on inferior compounds not effective in shorter periods of exposure.

9. Type of water

It has been reported³³ that the water in which a quaternary germicide is tested may greatly affect the germicidal efficiency. For this reason, in a given experiment a constant type of tap water

(or distilled, in a few instances) was employed for suspending the test organism as well as for diluting the germicide. No attempt was made to sterilize tap waters, in order to avoid possible changes. However, distilled waters, when used, were previously sterilized.

GERMICIDE TESTING PROCEDURE

Controls

Sterility control plates were made on all waters. Initial and final counts were made on bacterial suspensions to serve as a control for possible germicidal action of suspending waters as well as to establish the initial number of test organisms employed. All equipment, media, and reagents were sterilized; however, tap waters were used without autoclaving.

Preparation of germicide

Quaternary germicides were diluted in the water (dechlorinated with sodium thiosulfate, generally 0.1 ml. of a 4 per cent solution per 100 ml. of tap water) so that the concentration was double that desired for testing. Usually germicides were tested in the concentration recommended by the manufacturer, or in many instances with quaternaries, at 200 p.p.m. if no recommendations were stipulated. No attempts were made to adjust reaction, but the pH of a duplicate solution was determined.

Preparation of suspension

A standard 99 ml. milk dilution bottle³⁴ previously sterilized, was filled to the 99 ml. mark with the water to be used for the test, sodium thiosulfate²² being added to neutralize residual chlorine. Approximately 5 ml. of this water was then delivered to the surface of a 24 hour 37° C. nutrient agar slant of the test organism (generally *Escherichia coli*). A twisted double-wire nichrome loop, with shaft 12 cm. in length, was used to loosen organisms from the agar slant and the entire con-

tents were rapidly poured back into the 99 ml. dilution bottle.

After mixing³¹ by shaking the bottle rapidly 25 times in a vertical 1 ft. excursion within 7 seconds, 5 ml. was carefully delivered to the bottom of a large test tube (25 x 150 mm.) which had previously been sterilized with a glass cap covering. Care was taken to avoid touching the walls of the test tube; *when the walls were touched, the tube was discarded*. For this purpose, 5 ml. tip-delivery bacteriological pipettes (e.g., blue line Kimble retested No. 37080) were employed. (The aperture of these pipettes was about 2 mm. in diameter).

This suspension contained generally about 200×10^6 organisms per ml., such that when diluted with an equal volume of germicide solution, approximately 100×10^6 organisms would be contained in 1 ml. of germicide-bacteria mixture. In some instances counts were higher, hence only a portion of the suspension from the agar slant was used for transferring into the 99 ml. dilution bottle previously described.

Test procedure

Solutions of germicides as well as bacterial suspensions were held in a 25° C. incubator (or water bath) when not in use, both before and during the test. At the beginning of a test, the medication tube containing the 5 ml. of bacterial suspension was placed in a beaker containing water at 25° C. Likewise about 10 ml. of the germicide (in a test tube) was brought to this temperature, and 5 ml. removed (using a 5 ml. pipette previously described). The pipette was carefully placed in the medication tube and held in a vertical position with the tip just above the surface of the suspension (the glass cap of the tube having been previously removed and placed in the bottom half of a sterile Petri dish until after removal of the 30 second test portion). As the sweep second hand of an interval timer reached

the starting time, the contents of the pipette were released in a manner such that a layer of germicide was formed over the culture. (Best results appeared to be obtained by holding both tube and pipette in the hands in a vertical position. This is important, since if complete mixing is obtained without splashing culture on the walls of the tube, all test organisms will have an equal exposure period to the germicide, and "skips" or other discrepancies will be reduced or eliminated.)

After discarding the pipette, the contents of the tube were immediately mixed by a "swirling" motion and the first test portion of 1 ml. was removed after 15 seconds with a standard 1.1 ml. bacteriological pipette and placed in a test tube (cotton stopper) containing 9 ml. of a lecithin solution and immediately mixed. (Care was taken to deliver rapidly by blowing the portion into the 9 ml. of lecithin inhibitor on the exact second stipulated.) Subsequent samples were removed after 30, 60, 120, and 300 seconds, thoroughly swirling the contents of the tube prior to removal of each test portion. (For most work a 9 ml. blank containing 20 mg. lecithin (asolectin)* in phosphate buffer was used. For dispersion of the lecithin, a ratio of 7 ml. tween 80† to 1 gram of lecithin^{35, 36} was maintained.)

Plates were prepared for each exposure period in both 1 ml. and 0.1 ml. aliquots (from the lecithin blanks) resulting in 10^{-1} and 10^{-2} dilutions,³⁴ and poured with tryptone glucose extract agar containing 100 mg. of lecithin³² (asolectin in tween 80) per 100 ml. of medium. When *Escherichia coli* was employed as a test organism, cultures were incubated for 24 hours at 35–37° C. For certain other test organisms, longer

periods of incubation were required.

Additional controls

Following the withdrawal of the 1 ml. portion at 300 seconds in order to check for surviving bacteria, an excess of lecithin (at least 40 mg. contained in 1 ml. of solution—in other instances, more) was added to the tube containing the germicide-bacteria mixture. A sterile swab (about 22 cm. in length) was inserted and the walls of the "medication" tube swabbed. The swab was removed to a Petri dish, the swab stick cut off just above the cotton (by means of an electrically heated, hot wire)³⁷ (Fisher Hot-Wire Glass Cutter), and the plate containing the swab poured with lecithin-tryptone glucose extract agar. Following this, the "medication" tube was poured with tryptone glucose extract agar (15 ml. containing only 75 per cent the normal water content). For *Escherichia coli*, violet red agar was occasionally substituted for identification, but generally tryptone glucose extract agar gave clear-cut results.

DISCUSSION

Test procedure

Our results indicate good correlation between the plate counts made at 300 seconds, the bacteria surviving in the tube, and the bacteria adhering to the swab. It would appear that tests could be satisfactorily made by eliminating the additional controls after the laboratory worker becomes proficient in use of the testing method, although these controls do help to explain some discrepancies due to splashing of culture on the walls of the testing tube, etc. The swabbing technique may be used after exposure periods shorter than 300 seconds, if desired.

When *Staphylococcus aureus* was employed as a test organism, a ratio of lecithin to quaternary of 100/1 was maintained in the 9 ml. lecithin dilution blanks. This ratio was also maintained

* Asolectin obtained from Associated Concentrates, Inc., P. O. Box 1535, Atlanta, Ga.

† Tween 80 obtained from Atlas Powder Co., Wilmington, Dela.

for *Escherichia coli*, although lower ratios for this organism were sufficient to prevent bacteriostasis. The advantages of using small amounts of lecithin in the agar medium are described elsewhere³²; care must be taken to maintain a pH near neutrality. By adding 5 ml. of a double strength germicide to 5 ml. of a double concentration of bacteria, there results single concentration of both germicide and test organism. Other ratios were considered but this appeared more satisfactory from the standpoint of simplicity and the standpoint of complete instantaneous mixing. Where efficiencies of quaternaries (or other germicides) are to be ascertained at higher temperatures, obviously only the germicide (not the bacteria) should be heated to the higher temperature previous to the beginning of the test; consequently the ratio of the volume of germicide to volume of bacteria suspension would need to be increased.

By the use of 5 ml. bacteriological tip-delivery pipettes with a wide aperture (about 2 mm. in diameter, described previously), it is possible to release the volume of germicide onto the bacteria with such rapidity that mixing is reasonably complete. Time is thus available for "swirling" the tube before the 1 ml. aliquot is removed at 15 seconds. Ten ml. pipettes were found to be more difficult to use for delivering 5 ml. of quaternaries, since with the large air space above the solution in the pipettes and the reduced surface tension, dripping often occurred. Slow-delivery pipettes are not satisfactory.

Comparative studies using test procedure

In order to ascertain whether this test gives a fair estimate of what could be expected under practical application, limited comparisons employing a pure culture of test organisms have been made with plate counts from swabbings²⁷ taken from sanitized utensils. In gen-

eral, if a compound gave poor results by the survivor-curve method herein described, the counts on utensils sanitized in this compound were also high. Likewise, a compound appearing by this testing procedure to be efficient, was able to sterilize (with respect to non-spore-formers) utensils under actual conditions of application.

To evaluate the testing procedure and determine that it was not requiring too much or too little of a germicide, tests were made employing only 50 p.p.m. available chlorine.⁷ An alkaline hypochlorite was selected^{19, 20} since it is known that the germicidal efficiency of hypochlorites decreases with increasing alkalinity, and alkaline hypochlorites are the slowest of the hypochlorites (chloramines including chloramine T generally are even slower).³⁸ Sodium thiosulfate was used as an inhibitor. Under these conditions 100 per cent kills were obtained in about 30 seconds. This is within the limit set by the U. S. Public Health Service Code Regulating Eating and Drinking Establishments.⁷ Years of experience with hypochlorite compounds would substantiate that this compound in the minimum concentration permitted (50 p.p.m.) is effective for utensil sanitizing. Chloramine T solutions of 200 p.p.m. available chlorine (approximately pH 8) gave 100 per cent kills under these conditions in 120 seconds. Hypochlorite tests were made in both distilled water and Cincinnati tap water, and chloramine T tests were made in distilled water. The germicidal efficiency of chlorine compounds as measured by tests made in finished chlorinated tap waters would not appear to be greatly different from results of tests made in distilled water.

In the evaluation of quaternary ammonium compounds by this testing procedure, our results from about 100 tests have been rather clear-cut and definite. The time required for a 100 per cent kill by this testing procedure would ap-

pear to be a fair index to the time required for sanitizing food utensils in the final germicide bath at the given concentration. No margin of safety would appear to exist. No compensation is made for any organic matter present; utensils should be free of organic matter before being exposed to germicides in the final rinse. Some types of organic matter present will reduce effectiveness of the germicide, especially with quaternary ammonium compounds and hypochlorites. Concentrations may be increased in an endeavor to shorten the exposure time required; however, in this connection, caution must be exercised as some discrepancies have been reported.²² It would appear that new compounds proving to be satisfactory by this laboratory procedure should be closely observed under actual conditions of usage by means of the standard swab-rinse plate count procedure for food utensils.²⁷

It has been reported²² from comparative fundamental studies that when quaternaries are tested in waters of different types, germicidal efficiencies vary. We have been able to demonstrate this phenomenon by the procedure described herein and it is especially pronounced with some quaternaries combined with what are stated to be non-ionic detergents. For this reason and because at this time we do not have available a satisfactory chemical testing procedure for actually measuring the effective quaternary residual, it is recommended³³ that quaternary ammonium compounds be tested in the waters (not autoclaved) in which they are to be used under practical conditions. Autoclaving may precipitate substances which normally interfere with quaternaries. Generally, chlorinated finished water supplies should have a bacterial count sufficiently low so as not to interfere with testing.

INTERPRETATION OF RESULTS

Generally we have found that in the recommended concentrations (usually

about 200 p.p.m.) in local tap waters (Cincinnati and Norwood) employing *Escherichia coli*, some quaternary ammonium compounds give a 100 per cent kill in about 60 to 120 seconds, while other compounds are completely ineffective even after 5 minutes, or are only slightly effective, in that the "break" in the survival curve is just beginning at 5 minutes. Some compounds gave 100 per cent kills in 30 to 60 seconds in Cincinnati tap water, but in Norwood tap water the killing times were extended. However, when the recommended concentration of certain compounds was doubled it was possible to obtain in Norwood tap water kills in about 30 seconds. Slight variations in killing time have been observed. (Cincinnati tap water is a surface water; Norwood tap water is from deep wells.)

When *Staphylococcus aureus* and *Micrococcus caseolyticus** were used, killing times were substantially reduced. In distilled water, compounds tested have much shorter killing times than in tap waters, yet plate count controls indicate the distilled water (or tap water) has little or no effect in itself in reducing numbers of viable test organisms during the period of exposure in these experiments. It is possible, therefore, to test quaternary ammonium compounds and other germicides in such a manner that an inferior non-effective product would appear effective and acceptable, simply by choice of a susceptible test organism, by choice of a compatible tap water, distilled water, or buffered distilled water, by reducing the inoculum or by inadequate inhibition (depending upon the test organism).

*Escherichia coli*²² (or other Gram-negative non-sporulating bacteria) would appear to be a good choice as a test organism since its resistance with quaternaries^{12, 39} and other germicides has

* Secured through courtesy of Dr. W. L. Mallmann, Michigan State College, E. Lansing.

at least been reasonably comparable with pathogenic Gram-negative non-sporulating bacteria; it is more resistant to quaternaries than certain Gram-positive bacteria, and bacteriostasis is eliminated³² with less difficulty by use of inhibitors with this organism than with some of the Gram-positive cocci. Also, *Escherichia coli* is reasonably easily identified for purposes of differentiating between survival of test organisms and possible contamination. There is, however, no reason why any type of culture might not be substituted in this procedure. The interpretations would vary accordingly.

Since *Escherichia coli* has been reported^{12, 39} to have approximately the same resistance as certain Gram-negative non-sporulating pathogens, it would seem that a germicide, in order to be considered for use should effect a 100 per cent kill of a test organism (about 100 million per ml.) similar in resistance to *Escherichia coli*²² in certainly not more than about 30 seconds at the concentration to be used when diluted in the water actually employed in sanitizing food utensils. If a germicide effects such a kill in 30 seconds, it would appear safe to assume that in actual food utensil sanitizing procedures an exposure of 2 minutes⁷ would be satisfactory for ordinary non-spore-forming pathogenic organisms. Further testing with pathogenic bacteria, however, will indicate more exactly what these limits are. The 1½ minutes additional time, plus the fact that the load is probably maximum would appear to offer an adequate margin of safety. Compounds not effecting a 100 per cent kill in about 30 seconds would appear to require increased concentration if only a 2 minute exposure period is maintained. Undoubtedly, compounds requiring 5 minutes for a 100 per cent kill would be unsatisfactory in the concentration employed; even the slow-acting chloramine T solutions were effective in 200 p.p.m. in 2 minutes.

When interpreting end points with the survivor curve, care must be exercised not to be confused by organisms splashed on the walls of the tube and thus not properly exposed to the germicide. Repeat tests will usually clarify discrepancies. A test organism such as *Escherichia coli* may be easily distinguished from air contaminants. An occasional single colony on an otherwise sterile plate may be fished for identification and, if necessary, a repeat test made.

Germicides proving to be satisfactory by the laboratory procedure should be carefully observed by the swab-rinse plate count procedure²⁷ under actual conditions of practical application. Under practical conditions the "life" of a germicide may be effectively determined simply by removing some of the rinse after it has been used for dish sanitizing for a period, and testing it by this survivor-curve procedure.

In working with new types of germicides such as quaternary ammonium compounds with which there may be some question as to whether the apparent kill, as indicated by loss of reproductive powers when planted in a suitable medium, is only a bacteriostasis, there is considerable merit in withdrawing aliquots for plating after a very short period of exposure, e.g., 15 seconds. If it can be demonstrated that the organism is capable of reproducing when plated after 15 seconds' exposure, but not after 30 seconds' exposure or longer exposure periods, it would indicate that fewer survivors remain with time. On the other hand, if the initial plating is made only after complete kill has been obtained, there may be some question, particularly with an inexperienced worker, as to whether the medium will actually support growth and all bacteriostatic action has been eliminated. Actual presence of colonies on plates representing a very short exposure period serves as a control for bacteriostasis and gives

ample proof that the test organism was not omitted.

A plate count made after 15 seconds' exposure also has another value. It has been observed that by actual timing in railroad dining cars and in other food establishments in some instances food utensils were submerged in the germicide for only 12 to 15 seconds. Undoubtedly, however, the germicide adheres to the glass and exerts a certain degree of effectiveness for a period after being removed from the germicide bath. Thus, the need for germicides effective in very short periods of time is evident. Through the use of testing procedures such as we have described, effective compounds may be discovered.

SUMMARY

A laboratory procedure is described for evaluating practical performance of quaternary ammonium compounds, hypochlorites, chloramines (including Chloramine T), or other germicides used for food utensil sanitizing. This simplified procedure has been devised by incorporating or modifying essentials applicable from several procedures previously proposed by others. Only a small volume of germicide-bacteria mixture (10 ml.) is required. Tests are made at 25° C. employing equipment ordinarily available in any bacteriology laboratory. Standard procedures and media were adopted where possible.

Limited comparative studies indicate that the time required to give a 100 per cent kill employing a special strain* of *Escherichia coli* (or a test organism of comparable resistance) in a concentration of about 100 million per ml. in the water in which the specific compound is to be used serves as a measure of the exposure time required for sanitizing food utensils under comparable conditions of temperature and concentration of germicide. Inferior compounds fail-

ing to kill in the exposure time provided may be tested with higher concentrations if it is desired to find the effective concentration necessary. It would appear that really effective germicides for food utensils should exhibit their germicidal activity by completely killing the test organism under standard conditions as described in about 30 seconds, and with such germicides the longer exposure times required in actual food utensil sanitizing regulations should provide a margin of safety, assuming adequate cleaning of utensils and their freedom from non-compatible detergents.

REFERENCES

1. Klarman, E. G., and Wright, E. S. An Inquiry into the Germicidal Performance of Quaternary Ammonium Disinfectants. *Soap & Sanit. Chem.*, 22, 1:125, 1946.
2. DuBois, A. S. Dishwashing Sanitation. *Soap & Sanit. Chem.*, 21, 1:25, 1945; and 21, 2:42, 1945.
3. Buchanan, R. E., and Fulmer, E. I. *Physiology and Biochemistry of Bacteria*, Vol. II—Effects of Environment upon Microorganisms. Baltimore: Williams & Wilkins, 1930.
4. Rideal, S., and Walker, J. T. A. Approved Technique of the Rideal-Walker Test. *A.J.P.H.*, 3:575, 1913.
5. Ruehle, G. L. A., and Brewer, C. M. U. S. Food and Drug Administration Methods of Testing Antiseptics and Disinfectants. *Cir. No. 193*, U. S. Dept. Agr., 1931.
6. Stuart, L. S. N.A.I.D.M.-U.S.D.A. Report on Quaternary Ammonium Testing. *Soap & Sanit. Chem.*, 23, 9:135, 1947.
7. Ordinance and Code Regulating Eating and Drinking Establishments, Recommended by the U. S. Pub. Health Ser. (1943), *Pub. Health Bull. No. 280*, U. S. Govt. Ptg. Off., Washington, D. C.
8. Reddish, G. F. Limitations of the Phenol Coefficient. *Indus. & Engin. Chem., Indus. Ed.*, 29:1044, 1937.
9. Tobie, W. C., and Orr, M. L. Determination of Phenol Coefficients in Presence of Surface Tension Depressants. *J. Lab. & Clin. Med.*, 29:767, 1944; Potentiation of Germicides with Aerosol, *O. T. J. Lab. & Clin. Med.*, 30:741, 1945.
10. Cade, A. R., and Halverson, H. O. Germicidal Detergents, The Synergistic Action of Soaps on the Germicidal Efficiencies of Alkalies. *Soap & Sanit. Chem.*, 10, 3:17, 1934, and 10, 9:25, 1934.
11. Pressman, R., and Rhodes, J. C. Sources of Error in Germicidal Activity Tests with Quaternary Ammonium Compounds. *Soap & Sanit. Chem.*, 22, 4:137, 1946.
12. Ridenour, G. M., and Armbruster, E. H. Some Factors Affecting the Properties of Quaternary Ammonium Compounds as Sanitizers. *A.J.P.H.*, 38:504, 1948.
13. Cade, A. R. Revamping the FDA Method. *Soap & Sanit. Chem.*, 23, 4:133, 1947.
14. Mallmann, W. L., and Hanes, M. The Use-Dilution Method of Testing Disinfectants. *J. Bact.*, 49:526, 1945.
15. Johns, C. K. A Method for Assessing the

* Cincinnati (U.S. Public Health Service) No. 198.

Sanitizing Efficiency of Quaternary Ammonium and Hypochlorite Products. *A.J.P.H.*, 37:1322, 1947.

16. Mallmann, W. L., DeKoning, P., and Zaikowski, L. Critical Study of Machine Dishwashing. *A.J.P.H.*, 37:390, 1947.

17. Rahn, O. Injury and Death of Bacteria by Germicidal Agents, *Biodynamica*, Normandy, Mo., 1945.

18. McCulloch, E. C. *Disinfection and Sterilization*. Philadelphia: Lea & Febiger, 1945.

19. Butterfield, C. T., Wattie, E., Megregian, S., and Chambers, C. W. Influence of pH and Temperature on the Survival of Coliforms and Enteric Pathogens When Exposed to Free Chlorine. *Pub. Health Rep.*, 58:1837, 1943. *Reprint No. 2530*.

20. Weber, G. R., and Levine, Max. Factors Affecting Germicidal Efficiency of Chlorine and Chloramine. *A.J.P.H.*, 34:719, 1944.

21. Mueller, W. S., Seeley, D. B., and Larkin, E. P. Testing Quaternary Ammonium Sanitizers as Used in the Dairy Industry. *Soap & Sanit. Chem.*, 23, 9:123, 1947.

22. Butterfield, C. T., Wattie, E., and Chambers, C. W. Bactericidal Efficiency of Quaternary Ammonium Compounds, Report in Manuscript, 1948.

23. DuBois, A. S., and Dibblee, D. Death-Rate Study on a High Molecular Quaternary Ammonium Compound with *Bacillus metiens*. *Science*, 103:734, 1946.

24. McCulloch, E. C. The Real and the Apparent Bactericidal Efficiencies of the Quaternary Ammonium Compounds. *J. Bact.*, 53:370, 1947; False Disinfection Velocity Curves Produced by Quaternary Ammonium Compounds, *Science*, 105:480, 1947.

25. Quisno, R. A., and Foter, M. J. Errors in Compounding and Testing Semi-solid Products Containing Quaternary Ammonium Salts. *J. Bact.* 53:501, 1947.

26. Armbruster, E. H., and Ridenour, G. M., A New Medium for Study of Quaternary Bactericides. *Soap & Sanit. Chem.*, 23, 8:119, 1947.

27. A Proposed Method for Control of Food Utensil Sanitation (Subcommittee Progress Report). *A.J.P.H.*, 34:255, 1944.

28. DuBois, A. S. Bacteriological Evaluation of

Cationic Germicides. *Soap & Sanit. Chem.*, 23, 5:139, 1947.

29. Eckfeldt, G., and James, L. H. Quaternaries vs. Phenolics. *Soap & Sanit. Chem.*, 23, 12:157, 1947.

30. Harper, W. J., Elliker, P. R., and Moseley, W. K. Quaternary Test, Sensitive Method for Testing Concentration of Quaternary Ammonium Type Germicides. *Soap & Sanit. Chem.*, 24, 2:159, 1948.

31. Quisno, R. A., Gibby, I. W., and Foter, M. J. The Effect of Agar Upon the Germicidal Efficiency of the Quaternary Ammonium Salts. *J. Am. Pharm. A.*, 35:317, 1946.

32. Weber, G. R., and Black, L. A. Relative Efficiency of Inhibitors for Quaternary Ammonium Compounds, using Various Test Organisms. In press: *Soap & Sanit. Chem.*, 24 (Oct.), 1948.

33. Quaternary Ammonium Compounds for Bactericidal Treatment of Utensils, Sanitary Engineering Division, U.S.P.H.S., (Statement prepared at the request of the Conference of State Sanitary Engineers Meeting in Washington, D. C., May 7-8, 1947) June 6, 1947.

34. *Standard Methods for the Examination of Dairy Products*, 1941. Amer. Pub. Health Assoc., New York, N. Y., 8th Ed.

35. Quisno, R., Gibby, I. W., and Foter, M. J. A Neutralizing Medium for Evaluating the Germicidal Potency of the Quaternary Ammonium Salts. *Am. J. Pharm.*, 118:320, 1946.

36. Weber, G. R., and Black, L. A. Inhibitors for Neutralizing the Germicidal Action of Quaternary Ammonium Compounds. (Abstract) *J. Bact.*, 54:44, 1947; In press: *Soap & Sanit. Chem.*, 24 (Sept.), 1948.

37. Buck, T. C., and Kaplan, E. A Sterile Cutting Device for Swab Vial Outfits Utilizing Wood Applicators. *J. Milk Tech.*, 7:141, 1944.

38. Charlton, D. B., and Levine, Max. Some Observations on the Germicidal Efficiency of Chloramine-T and Calcium Hypochlorite. *J. Bact.* 30:163, 1935.

39. Hoogerheide, J. C. The Germicidal Properties of Certain Quaternary Ammonium Salts with Special Reference to Cetyl-Trimethyl-Ammonium Bromide. *J. Bact.*, 49:277, 1945.

"It is, of course, obvious that a solid material foundation is an essential basis for a high civilization; but it is a basis, not a superstructure. Our tendency is to confuse one with the other, to mistake the foundations for the towers and turrets of the new city.

"There is a spiritual hunger in the world today that is not being satisfied by American exports. 'God knows we

need food and coal to survive,' said a European delegate to Lake Success, 'but unless America can take the lead in providing a vital faith, in giving us a song that mankind can sing, all her exports will merely postpone the day of reckoning, and the world will die anyway.'" — Raymond B. Fosdick, *Rockefeller Foundation—A Review for 1947*.

Suggested Techniques for Inducing Navaho Women to Accept Hospitalization During Childbirth and for Implementing Health Education*

FLORA L. BAILEY, PH.D.

Tuscan School, Maplewood, N. J.

SOME interesting and valuable suggestions on the implementation of health education and medical procedures among the Navahos have been made by Alexander and Dorothea Leighton.¹ Since I agree with them that a sympathetic approach to this important problem is necessary, I should like to offer a number of additional suggestions based on my investigation of the beliefs and practices of the Navaho Indians pertaining to the reproductive cycle.[†] This material was gathered from three areas in New Mexico, namely the Ramah, Pinedale, and Chaco Canyon regions. Sixty-six informants, both men and women, furnished the data. The investigation was made with a view to laying the background for a better understanding of Navaho attitudes toward health and particularly toward the problems of childbirth. Hospitals which serve the Navahos, both government and private, have made efforts to inculcate certain health principles into the minds of

those whom they contact but the extent to which they have been successful is undetermined. Recent figures estimate that perhaps 25 per cent of the women seek medical assistance during childbirth.

In analyzing the data, a considerable degree of homogeneity of belief was found to exist, with certain deviations of opinion surrounding the central pattern. Definite patterns of thought, however, could be distinguished throughout all the material. For example, Navaho beliefs and practices pertaining to the reproductive cycle are dependent upon mythological and religious sanctions. Pregnancy restrictions and behavior patterns for facilitating delivery are based on the premise that *like produces like*, or that an effect resembles its cause, and various forms of sympathetic magic are indulged in so that nature will be forced into the path which is desired. It was also discovered that there is a strong emotional response in relation to hospitalization and medical aid. Although many informants did not refer to hospitals, others expressed a violent feeling either for or against these institutions and even mentioned individual doctors by name, discussing them with strong feeling.

Because certain Navaho practices are sanctioned by mythology and reinforced

* This paper was presented before the Section on Anthropology of the American Association for the Advancement of Science at the One Hundred and Fourteenth Meeting in Chicago, Ill., December 26, 1947.

† The writer is indebted to Dr. Clyde Kluckhohn of Harvard University and Dr. Leland C. Wyman of Boston University for their encouragement and advice in the conduct of this study.

by ritual, they offer great resistance to change unless such changes can be made to fit the pattern of Navaho logic rather than that used by administrators of educational and medical programs. It is suggested, therefore, that medical workers and health educators accept without adverse comment the pregnancy restrictions and rules of conduct which are traditional with the Navaho. Then, using a pattern of logic which parallels that expressed in Navaho thought, they could present new restrictions and rituals based on modern medical knowledge which would assist the woman to achieve the desired result, namely, the safe and easy delivery of a healthy child.

Specific recommendations, based on these conclusions, have been proposed and will be presented here in conjunction with the native practices which can be used to reinforce or redirect the pattern.

It is of primary importance to gain the support and confidence of influential members in each family group if a program of health education is to be successfully implemented. Group decisions in matters of health are a common practice when a healing ceremonial is involved. There is considerable carry over, it is safe to venture, in decisions regarding hospitalization. There is little doubt that many women would welcome medical advice and assistance during pregnancy and childbirth if they had the support of older members in the family and heard favorable reports from those of their friends who had experienced hospital care.

One "singer" reported, "For a while, after one woman around here had gone to the hospital and come back with the news that they gave her something to put her to sleep and she had no pain with the baby, many women thought it was better to go to the hospital than to stay home." If, as a result of one woman's confidence and satisfaction,

"many" women wish to make use of medical assistance, it should be a matter of principle for each woman receiving help to be sent away feeling secure and happy so that her enthusiasm would create support and confidence among her neighbors.

In explaining why women hesitate to make use of medical facilities the statement was made, "Women know what to do at home, and they don't know about hospitals, so they don't go to hospitals." This, according to Dr. Clyde Kluckhohn's analysis of Navaho thought patterns,² is a basic reaction closely linked with others by which they win security. Regarding unfamiliar human beings as threats the women withdraw and do nothing when confronted with a new and potentially dangerous situation. Facing such a situation, with which she feels unable to cope, the woman solves her problem by refusing to have anything to do with doctors. The medical staff, by anticipating this reaction, could prepare the way for a more constructive solution of her problem through field clinics, individual conferences, and educational procedures designed to reassure the patient through an explanation of hospital routine.

Even a white patient, entering a hospital for the first time, is confused and apprehensive if the routine has not been explained. How much greater must this apprehension be for a woman who enters an alien world where the language is strange, where nothing fulfills her expectations of how things should be done, and where she is liable to "ghost infection" (as the Navahos term the disease) if she comes in contact with articles previously used by those who have died there.

After orientation and reassurance have been given her, the staff of the hospital, or the visiting field worker, should continue to seek ways of reinforcing the woman's emotional security and peace of mind. The fear and

anxiety of pregnant women in connection with hospitalization could doubtless be reduced by encouraging early admittance, thereby lowering the mortality rate. Reports show that the majority of maternal deaths in the hospital are caused by a retained placenta since the women are so afraid to face an unknown situation that they arrive at the hospital only in time to die there. One young woman remarked, "If a baby doesn't come for two or three days they get scared and go to the hospital." This tendency to seek hospitalization only in an emergency, or if death is imminent, is not unusual. As a result, one hears such bitter reports as that which came from an older woman who had lost two daughters in childbirth at the hospital after each had successfully delivered other children at home. Obviously, in her opinion, there was only one deduction—the white doctors had killed her daughters!

Any effort made by health educators, therefore, to persuade women to seek hospitalization at the proper time would be valuable in that rumors of death due to the fault of the hospital would be minimized, and the fear which serves as an emotional block for some women could thereby be counteracted.

One anxiety, however, which might be exploited in persuading women to accept aid is the extreme fear of contact with the birth discharge. It is linked with the even greater fear of contact with menstrual blood. One man reported, "This blood is not as bad as menstrual blood but it will break the back or the breast." The "breaking" thus referred to is *arthritis deformans* for it is believed that deformation will result from contact with the birth discharge. Other ill-effects were detailed by a young woman as follows: "If a ghost-bird, or a bluebird, or a coyote eats it, the woman won't get well for a long time; she stops having babies; it gives the woman more

pain; it kills the mother; the baby won't have any sense; it will cripple animals; and witches will get it." In the face of such formidable dangers which follow the improper disposal of the birth discharge, medical authorities might offer to relieve the woman of this responsibility, assuring her that if she comes to the hospital the nurses would take care of the disposal, thereby avoiding the possibility of exposing any of her family to contact with the blood and the resulting infection.

In dealing with patients during pregnancy, as well as after their admission to the hospital, it is important to phrase medical suggestions in terms of Navaho logic. For example: Navaho methods of keeping the fetus small, to insure an easy delivery, include hard work, exercise, and not sleeping in the daytime, as well as the magical application of certain medicines which work on the *like produces like* formula such as sucking honey from the pentstemon (called hummingbird's food) or eating a hummingbird's egg, shell and all, because this bird is so tiny. If the medical worker suggests other methods such as moderate exercise, the use of vitamins, or an increased calcium intake, he might explain them by using the Navaho phraseology, "It will make the baby strong, even though he remains small, so he will be born easily." It might also be pointed out that exercise keeps a person lean and in good condition, therefore it would, as they say, "keep the baby small."

There are certain parallels between Navaho and white medical practice which might be capitalized on by the hospital staff to expedite the delivery in a manner satisfactory to all concerned. Since the woman is accustomed to the native pattern of male assistants in the *hogan*, the presence of a male physician should be acceptable to her, and the Navaho practice of manipulating the abdominal walls in order to

secure a favorable presentation could be related to any similar manipulation which might be undertaken by the doctor. Both these patterns have mythological sanction, for Washington Matthews notes that abdominal manipulation to secure a favorable presentation was used by the two male gods, Talking God and Water Sprinkler, when they assisted at the delivery of Changing Woman and White Shell Woman.³

Native forms of modesty should be respected for a Navaho woman expresses her modesty in a slightly different manner from a white woman. That is, she does not consider exposure of the breasts an immodest act but places great emphasis on being adequately covered from waist to ankle. In their ceremonials women strip to one or two skirts and are very skillful in participating in events, even in the ceremonial bath, without exposing the lower part of the body. It is not strange, therefore, that hospital procedures involving a short bedgown and exposure during nursing care should be disliked. Manual examination should be undertaken with as little exposure as possible. However, since women are accustomed to a "singer" pressing and manipulating the body for ceremonial purposes, the doctor might minimize his problem by relating his examination to some such act with which she is familiar.

If internal version is indicated there is precedent in native practice for this also. Cactus salve is rubbed on the hands to make them slippery and the midwife then reaches into the orifice, using her hands as forceps, to deliver the child. However, one woman said, "It is a bad thing to reach in for the baby. I saw it done and it killed the woman." It should be explained to the patient, therefore, that under sterile conditions such emergency measures involve less danger than she anticipates in the *hogan*.

Navaho medical practices include the application of medicines externally and drinking of draughts during the period of pregnancy as well as at the onset of labor. Thus, any medicine which needs to be administered could be given with the explanation that it will, as the Navahos say, "help bring the baby easier," or "bring the placenta right away," or "stop the pain and clean out the blood." These are the results toward which their native medications are oriented and will, therefore, have meaning for them. No more than the exact amount, however, should be left where the patient has access to it, unless drinking a large quantity will make no difference, for the usual dose of native medicine is prescribed as "drink lots of it, drink one or two cups of that medicine."

If there is need for the use of diathermy, x-ray, or similar treatments these might be related to the healing properties of the sun prominent in Navaho ceremonial lore.

Since women are used to hot applications (made by heating the branches of juniper and packing them around the body) a parallel will be easily grasped, if heat needs to be applied, by using the Navaho cliché, "it will stop the pain."

If lacerations occur it is customary to use lotions, salves, or dusting powders. Steam baths, produced with water and herbs called Life Medicine, are also recommended. If similar treatments, ordered in the hospital, are tactfully introduced, objections might be avoided. Surgery, however, is not a native practice and this would have to be presented as a special technique used by white doctors.

A few days after delivery the woman takes a bath in certain herbs, including those called Life Medicine, to counteract the danger from contact with the birth discharge. It would be easy for a nurse to mention that the daily bath

water contained a kind of Life Medicine possessing purifying qualities, thereby easing the patient's mind.

If a woman does not have sufficient milk to nurse her child she may resort to artificial means of increasing lactation. This follows the familiar pattern of *like causes like* since liquids (particularly soups) are taken internally, and milkweed plants are applied to the breasts. On the basis of Navaho logic, therefore, the staff could introduce milk into the diet or, if desirable, force liquids. Certain other practices which have mythological sanction and therefore deep emotional significance for the parturient might be permitted, or even suggested, by the medical staff. If the doctor, for example, would advise the woman to have a Blessingway ceremonial sung for her, prior to entering the hospital, it would fall into a pattern which is familiar to her and make her feel that there was sympathetic coöperation between the white doctor and the native "singer."

The kneeling position, which the woman by tradition assumes for her delivery, has mythological sanction and is more in keeping with her sense of modesty than the modern obstetrical position. If the hospital could adapt its methods to allow delivery in the native position it might reduce emotional tension and prove valuable psychologically. Perhaps the dragrope, which in the legend was either a rainbow or a sunbeam, could be adapted for the woman's support, and certainly such small rituals as placing pollen ceremonially on the objects to be used, or applying pregnancy charms to her body, could do no harm. Corn pollen, sprinkled on a living horned toad at the moment it is born and then gathered, is always carried by a pregnant woman for use in this emergency. They say, "Take live pollen from the horned toad's babies and when the pains begin the woman takes a pinch

and drops it inside her blouse because when the little toads are first dropped they can run away fast. They are strong." Mythologically the horned toad is protected against danger. For a nurse to suggest that the woman make use of such ritual assistance might easily serve to strengthen her feeling of security so that the subsequent ordeal would be eased.

Since the ritual act of *untying* plays an important part in native precautions at birth, if the woman were allowed to unbind her hair and remove her jewelry, and in cases of unusual emotional tension if the nurses would also make some gesture toward untying or unbinding their own persons, this would reinforce her morale.

The Navahos say, "No one should be around who gave any trouble to his mother at birth." Perhaps the hospital assistants could let it be known that they themselves had been born with great dispatch and little trouble. Anything that can be related to the *like causes like* formula would serve to bring reassurance.

That Navaho women find the smell of blood objectionable is evidenced by the fact that they use pungent herbs as an inhalant with the explanation that this will prevent fainting from smelling the blood. This may be partly psychological, related to the fear of contact with the birth discharge, but it would be easy to present the woman with a small bunch of sagebrush or a twig of wet juniper and might help her through a trying time. Familiar odors are known to be powerful stimulants to the emotions and would be gratefully welcomed in an atmosphere of strong, unfamiliar, and doubtless unpleasant odors.

One of the reasons women dislike hospitalization is that the food is unfamiliar and sometimes, to them, unpalatable. The food which the postparturient expects to receive imme-

diately after delivery is a ceremonial food sanctioned by mythology. It is a special type of blue cornmeal mush without the juniper ashes usually added to cornmeal breads. Any woman who has eaten mush ceremonially must eat it following childbirth. Where Navaho women assist in the hospital kitchens it should be possible to serve this specialty and thereby add to the patient's mental and physical comfort.

Since the woman is used to having the new-born baby close to her side it might be advantageous to let the infant remain near its mother in the hospital rather than to exile it to the nursery. This practice is not without precedent in certain modern hospitals where the philosophy of purely objective routine and seclusion for the infant has been replaced by one advocating closer physical contacts.

Molding or pressing the body of the new-born baby is believed to produce strength and beauty. This manipulation is based on mythology, being related to the pressing in the "Girl's Puberty Rite." Women who have had children born in hospitals say that the children did not develop normally due to lack of this ritual. One young mother said, "You press his forehead, and nose, and body to make him beautiful. My oldest girl was born in the hospital and they didn't do that to her, and her nose is little and her forehead sticks out." Certainly it would do no harm to suggest this ritual pressing and would satisfy a need.

Legend tells us, "It is thought the

sun fed the infant on pollen, for there was no one to nurse it." This statement gives the sanction for the first food given to the child. Allowing the mother to offer a pinch of corn pollen to her baby would do him no harm and might do the mother considerable good. It might be practical, also, if the mother has enough milk, to allow her to nurse the child whenever it cries. This would follow a familiar native pattern yet would not be out of line with the newest practices in child care.

If the mother remains in the hospital until after the navel of the infant has healed it is important that the cord be given her to take home rather than discarded. The strong emotional tone in which the magical properties of the cord are discussed would indicate that coöperation in its proper ritual disposal would be appreciated.

When the mother and child are discharged from the hospital it is to be hoped that confidence will have been established between the medical advisor and the Navaho patient. Toward that end the preceding recommendations have been offered with the hope that they may point out specific ways of adjusting one culture to another and of lessening the tensions which are inevitable from such contacts.

REFERENCES

1. Leighton, Alexander H., and Leighton, Dorothea C. *The Navaho Door*. Cambridge, Mass.: Harvard University Press, 1944.
2. Kluckhohn, Clyde, and Leighton, Dorothea. *The Navaho*. Cambridge, Mass.: Harvard University Press, 1946.
3. Matthews, Washington. "Navaho Legends," *Memoirs*. American Folklore Society, Vol. 5, 1897, p. 231.

Results and Problems after Four Years of a Conservation of Hearing Program

WILLIAM R. WILLARD, M.D., F.A.P.H.A., AND
DONALD F. PROCTOR, M.D.

Department of Public Health, Yale University School of Medicine, New Haven, Conn., and Department of Otolaryngology, Johns Hopkins Hospital, Baltimore, Md.

IN February, 1943, a program for the Prevention of Deafness in children was started in Washington County, Maryland. This was the first program of its kind, with an emphasis on medical treatment, financed by the Children's Bureau and conducted by a health department as one of its services for crippled children. This administrative study covers the first 50 months of operation. It is based on a review of the 1,084 clinic records and other information obtained in the county; 1,035 of the 1,084 records were sufficiently complete to tabulate.

DESCRIPTION OF THE AREA

Washington County in western Maryland is a typical American county in many respects. The population was 68,064 in 1940 (estimated as high as 73,130 during the war) with 2.5 per cent colored. About one-half of the county's population is in the City of Hagerstown; the rest is rural.

The county has an effective, stable County Health Department supported by city, county, and state funds. During the period of this study, the staff included a full-time health officer, 5 public health nurses and clerks. A medical stenographer and hearing technician, added when the program began, gave approximately half time to the program. There was no medical-social service worker or nursing supervisor, but the latter has been added since.

The Health Department building contained adequate clinic facilities. The county has a 158 bed hospital. There were about 50 physicians, including 4 ear, nose, and throat specialists (63 physicians and 6 specialists since the war). Relationships of the Health Department and medical profession have been excellent.

ORGANIZATION OF THE PROGRAM

The program required almost 9 months of preparation, devoted chiefly to planning clinic organization and conferences with most of the physicians in the county. A special meeting for the ear, nose, and throat specialists was addressed by the prospective clinician and a specialist from the Johns Hopkins Hospital. The program was endorsed by the County Medical Society, and the services offered have been used extensively by physicians of the county.

The following services were provided: (1) case finding; (2) a clinic for diagnostic ear, nose, and throat work, and radium treatment of adenoid tissue; (3) public health nursing service; (4) hospital, surgeon, and anesthetist services for those needing surgery but unable to pay for it; and (5) hearing aids for those unable to afford them. It was hoped that the Board of Education would develop speech reading, speech training, or other rehabilitation services but these have not yet been provided.

THE CLINICIAN

The clinician for such a program should be interested in hearing conservation, and adequately trained in management of clinical problems, use of the nasopharyngoscope, the administration of radium therapy, and the testing of hearing. It may be difficult to find a suitable clinician.

Our clinic was staffed for 3 years by an otolaryngologist on the clinical staff of the Johns Hopkins Hospital and Medical School, who had the advantages of good training and enthusiasm. Being an outsider who was not competing with the local medical profession, he maintained a neutral position with the physicians. When other responsibilities made it impossible for him to continue as clinician he was replaced by a resident otolaryngologist on the Johns Hopkins Hospital staff. Since that time, by special arrangement, the Hospital and Medical School have provided the services of a clinician from the resident staff.

This pattern has the advantage of insuring to the clinic competent medical services. It has the disadvantage that clinicians change each year, occasionally more often. This has not been a serious drawback, especially since the original clinician is now a consultant for the State Health Department and visits the clinic periodically.

Such experience is invaluable to the resident, enabling him for the first time to participate in a community medical program under supervised field conditions. It gives him also an appreciation and understanding of a public health program which too few physicians have.

It strengthens the position of the University Medical Center in the minds of the public and the medical profession by bringing service to those not otherwise having access to it. Also, it directs to the Medical Center a certain amount of clinical material valuable for teaching and research purposes.

This pattern has applications broader

than those of a Hearing Conservation Program.

CASE FINDING

Cases were obtained by (1) referrals from teachers and nurses; (2) referrals from private physicians; and (3) audiometric screen testing of all children in the 3rd and 6th grades (about 2,800 children annually) and others selected for testing by teachers. Children were referred to clinic through the family physician if they had one, or by nurses or teachers if they were observed to have earaches or discharge, defective speech, poor behavior not otherwise explained, frequent colds, mouth breathing, chronic cough, or hearing impairment. The source of clinic patients is shown in Table 1.

TABLE 1

Source of Referrals of Clinic Patients

	<i>No.</i>	<i>Per cent</i>
Screening	269	26.8
Nurse	180	17.9
Teacher	77	7.7
Private physician	423	42.1
Others	55	5.5
	<hr/> 1,004	<hr/> 100.0

The records often did not state the ultimate source of referral, and it is possible that some children referred by screening or by nurses, should have been credited to teachers and vice versa. In some schools as high as 25 per cent of the children screened were referred by teachers from grades other than 3rd or 6th, and in other schools no children were so referred, pointing to the need for further educational work with teachers. The average was about 15 per cent.

Referrals from private physicians during the earlier years of the program were so numerous that it was difficult to see other patients who might be in greater need of service. To meet needs of patients with known hearing impairments or ear infections, it was necessary to use a priority system in scheduling appointments. One-third of all patients referred by private physicians were in

the preschool age, where the opportunity is greatest for doing preventive work by treating conditions predisposing to infection and impaired hearing. As care is provided for the backlog of neglected children in a community, preschool patients referred by private physicians become increasingly important.

Children were screened individually with a pure tone audiometer (Western Electric 2 A) frequencies 512 and 8,192 plus a spoken and whispered voice test. Tests were done in the schools using the quietest room available. Any child with a threshold loss of 25 or more decibels on either frequency was given a complete test. If the child had an upper respiratory infection the complete test was postponed for 4-6 weeks. Any child with a threshold loss of 25 or more decibels on any frequency on the complete test, except for a 4,096 dip, was referred to the clinic. Also, those without hearing impairment but thought to suffer from conditions predisposing to hearing impairment were similarly referred to clinic.

Table 2 shows that the number and per cent of children referred to clinic as a result of screening dropped sharply over a 3 year period. This downward trend is in accord with the experience of others. Much of the backlog of impaired hearing is identified rather quickly and then the findings reflect more nearly the annual increment of defects.

Of 368 patients who had a complete audiometric test prior to their first clinic examination, 190 or 53 per cent waited more than 3 months for their

first examination and 65 or 18 per cent waited 9 or more months. In some instances the children who waited had rather severe hearing impairments. This delay is a reflection of several factors: (1) heavy demand for clinic appointments; (2) indifference on the part of some families; (3) inadequate attention to scheduling these children; and (4) inadequate follow-up.

Any program should provide a reserve audiometer to be used during a semi-annual recalibration of the regular equipment. Also, audiometers occasionally need repair and reserve equipment is important if occasional serious delays are to be prevented. Over 4 months were required recently to effect repairs in the audiometer; meantime the hearing technician could not do her work.

CLINIC SERVICE

The clinic was staffed by the clinician, medical stenographer, nurse, and audiometric technician. The nurse took a preliminary history on the patients, and the stenographer took dictation for the patients' records, and sent a report to the referring or family physician promptly after clinic was over.

The clinic operated on an appointment basis. Data are not available as to the proportion of broken appointments, but for some clinics they ran as high as 25 per cent and allowances were made in scheduling appointments. Patients seldom waited long at clinic and, due largely to the efficient preparation by the nurse and stenographer, the clinic has run smoothly and rapidly.

The clinician was equipped to do a

TABLE 2

Number of Children Screened for Hearing, Number and Per cent Referred to Clinic

<i>School Year</i>	<i>No. New Children Screened</i>	<i>Number Referred to Clinic</i>	<i>Per cent Referred to Clinic</i>
1944-1945	1,616	167	10.3
1945-1946	3,118	112	3.6
1946-1947	2,881	72	2.5
	<hr/> 7,615	<hr/> 351	<hr/> 4.6

complete office examination, including the use of an electric nasopharyngoscope, and to give radium treatment for adenoid tissue. X-rays were obtained by contract with the hospital (located in an adjacent building).

As expected, the proportion of return patients to new increased with the age of the clinic. For every 100 new patients 124 return patients were seen in 1943 in contrast to 430 in 1947. This was largely due to the desire to follow patients as long as possible even though no treatment was given. It is not known yet at what ratio this will level off. Return and new patients together required an average of 10 minutes per examination which is faster perhaps than most clinics could handle a patient satisfactorily. Twelve to 15 minutes would seem a more reasonable figure for planning purposes.

Two all-day clinics a month were held during the first two years. During the war there was some curtailment of service, but the original schedule has been resumed. Because of the backlog of accumulated neglect which can be found easily in any community which has lacked an ear, nose, and throat program, the load should be heavy during the early years of a program. An all-day clinic a week for the children from a county of 70,000 would not be too much at first.

By age the children attending clinic

were well distributed, 17 per cent were of preschool age; 34 per cent were of age 6-9 years; 29 per cent 10-13 years; 9.7 per cent 14-20 years; and 9.7 per cent were 21 or above. The adult group was not eligible for service, strictly speaking, but staff members, physicians, and their families could not be refused, and some adults were seen in consultation. Logically, service for adults should be offered in such a clinic. The demand for adult service is great.

Males and females were seen in about equal numbers, as were rural and city children.

CLINIC FINDINGS

Although no attempt is made to evaluate therapy in this report, clinic patients have been compared on the basis of initial and final audiograms. Whereas only 28.6 per cent of 443 patients were found to have normal hearing on the initial examination (no loss exceeding 20 decibels on any frequency), 63.0 per cent were normal on the final audiogram. These figures are presented without regard to treatment received, duration under supervision or other factors. Had each patient received adequate treatment, the results might have been better.

It was judged that in 551 of 663 cases, or 83 per cent, the hearing impairment could be attributed to upper respiratory infections including otitis media. This is shown in Table 3.

TABLE 3

Etiology of Hearing Impairment

	<i>No. Patients</i>	<i>Per cent</i>
Conductive impairment		
Otitis media unclassified	551	83.3
Stenosis external auditory canal	7	1.0
Otosclerosis	4	0.6
Nerve deafness		
Congenital	15	2.2
Acquired	14	2.1
Meningitis	6	0.9
Unknown	66	9.9
Total	663	100.0

TABLE 4

Number and Per cent of Clinic Patients with Treatment Recommendations and Treatment Received

	Recommendations		Treatment Received	
	No.	Per cent of all Clinic Patients	No.	Per cent of Those for Whom Recommended
T & A	463	44.7	317	68.5
Hearing Aids	25	2.4	10	40.0
Mastoidectomy	9	0.9	3	33.3
Sinus Surgery	11	1.1	5	27.2
Submucous Resection	27	2.6	5	18.5
Allergy Consultation	43	4.1	14	32.6
Chest Consultation	10	1.0	6	60.0
Radium Treatment	461	44.5	461	100.0

TREATMENT RECEIVED

In Table 4, clinic recommendations and treatment received are tabulated. T & A and radium therapy were each recommended to about 45 per cent of the clinic patients and were secured in 69 per cent and 100 per cent of the cases respectively. This does not imply that 100 per cent received adequate radium therapy; merely that they received at least one treatment.

Radium is an acceptable form of therapy and comparatively few patients will drop out after just one treatment. Of 461 patients receiving radium, the largest number, 110, received three treatments; 161 received four or more; and 19 received six or more treatments.

Hearing aids were secured through the Baltimore League for the Hard of Hearing and each fitting necessitated several trips by the patient of approximately 65 miles to Baltimore. When necessary, the aid was purchased by the State Health Department with crippled children's funds. One was secured by only 10 out of 25 patients for whom it was recommended and in at least 3 instances, possibly 5, the aid was not used after it was obtained. This poor showing is in part caused by the difficulty of going to Baltimore and in part to inadequate interpretation, to the patient of his need, and lack of supervision in the use of the instrument.

Provision of a hearing aid in itself does not solve the problem for many hard-of-hearing children.

It would be a substantial addition to the program if the technician were trained to help in selection of hearing aids, so that this could be done locally. More aids would be fitted and better service provided. However, this plan should be coördinated with the state voluntary agency for the hard-of-hearing, which may be prepared to render this service, but often is not represented in smaller cities or rural areas.

ECONOMIC STATUS

Services for crippled children of the State Health Department paid fees for hospital, surgeon, and anesthetist for patients who were certified by the County Welfare Department as eligible for care. Thirteen per cent of all clinic patients were certified as eligible.

In an effort to measure the relationship of economic status to the receipt of treatment, patients were assigned to 3 groups: (1) certified by the Welfare Department; (2) not able to pay; (3) able to pay. The assignment was made by the public health nurses according to their judgment, and not as a result of a financial investigation. The "not able to pay" group were believed to constitute a higher economic level than those "certified," and the "able to pay"

group represented largely those referred by private physicians.

As shown in Table 5, the *certified* group received a T & A when recommended in 81 per cent of the cases, the *able to pay* group 58 per cent, and the *not able to pay* group 43 per cent.

TABLE 5

Number and Percentage of Patients Who Received a Recommended T & A by Economic Status

<i>Economic Status</i>	<i>No. Recommended</i>	<i>No. Received</i>	<i>Per cent Received</i>
Welfare Dept. Certification	107	87	81
Not Able To Pay	230	99	43
Able To Pay	105	61	58

This suggests that the economic barrier may be serious in preventing patients from securing needed therapy. This conclusion is strengthened by an examination of policies governing certification. As is customary with welfare work, the patients must take the initiative and apply in person for certification at the Welfare office. It is well known that some persons because of charity implications in this procedure will not apply. Others are indifferent, and especially if they live at some distance, will not make the effort to be certified.

Although many factors were considered by the Welfare Department in determining eligibility, in general the following schedule was used:

<i>Size of Family</i>	<i>Maximum Income for Eligibility</i>
One	\$1,525
Two	1,575
Three	1,725
Four	2,050
Five	2,350
Six	2,675

This scale in June, 1947, had not been adjusted since 1943, and with higher living costs, seemed much too low.

This points to the need for more flexible criteria which should be applied by a medical-social worker, preferably one integrally associated with the program.

NURSING AND MEDICAL-SOCIAL SERVICE

Nursing visits were made to help in securing corrections and for other services in connection with the program. With only 5 nurses (one per 14,000 population), each carrying a generalized program, it was inevitable that the intensity of service would be low. They visited only 27.5 per cent of patients enrolled in the clinic, but for each case admitted to nursing service an average of 3.4 visits were made.

A study was made of nursing visits relative to success in securing recommended T & A's, which showed that (1) a substantial number of patients for whom a T & A was recommended were not visited (usually the need for a T & A was not considered urgent in these patients); (2) there was comparatively little difference in number of visits made per patient to those who did and did not receive a T & A; (3) very few patients in the "able to pay" group were visited. Since most of these were private patients, this finding is not surprising in view of the shortage of nurses' service.

These figures emphasize the need for careful case studies by a medical-social worker as to why patients do not receive recommended therapy. There are factors blocking the receipt of therapy which the nurse alone cannot solve and with which a medical-social worker could help. It is probable that many of the fruitless visits to patients who did not receive therapy could be avoided, if these factors were clearly recognized. It is estimated that one-fourth to one-half the time of a medical-social worker could be advantageously employed in this program.

It is also clear that there is an unused opportunity to provide nursing service to private patients. To do this will require some education of the physicians, and good relationships between health department and physicians. It will also require more nurses, and a breaking of the local tradition that

nursing service is primarily for the poor.

It is estimated that the nursing hours devoted to this program, counting clinic and field time, were equivalent to one-third the time of a full-time nurse. It is further estimated that the equivalent of the full time of one nurse in this county of 70,000 would have resulted in adequate nursing service.

NEED FOR GENERAL MEDICAL SUPERVISION

For best results, patients under specialized care as in an ear, nose, and throat clinic should be under general medical supervision. This is emphasized by the fact that patients gave histories of the following conditions: Allergy, 68 times; heart disease, 19 times; tuberculosis, 5 times; suspicious bronchiectasis, 12 times; and other significant conditions, 45 times. Approximately 14 per cent of clinic patients gave histories of potentially important conditions outside the ear, nose, and throat.

No general medical supervision was available in Washington County except that provided by the private practitioner. Forty-two per cent of patients were referred by private physicians and presumably were under care, but in most instances the clinic had no official record of the physicians' findings. The other 58 per cent of the patients presumably were not under medical supervision. Such supervision should be provided by clinic service if necessary and adequate records of the finding should be available to the clinic.

RECORDS

Although it was assumed that the clinic kept good records, this study clearly demonstrated their inadequacy for administrative and research purposes. A study similar to the one reported here is the best way to reveal such deficiencies, and is useful in planning better records. Because there are

many unknowns in the prevention of deafness, it is urged that all similar programs include administrative and clinical research as well as service. It is helpful in planning the records to define in advance some of the research problems to be undertaken. This is now being done in Maryland on a state-wide basis in conjunction with a revision of the *record form*.

REHABILITATION

The most conspicuous gap in the program at present is that of rehabilitation, especially speech reading and fitting of hearing aids.

The magnitude of this need can be estimated roughly from the data available. Had proper records been kept, a more precise estimate would be available. We know that 2.4 per cent of the clinic population was recommended for hearing aids. This proportion for the same age groups should gradually decrease as the preventive work continues.

By arbitrarily assuming that patients with a threshold of 35 or more decibels for 3 or more tones in the best ear need training in speech reading, it was calculated that 18 per cent of the clinic population needed this instruction judged by initial audiograms but only 10 per cent judged by the final audiograms. Thus, clinic attendance seemed to reduce the need for this service by almost 50 per cent, and probably the reduction would be greater if more patients completed recommended therapy. Ten per cent of the clinic population, age 6-20, is 76 patients who probably needed speech reading. If the number and age distribution of clinic admissions in the future approximate those of the past, 25 new patients a year would need speech reading.

Although it is recognized that there are many factors in addition to audiograms to consider in determining the need for speech reading for any child, it is believed that this calculation gives

figures useful for planning purposes.

In addition to these children, there were 39 children or 3.7 per cent of the clinic population with speech defects in need of speech training. Fourteen of these children had hearing impairments of 35 or more decibels with 3 or more tones, and all but 7 had some impairment.

Education departments are developing increasing interest in hearing problems of children. Many of them conduct extensive screening programs or are in a position to do so. It is important that health and education departments coördinate their programs so that duplication may be avoided, and so that each program will benefit from the activities of the other. The medical program should usually be conducted by the health department. The rehabilitation program involving speech training and lip reading usually should be conducted by the department of education, but certain phases of this work must be continually under medical supervision. The screening program in schools could be conducted by either department. If conducted by the education department, special arrangements must be made to reach children in parochial schools, and others not attending public schools.

A better quality of screening will result if a trained technician rather than a teacher or nurse does the work. It is suggested that in many communities the technician should be employed jointly by the health and education departments. Whether or not this is done, the program should be developed jointly by the two agencies. In many communities, as in Washington County, the health department clinic program will not keep a technician busy full time, and the rest of her time can be devoted advantageously to work in the schools. Obviously there is a real advantage in coöordinating the school screening program with the clinic program through such a person.

A complete program for the conservation of hearing requires skills in medicine, surgery, and psychiatry, in testing hearing and selecting hearing aids, in the teaching of speech reading, in vocational guidance and education. Thus, many professional skills must be brought to bear in a coördinated fashion if patients are to receive maximum benefit. Large centers should be developed in which these skills are available and co-ordinated for the development of service programs and research. Such centers, serving the civilians as veterans are now served in certain veteran facilities, logically should be located in our medical schools. Programs like that in Washington County should be closely affiliated with such centers serving in a sense as their field outposts.

FINANCIAL ASPECTS

The budget for this program year ending June 30, 1947, was \$7,040.20. This included \$2,313.35 for the clinician's salary, and fees to surgeons and anesthetists for surgical care provided. It also included \$560 for hospitalization. For the 6 months July 1–December 31, 1946, just under \$2,500 was expended with a somewhat reduced clinic program.

For a more complete program, including the equivalent of a full-time nurse, the half time of a medical-social worker, and a share of the time of a nursing supervisor, the budget would approximate \$10,000 for a county of 70,000 or about 14 cents per capita. To this should be added costs for rehabilitation estimated at \$10,000, raising the per capita costs to about 28 cents per capita. If more liberal eligibility requirements for surgical care were effected, the cost might go as high as 32 to 34 cents per capita. Assuming an ideal program for this county at \$25,000 a year, the average cost per patient admitted to clinic, would approximate \$9.60.

Fees were charged for clinic examinations and treatment but only when it

was believed the patient could afford to pay them. No financial investigation was made, and it was usually the private patient who was charged. The fee was \$5.00 for each clinic visit. Two hundred and seventy-three or approximately 25 per cent of all clinic patients paid such a fee. Only 11 patients who were billed failed to pay, and 3 of these paid partially. The minimum paid by any family was \$2.50, the maximum \$35. Of the families who paid, 53 per cent paid \$5.00. A total of \$2,609.75 was collected in 50 months, slightly more than \$600 a year.

This suggests that in prosperous times, clinic service alone on a modest scale could be supported by fees, but the entire program requires other financial support. There is considerable difference of opinion as to the desirability of a health department collecting such fees. The Children's Bureau is opposed to such a practice. Practising physicians, believing in the fee-for-service principle, urge it.

GENERAL APPRAISAL

In spite of shortcomings, this program has contributed materially to the medical care available in Washington County. It has been a major step in preventive medicine directed toward chronic respiratory and ear infections. There are few medical problems today which approach these in magnitude.

The clinic has given, and continues to give, needed consultation service for all types of ear, nose, and throat problems, and has made available radium therapy for adenoid tissue. The program stimulated 2 local specialists to secure their own radium, and one of them received his training in its use in the clinic.

Physicians, teachers, and the public are somewhat more sensitive to problems of impaired hearing, and because the surgery on clinic patients done by local physicians usually is reviewed in

the clinic, it is believed that the quality of work has been improved.

In short, this program has demonstrated in its field the practicability of providing specialized service and facilities available to, and used by, all economic classes of patients and many physicians. This has been done through the Health Department within the existing framework of private practice and not interfering with it. It is a pattern which is being increasingly used to bring to the people specialized services beyond the competence of the general practitioners but in a manner which the patient can afford, and which supplements rather than replaces the family physician.

Although this program is based on hearing conservation, in reality it is a generalized program for all ear, nose, and throat conditions. It would be well if the facts were recognized by calling it a clinic for prevention and treatment of respiratory and ear diseases, considering hearing conservation as one aspect only. These problems are not limited to children, and hearing impairments are more numerous in the adult than child population. The demand for adult services is great. The program should be broadened, as soon as financial support can be provided, to give services to all age groups.

Finally, it should be recognized that a specialized program like this will succeed best within an adequate public health program. The need for nursing and school health service, medical-social work, other clinics for consultation and for general medical or health supervision are so frequent and important, that the program is seriously handicapped without them. This point cannot be emphasized too much.

RECOMMENDATIONS

In reviewing the program the following administrative recommendations were made:

1. An extra audiometer should be available for use when the regular one needs repair or calibration.

2. It is extravagant to use a trained technician only half time on this program, and half time on clerical duties. There are so few trained technicians that full advantage should be obtained from her skill in the hearing conservation program either by screening school children in more grades, or by increasing the number of schools, serving adjacent counties if necessary.

3. School teachers should be given a better understanding of the symptoms of poor hearing among children, the significance of this program, and how to participate in it more fully. This is especially important in the case finding program, and in the handling of children with definite hearing impairments.

4. More prompt medical examination and closer follow-up is indicated for many children identified on screening examination as having impaired hearing, especially if the apparent impairment is large.

5. The services of a medical-social worker should be made available to this program.

6. A more flexible policy of eligibility for hospital and surgical care should be adopted and administered under the supervision of the medical-social worker.

7. A study should be made, with the help of the medical-social worker, of reasons why some patients fail to secure a hearing aid when one is recommended and others refuse to use one when secured. Although many of these reasons are self-evident, others are not and such a study would be educational to the staff.

8. Services equivalent to that of a full-time

public health nurse should be provided for this program in a county of 70,000.

9. General medical or pediatric supervision should be provided for all patients served, either through clinic services or private physicians. Adequate records of their findings and recommendations should be available to the ear, nose, and throat clinic.

10. The clinic records should be improved to permit clinical and administrative research which can be conducted in such a program. The record form should be standardized in all similar clinics in the state conducted by the state health department.

11. For planning and coördination, an active advisory committee should be developed in which the health department, the board of education, the medical profession, the public, and all other interested groups are adequately represented.

12. The policy of collecting fees for clinic service should be reëxamined by the advisory committee.

13. The most conspicuous gap in the program which should be filled is that of rehabilitation, especially speech reading.

14. The generalized public health program should be strengthened, because a specialized program like this one will succeed better where the public health staff and services are more adequate for a complete public health program.

NOTE. The authors wish to acknowledge the coöperation and work of the Washington County Health Department Staff, especially Mrs. Myrtle White and Miss Frances Grove, in the compilation of data for this paper.

Abortion as a Cause of Death

CHRISTOPHER TIETZE, M.D., F.A.P.H.A.

Research Associate, National Committee on Maternal Health, Baltimore, Md.

ABORTION affects population growth in 3 ways: (1) In each case by terminating the current pregnancy before the fetus has attained viability, (2) in some cases by making the woman sterile and thus preventing further pregnancies, and (3) by causing the death of a certain number of women. This article is devoted to a discussion of the third aspect only. It is based almost entirely upon published statistics from several countries and has as its objective the appraisal of abortion as a cause of death.

The term abortion as used in this article should be understood as including all terminations of intrauterine pregnancy before the twenty-eighth week regardless of cause, that is to say unintentional, therapeutic, and illegally induced abortions. Deaths from septic and nonseptic abortion will be shown separately. This distinction is important because of the close association known to exist between illegal induction and fatal infection.

All data will be presented in terms of annual mortality rates per million women of reproductive age (15-44 years). This method of presentation has been adopted by the Registrar General for England and Wales, whereas the National Office of Vital Statistics of the United States still adheres to the traditional procedure of computing mortality rates from abortion per 1,000 live births. The fundamental objection against the latter method is that a mortality rate should show the number of deaths in relation to the population exposed to the risk of dying, but women who have

carried their pregnancies to the point of termination by a live birth are precisely the ones who are not exposed to the risk of dying from abortion.

The mortality rate from abortion should not be confused with the fatality ratio of abortion. The latter can be computed from the number of deaths, if an adequate estimate of the number of abortions is available.

Table 1 presents the number of deaths assigned to abortion by the Bureau of the Census for each year from 1933 to 1945.¹⁴ In 1933 the death registration area for the first time included the entire United States. The table also shows mortality rates per million women 15-44 years of age. For comparison, rates for 1927-1928 have been added based upon the special investigation into maternal mortality undertaken by the Children's Bureau.¹³ This investigation included 15 states in all parts of the country. The population studied was slightly more rural than the United States as a whole but quite representative in its racial distribution and general level of maternal mortality.

To interpret correctly the numbers and rates presented in Table 1 it is necessary to consider the changes which have taken place in the classification of deaths from abortion. Prior to the Third Revision of the *International List of Causes of Death* adopted in 1920, deaths from abortion were not classified separately. They were included either with puerperal septicemia or with accidents of pregnancy, depending upon the presence or absence of infection. After 1920, nonseptic abortion appeared as

TABLE 1

Deaths from Septic and Nonseptic Abortion and Mortality Rates per Million Women, 15-44, in the United States, 1927-1945

Year	Number of Cases		Rate per Million Women	
	Septic	Nonseptic	Septic	Nonseptic
1927-1928 *	....	...	99	37
1933	2,037	540	67	21
1934	2,204	570	72	19
1935	2,167	602	70	20
1936	1,801	630	58	22
1937	1,531	532	49	19
1938	1,350	436	41	14
1939	1,393	393	44	12
1940	1,334	348	42	11
1941	1,014	370	31	11
1942	929	302	28	9
1943	789	376	24	11
1944	701	295	21	9
1945	587	301	14	9

* 15 states

a subdivision of the accidents of pregnancy, but the much more important group of deaths from septic abortion was not shown. For this period the only information on mortality from abortion is that contained in the Children's Bureau publication previously quoted.

The Fourth Revision of the *International List* adopted in 1929 included two classifications in reference to abortion: Abortion with septic conditions and abortion without mention of septic conditions. These two categories have remained in use up to the present time. It must be understood, however, that statistics classified under the 1929 list are not comparable with more recent ones for the following reasons: (1) Abortions reported as criminal were not classified as puerperal deaths but as homicides. (2) Deaths due to premature labor or to hemorrhage of pregnancy were assigned to nonseptic abortion. (3) Death certificates on which nonseptic abortion appeared in conjunction with toxemia of pregnancy, placenta previa, perforation of the uterus, and certain other terms were not assigned to abortion but preference was given to the other cause mentioned.

The Fifth Revision of the *International List of Causes of Death* adopted

in 1938, and used in the United States since 1939, defined abortion as the termination of a uterine pregnancy prior to 7 lunar months or 28 weeks of gestation, retaining the division into abortion with and without mention of infection. Several changes were made in the lists of terms included under each title and in the rules for determining primary cause of death. As indicated above the results of these changes were the following: (1) Addition of criminal abortions previously classified as homicide. (2) Exclusion of premature labor and hemorrhage of pregnancy from nonseptic abortion. (3) Allocation of certain deaths to nonseptic abortion which under the rules of 1929 would have been assigned to toxemia, placenta previa, or other puerperal causes.

To make comparison possible throughout the series the mortality rates for the years before 1939 must be adjusted to the Fifth Revision of the *International List*. This adjustment has been made with the help of a special study published by the Bureau of the Census in 1944.¹² In this study the deaths of 1940 in the United States were classified according to both the Fourth and Fifth Revisions of the *International List* cross-tabulated. From this correlation it appears that only 1

would have been assigned to septic and 331 to nonseptic abortion if the Fourth Revision had been used in 1940 against 1334 and 348 deaths under the Fifth Revision. To make the series comparable, the number of deaths and the mortality rates from septic abortion were therefore increased by 15.8 per cent for the period 1933-1938 and those from nonseptic abortion by 5.1 per cent. For 1927-1928 the mortality rate from septic abortion was increased by 10 per cent to allow for deaths reported as criminal abortion and classified as homicide. No adjustment is needed for nonseptic abortion because the investigation by the Children's Bureau included all cases of abortion listed in conjunction with other puerperal causes but excluded premature labor and hemorrhage of pregnancy.

The first two columns of Table 2 present the adjusted series of mortality rates per million women of reproductive age for the United States as a whole.

The usefulness of official statistics for the study of the mortality due to abortion has often been questioned and some authorities have felt tempted to discount them altogether. Is this attitude justified by the facts? A careful appraisal of the available evidence is necessary to answer this question. Deaths from abortion may be assigned to other causes for various reasons: (1) Abortions reported in conjunction with a nonpuerperal cause of death which takes precedence over abortion. Such cases numbered 133 in 1940^{4a} which is 7.9 per cent of the number assigned to abortion. Of these 133 cases, 21 were assigned to tuberculosis, 18 to appendicitis, 14 each to syphilis and accidents, 11 to chronic nephritis, 9 each to cancer, heart disease, and pneumonia, 6 to hernia, 5 to nonmalignant tumors, 4 to suicide, 3 to diabetes, 2 each to typhoid fever and pellagra, and 6 to a miscellany of other diagnoses. This list suggests that in many of these

cases the abortion was listed either as a non-fatal complication of a fatal disease or as an unsuccessful therapeutic measure rather than the cause of death.

(2) Deaths reported as due to a puerperal condition but without mention of the fact of abortion or the period of gestation. Such cases are assumed to have occurred in the third trimester of pregnancy and therefore not classified as abortions. Errors of this type were found fairly frequently in the early studies of maternal mortality in the United States. They amounted to 20.9 per cent of all septic abortions in the survey of 1927-1928 made by the Children's Bureau, to 15.7 per cent of all abortions in New York City in 1930-1932,⁶ and to 14.9 per cent in Philadelphia in 1931-1933.⁷ Unfortunately no further such investigations have been published in more recent years. It is believed, however, that the strong efforts made by health departments and by the special committees on maternal mortality established in many cities have resulted in much more accurate reporting of puerperal deaths than was customary 15 or 20 years ago. In this connection it is worth noting that in 1945 more than 78 per cent of all deaths from puerperal causes occurred in hospitals against 55 per cent in 1927-1928.

(3) Deaths reported as septicemia or peritonitis without mention of pregnancy, childbirth, or the puerperal state. If such death certificates refer to women of reproductive age they are usually queried by the registrar and the complete diagnosis ascertained. Between the ages of 15 and 45 years, nonpuerperal septicemia appears more often as the cause of death for males than for females. It is therefore unlikely that many septic abortions are concealed under this diagnosis. For peritonitis of unknown origin, the Census Bureau regularly reports more deaths of women of reproductive age than of men. During the 3 year period 1942-1944

the average annual excess amounted to 100 female deaths. Of these, 40 occurred in white and 60 in colored women. A number of these deaths were probably caused by septic abortion. (4) A fourth group of deaths due to abortion but not reported as such are the cases where a false and apparently innocuous diagnosis is entered on purpose in order to conceal a criminal abortion. I do not believe, however, that this happens very often, especially in urban communities. As a rule a woman seriously ill after an illegal operation is not allowed to die in her home under the care of the abortionist or a conniving family physician but is taken to a hospital in an effort to save her. It is not possible to estimate the number of such concealed deaths. The late Frederick J. Taussig¹⁰ tried to do it by arbitrarily allocating one-half of the excess mortality of females, 15-44, over males from respiratory tuberculosis, diseases of the circulatory system, and acute and chronic nephritis to abortion; but his attempt is now only of historical interest. Dr. Taussig later admitted^{4b} that his estimate had been considerably too high.

The Registrar General for England and Wales recently¹¹ expressed the opinion that "there is no reason to suppose that the understatement of abortion on death certificates amounts to more than ten per cent" in that country. The data presented here suggest that coverage may be less complete in the United States. It is felt, however, that the official statistics include the great majority of all deaths from abortion. It should be noted that the mortality from abortion as reported is generally highest in those sections of the American population where omissions and errors may be assumed to occur most frequently. Furthermore—and this is most important—there is every reason to believe that the quality of death registration has improved a great deal during the

last 20 years. The outstanding fact about mortality from abortion is the steady and sometimes precipitous decline which has been observed almost everywhere. The reality of this decline cannot be doubted, and the extent of the fall is in all likelihood understated by the official statistics.

Four general statements can now be made concerning the development of mortality from abortion in the United States as a whole: (1) From 1927 to 1945 mortality from abortion has decreased by approximately four-fifths—from about 150 to about 30 per million women of reproductive age. (2) Mortality from abortion has decreased at a steadily accelerating pace, the rate per million women having dropped 32 per cent from 1927 to 1933, 44 per cent from 1933 to 1939, and 52 per cent from 1939 to 1945. (3) Deaths from septic abortion have outnumbered deaths from nonseptic abortion throughout the period at a ratio of about 3 to 1. (4) During the last few years, mortality from septic abortion has decreased much faster than mortality from non-septic abortion.

It is suggested that this development has been due to a combination of several causes. (1) Contraceptive methods have been improved and are more generally used than formerly. Fewer women, therefore, resort to illegally induced abortion. (2) Abortionists have become more skillful in avoiding infection. (3) Many lives have been saved by improved methods of treatment, especially by the use of sulfa drugs and penicillin.

Table 2 also presents mortality rates from septic and nonseptic abortion for the white and colored population of the United States. Three facts are strikingly evident: (1) Mortality from abortion has been much higher among colored than among white women. (2) It has declined much faster among the whites than among the colored.

TABLE 2

Deaths from Septic and Nonseptic Abortion per Million Women, 15-44, in the United States, 1927-1945, by Color (Adjusted Series)

Year	Total Population		Septic Abortion		Nonseptic Abortion	
	Septic	Nonseptic	White	Colored	White	Colored
1927-1928 *	109	37	..	...	..	..
1933	78	22	73	119	20	44
1934	84	20	79	119	17	39
1935	81	21	76	123	19	37
1936	67	23	61	114	21	38
1937	57	20	50	111	17	40
1938	51	15	44	104	12	36
1939	44	12	38	95	10	30
1940	42	11	35	93	9	25
1941	31	11	25	80	9	28
1942	28	9	24	65	8	22
1943	24	11	19	61	10	25
1944	21	9	17	58	7	24
1945	18	9	13	52	7	26

* 15 states

TABLE 3

Deaths from Septic and Nonseptic Abortion per Million Women, 15-44, in the Divisions and Regions of the United States, 1939-1941, by Color

Divisions and Regions	Septic Abortion		Nonseptic Abortion	
	White	Colored	White	Colored
New England	23	*	9	*
Middle Atlantic	27	143	7	17
East North Central	31	76	8	17
West North Central	39	75	8	*
South Atlantic	36	77	12	28
East South Central	43	86	14	32
West South Central	39	93	12	33
Mountain	55	*	16	*
Pacific	26	83	8	*
Northeast	26	143	8	17
North Central	33	76	8	21
South	39	83	13	31
West	34	83	11	*
United States	33	90	10	28

* Less than 15 cases

(3) These statements are true for septic and nonseptic abortions.

The available evidence, meager as it is, indicates that in the United States the incidence of induced abortion is lower among colored than among white women. It seems, therefore, that the shockingly high mortality rates recorded for the colored population are due to the poor caliber of the abortionists and to the general inadequacy of the medical services available to nonwhites.

In addition to the color differential, marked regional differences are found within the United States (Table 3). Among white women, mortality from septic abortion is lowest in New England, the Middle Atlantic States, and on the Pacific Coast. It is highest in the Mountain Division and generally high throughout the South. The pattern is similar for nonseptic abortion. As far as the colored population is concerned, mortality rates from septic abor-

tion show comparatively little variation with the exception of a very high figure observed in the Northeast. Mortality from nonseptic abortion is highest in the South.

Through the courtesy of Dr. Halbert L. Dunn the National Office of Vital Statistics has furnished the author with a tabulation of deaths from abortion by color, region, and size of community for 1945 (Table 4). This tabulation is based not on place of death but on usual residence. Total numbers of cases are small and our estimate of population is less reliable than one would like to make it. With these reservations the following observations are in order: Mortality from septic abortion appears to be on the same level in larger and smaller cities and only slightly lower in rural areas. This finding is at vari-

ance from the widely held belief that death from septic abortion is by far most common in the metropolis. Mortality rates from nonseptic abortion tend to be highest in the country and lowest in the large cities. Additional data covering several years will be necessary to test the validity of these observations.

Turning now to the international scene we find in Switzerland⁹ the longest series of mortality rates from abortion. What makes this series particularly valuable is that a confidential death certificate has been used in Switzerland since the turn of the century. Unfortunately the series is limited to septic abortion. Mortality from this cause doubled between 1901-1905 and 1916-1920, rising from 38 to 81 per million women of reproductive age.

TABLE 4

Deaths from Septic and Nonseptic Abortion and Mortality Rates per Million Women, 15-44, in the United States, 1945, by Color, Region, and Size of Community

Color and Region	Number of Cases			Rate per Million Women		
	Cities 100,000+	Other Urban	Rural	Cities 100,000+	Other Urban	Rural
SEPTIC ABORTION						
White						
Northeast	36	30	17	10	10	8
North Central	36	38	36	12	13	10
South	30	45	80	21	21	18
West	17	17	13	14	16	9
United States	119	130	146	13	14	13
Colored						
North and West	46	3	8	51	*	*
South	27	49	59	60	75	47
United States	73	52	67	54	57	47
NONSEPTIC ABORTION						
White						
Northeast	18	19	14	5	6	7
North Central	13	23	23	4	8	7
South	9	14	40	*	7	9
West	5	12	17	*	11	12
United States	45	68	94	5	5	8
Colored						
North and West	20	7	2	22	*	*
South	10	15	40	22	23	32
United States	30	22	42	22	24	30

* Less than 10 cases

TABLE 5

Deaths from Septic and Nonseptic Abortion per Million Women, 15-44, in the United States, England, Prussia, and Germany, 1920-1945

Year	Septic Abortion			Nonseptic Abortion		
	United States	England	Prussia	United States	England	Prussia
1920	..	..	121	..	..	34
1921	..	..	121	..	..	35
1922	..	..	133	..	..	32
1923	..	..	132	..	..	32
1924	..	..	122	..	..	34
1925	..	..	112	..	..	27
1926	..	..	109	..	..	25
1927	109*	..	..	37*	..	..
1928	..	..	..	..	..	..
1929	..	..	Germany	..	..	Germany
1930	..	..	..	..	..	..
1931	..	29	..	..	17	..
1932	..	31	93	..	17	17
1933	78	32	89	22	18	18
1934	84	37	82	20	16	14
1935	81	33	69	21	14	15
1936	67	29	64	23	13	13
1937	57	23	49	20	14	12
1938	51	23	37	15	13	10
1939	44	25	..	12	11	..
1940	42	16	..	11	11	..
1941	31	21	..	11	12	..
1942	28	24	..	9	8	..
1943	24	25	..	11	8	..
1944	21	35	..	9	7	..
1945	18	18	..	9	6	..

* 15 states

From this peak the rate has fallen 70 per cent to 23 per million in 1941-1945.

1901-1905	38
1906-1910	67
1911-1915	70
1916-1920	81
1921-1925	57
1926-1930	44
1931-1935	42
1936-1940	40
1941-1945	23

Freudenberg² and Nevermann⁵ have studied the course of mortality from abortion in Berlin and Hamburg. Both authors report steeply increasing numbers of deaths between the early part of the 20th century and the years immediately after World War I. Their material, however, included deaths of nonresident women and therefore presents an exaggerated picture. The number of nonresident cases can only be estimated. If they are excluded, the combined mortality from septic and nonseptic abortion in Berlin and Hamburg

probably ran to about 400 per million women of reproductive age in 1920.

Table 5 presents the available data on mortality from abortion for the United States, England,¹ Prussia,⁸ and Germany³ for the period from 1920 to 1945. The mortality rates from septic abortion are comparable throughout the table but whereas each series of mortality rates from nonseptic abortion is uniform their mutual comparability is limited by the different rules for determining primary cause of death used in each country. As Prussia included two-thirds of the population of Germany during the inter-war period it has been considered permissible to show the rates in the same column.

The following generalizations suggest themselves: (1) Mortality from septic and nonseptic abortion has declined in each country. (2) Mortality from septic abortion has been on the same general level in Germany and the United

States but seems to have fallen faster in the former country between 1933 and 1938. These were, of course, the years of the all-out population drive in Germany and strong efforts were made to suppress illegal abortion. (3) England had a much lower mortality rate from septic abortion in the 'thirties than either Germany or the United States, but decline has been slower and for the last few years her rates have been almost identical with those observed in America.

SUMMARY

The general picture of mortality from abortion in all countries studied is one of steady decline over the past 30 years. In the United States the rate per million women of reproductive age has decreased by about four-fifths from 1927 to 1945. It has decreased more rapidly for white than for colored women and is now nearly 4 times as high among the latter. In addition, marked regional differentials prevail. The actual level of mortality from abortion cannot be accurately determined but the downward trend is certainly real.

REFERENCES

1. England and Wales, Registrar General. *Statistical Review of England and Wales for the Year 1945*. London: H. M. Stationery Office, 1947 and earlier volumes.

2. Freudenberg, Karl. Berechnungen zur Abtreibungsstatistik. *Ztschr. f. Hyg. u. Infektionskr.*, 104(4): 529-550, 1925.
3. Germany, Statistisches Reichsamt. Die Bewegung der Bevölkerung in den Jahren 1938 and 1939. *Statistik des Deutschen Reichs*, Vol. 587. Berlin: Verlag für Sozialpolitik, Wirtschaft u. Statistik, 1942 and earlier volumes.
- 4a. National Committee on Maternal Health. *The Abortion Problem*. Baltimore: Williams & Wilkins, 1944, p. 6.
- 4b. *Ibid.*, p. 28.
5. Nevermann, Hans. Zur Frage der Mortalität durch Schwangerschaft, Geburt und Wochenbett. *Zentralbl. f. Gynäk.*, 52(37):2351-2357, 1928.
6. New York Academy of Medicine. *Maternal Mortality in New York City*. New York: Commonwealth Fund, 1933.
7. Philadelphia County Medical Society. *Maternal Mortality in Philadelphia, 1931-1933*. Philadelphia: Philadelphia Co. Med. Soc., 1934.
8. Prussia, Statistisches Landesamt. Die an Zufällen der Schwangerschaft, der Entbindung und des Wochenbetts (einschl. des Kindbettfiebers) in Preussen im Jahre 1926 verstorbenen Frauen. *Medizinallstatistische Nachrichten.*, 16(4):268-273, 1929 and earlier volumes.
9. Switzerland, Eidgenössisches Statistisches Amt. *Statistisches Jahrbuch der Schweiz 1945*. Basel: E. Birkhäuser, 1946.
10. Taussig, Frederick J. Abortion and Its Relation to Fetal and Maternal Mortality. *Am. J. Obst. & Gynec.*, 33(4):711-714, 1937.
11. United Kingdom, Ministry of Health and Home Office. *Report of the Inter-Departmental Committee on Abortion*. London: H. M. Stationery Office, 1939.
12. United States, Bureau of the Census. Comparison of Cause of Death Assignments by the 1929 and 1938 Revisions of the International List. Deaths in the United States, 1940. *Vital Statistics—Special Reports*, 19(14):153-277, 1944.
13. United States, Children's Bureau. *Maternal Mortality in Fifteen States*. Washington: Govt. Printing Office, 1934.
14. United States, National Office of Vital Statistics. *Vital Statistics of the United States, 1945*. Washington: Govt. Printing Office, 1947, and earlier volumes published by the Bureau of the Census.

Epidemiological Approach to Accident Prevention*

EDWARD PRESS, M.D., M.P.H.

*Regional Medical Director, Children's Bureau, Social Security Administration,
Federal Security Agency, Chicago, Ill.*

MANY workers in the field of public health may be wondering why a health officer should be concerned with accident prevention. They may feel that most accidents are due to motor vehicles and that they therefore should be the concern of a state highway department. This is not true. In 1947, on the basis of preliminary estimates, there were only 32,000 motor vehicle deaths out of a total of 100,000 accidental deaths. During the same time there were 33,500 deaths due to home accidents.¹ Anything that affects the health and life of the people and is preventable is a concern of the health officer. The free access of health department personnel to homes makes them especially effective in combating home accidents.

Some may ask, "Why bother with occasional scattered non-communicable injuries that result from accidents? Certainly there is no epidemic of accidents at present."

That is a debatable question. We may well be in the midst of an epidemic of accidents at the present time as related to 100, 500, or 1,000 years ago. As our vital statistics on accidents do not go back more than 40 or 50 years,

we cannot conclusively prove this. It seems obvious, however, that as we harness the forces of nature and convert them by technical advances into locomotives, automobiles, airplanes, explosives, skyscrapers, tunnels, submarines, etc., we are introducing more and more accident possibilities. For example, in the first 40 years of this century, deaths due to automobile accidents alone rose from zero to 26.2 per 100,000.² In the same way, deaths from airplane traffic have mounted, and so with each of the newer mechanical inventions. It is true that before the automobile, there were deaths from runaway horses and from collisions between carriages. Before that, primitive man occasionally slipped on the mountainside but accidents must have been less frequent and less hazardous than now. A leak in a gasoline tank on an airplane is fraught with much more danger than a leak in the feed bag of a horse. If a bow and arrow were accidentally discharged 1,000 years ago, much less damage was done than by accidental discharge of an ammunition dump or a shipload of nitrate today.

In other words, it is quite probable that in the natural history of accidents, the current prevalence does represent an epidemic. Just what constitutes an epidemic? Webster says an epidemic is "a rapidly spreading or widely prevalent attack of disease." Accidents are certainly widely prevalent. Exactly what is a disease? Is it only a bacterial

* Modified from an address presented at the annual meeting of the Association of State and Territorial Directors of Local Health Services at Lake Ozark, Mo., April 22, 1948.

Note: I wish to acknowledge gratefully the influence of some of the concepts of the universal effectiveness of the epidemiological approach as described in unpublished lectures of Dr. John E. Gordon.

or virus illness, or are heart disease, cancer, pellagra, diabetes, etc., also diseases? Of course, they are. Let us go back to Webster's unabridged *Dictionary* for another definition. A disease is "a condition in which bodily health is seriously attacked, deranged, or impaired." Accidents certainly attack, impair, and derange bodily health.

However, even if we do not have a relative epidemic of accidents at present, that does not mean that epidemiological methods do not apply or that they cannot be effective. Epidemiology is concerned with the entire natural history of a disease, and attempts to institute preventive measures during endemic, as well as epidemic times. You are all familiar with the epidemiological approach to such "orthodox" diseases as smallpox, plague, typhus fever, etc. More recently we are all beginning to see that this same approach can be effective for more "unorthodox" diseases such as heart disease, silicosis, cancer, congenital cataract following German measles, etc. Exactly the same approach can also be effective for accidents. What is more, it may be even more necessary for accidents, because we do not have the same latent incubation period nor as many drugs to cushion the ill effects. For example, if we happen to contact the agent producing syphilis we have 24 hours to use soap, calomel ointment, or other things to stop the damage. Even if we cannot stop the initial damage, we can fall back on penicillin. Our aim as an epidemiologist, however, is still primarily to stop the agent from contacting the host. If, on the other hand, in an accident we contact the agent, which could be a carelessly placed roller skate, which causes a broken back by precipitating a fall down stairs, our back is broken in two or three seconds. We do not have 24 hours to prevent it from getting injured. Once the back is broken, or the skull fractured, penicillin is not as effective in healing the broken

bones as it is in healing the ravages of syphilis.

You can therefore see that the epidemiological principle of interrupting the agent in transit to the host, i.e., seeing that the roller skate did not get slipped on is, if anything, more urgent than seeing that the treponema of syphilis does not contact the host.

Another point favoring the epidemiological approach to accidental injuries is that in accidents it is easier to identify the agent and thus guard the host from contact with it. For instance, in the above example, it is vastly easier to see the roller skate at the top of the stairs than it is to see a microscopic spirochete lurking deep in the depths of a dark vagina.

How can we apply other basic epidemiological principles to this problem? These basic principles and methods of achieving them are given slightly different emphasis and description by different authorities but fundamentally they are the same. The grouping used here is based largely on recent unpublished lectures by Dr. John E. Gordon. The 4 chief principles are:

1. Determination of existing status and behavior of the disorder in the community or universe being investigated
2. Determination of causes related to the status of the specific disorder
3. Development of specific measures for adequate control
4. Evaluation of results that come from recommended procedures

Those are the principles. What are the methods of achieving these principles?

First, to determine the exact status and behavior of a disorder, we must collect the customary epidemiological data. What is its frequency of occurrence? How many per 1,000 or 100,000? What are the most common types of home accidents? How are they distributed as to age? What is the sex distribution? What type of home are they most frequent in?

This information may all be helpful.

in determining the cause and there is no fundamental difference between this information and the type of information obtained in combating an epidemic of typhoid fever, food poisoning, yellow fever, etc.

Second, the determination of causes related to the status of a specific disorder. Here we make inferences from the epidemiological data gathered, in order to determine the cause. For example, if many accidents occur in bathtubs without handles for support or without rubber bath mats, that may be one of the main causes of this type of accident. If, however, these same unguarded bathtubs are safe for young adults but not for elderly people, then another and perhaps more important contributory cause may be inferred, i.e., the infirmity and physical instability of old age.

If electrocution deaths occur only where faulty or unlicensed wiring is present that may be the cause of this type of accident.

Thus, each of the more prevalent types of accidents may, by orderly inductive reasoning from an analysis of the surrounding factors, be attributed to certain causes. Once these causes have been established we may then proceed to the next step in the control of epidemics.

That is the third principle—the development of specific measures for adequate control of the disorder. To help us apply this to accidents let us carry our analogy further. In the more orthodox bacterial epidemics we are all familiar with the measures which help in control. They are primarily three-fold: destroy the reservoir of infection; interrupt the agent in transit to the host; or, increase the resistance of the host.

Let us examine each of these more closely. First, the methods of destroying the reservoir of infection. We know that in the battle of agent versus host,

if the reservoir of the agent is destroyed, it can no longer harm the host. If the agent, for example, is an old forgotten bottle of medicine that was drunk in lethal amounts by a youngster, it should have been discarded. If the agent is a red-hot, old-fashioned pot-bellied type of heating stove, perhaps it can be discarded and replaced by another less dangerous form of heating. Agents may be deficiencies as well as positive items; as in the case of pellagra. If the agent is the lack of lights or railings on stairways, the lack of hand supports on bathtubs, the lack of safe play areas, etc., these conditions should all be remedied.

Second, the methods of interrupting the agent in transit to the host. There is a definite similarity between measures used for stopping the typhoid carrier from transmitting the bacilli from his hands to your food, and stopping fire from an open fireplace, by a firmly fixed screen, from reaching a toddler creeping on the floor. There are many ways of keeping the agent away from the host. For example, a gate at the top of a stairway; a strong screen placed in low windows when open; keeping poisons, matches, knives, and other agents frequently causing accidents away from the susceptible host by placing them safely out of reach; etc.

Third, methods for increasing the resistance of the host. The "herd immunity" can be increased by safety education and increased consciousness of accident hazards. Accident prone individuals may perhaps be made less accident prone by medical or psychiatric treatment. If necessary, a change to a less hazardous occupation could be made.

The fourth and final basic principle in epidemiology is the evaluation of results that come from recommended procedures. Methods for this would be no different from methods used in the more orthodox diseases. Incidence and

prevalence reports would be compared with those existing in other communities as well as with those in one's own community before the control measures were instituted. The supplementary essential of reporting to the public on the effectiveness of control measures must not be overlooked. This should be done in simple, non-technical terms that strike as near home as possible. The human interest elements should be emphasized.

What sort of specific things should a local health department do to combat accidents? They involve the various details that follow in a logical way from the approach outlined above. Many of the specific duties appropriate for each staff member have been described in various publications during the past few years³⁻⁸ and therefore need not be repeated here.

What can you as directors of local health services do in accident prevention? First, you can encourage and advise local health departments to initiate or extend their efforts especially in home safety, in an organized epidemiological fashion. Second, at a state level you can encourage initiation and expansion of similar activities. After all, most states have separate departments for venereal disease, nutrition, communicable diseases, etc. In 1944 more people died in the United States as a result of accidents than as a result of the common communicable diseases, venereal disease, nutritional disease, acute rheumatic fever, and diseases of pregnancy, puerperium, and childbirth, all combined.⁹

SUMMARY

Accidents have been shown to be a widely prevalent scourge on the health of the people; they are to a very large measure preventable; they are susceptible to attack by the epidemiological approach; and especially in the case of home accidents they are in the province of the health department. It is the health departments that have free access to the home; that have a responsibility for factors affecting the health of the people; and especially, it is the health departments that have the know-how of the epidemiological method.

REFERENCES

1. James, W. C., Director, Statistical Division, National Safety Council, Personal Communication.
2. Linden, Forest E., and Grove, Robert D. U. S. Department of Commerce, Bureau of the Census, *Vital Statistics Rates in U. S. 1900-1940*. Washington, D. C.: Gov. Ptg. Office, 1943.
3. Godfrey, E. S., Jr. Role of the Health Department in the Prevention of Accidents. *A.J.P.H.*, 27: 152-155 (Feb.), 1937.
4. Subcommittee on Accident Prevention of the Committee on Administrative Practice of the American Public Health Association. Accident Prevention Engages the Attention of State Organizations, *The Spotlight*, Jan., 1944.
5. Accident Prevention—An Essential Public Health Service; Program Developed by the Subcommittee on Accident Prevention, Committee on Administrative Practice of the American Public Health Association, *A.J.P.H.*, 35:216-218 (Mar.), 1945.
6. Armstrong, D. B., and Cole, W. G. Accident Prevention, *A.J.P.H.*, 36:869-874 (Aug.), 1946.
7. Dukelow, D. A. What a Health Department Can Contribute to the Home Safety Program. Reprinted from the *Transactions of the 34th National Safety Congress for the American Public Health Association*. New Jersey State Department of Health, *Pub. Health News*, 29:14-19 (Jan.), 1948.
8. Taber, Elsie A. Role of School Nurse in Safety Education, *Pub. Health Nurs.*, 39:196-198 (Apr.), 1947.
9. Vital Statistics—*Special Reports*, U. S. Department of Commerce, Bureau of the Census, Vol. 25, No. 8, cited by Press, E. The Accident Problem. *J.A.M.A.*, 135:824-827 (Nov. 29), 1947.

American Journal of Public Health

and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

October, 1948

Number 10

Editorial Board

REGINALD M. ATWATER, M.D.
Chairman, and Managing Editor

LEONARD GREENBURG, M.D.
PROFESSOR JOHN M. HENDERSON
RALPH S. MUCKENFUSS, M.D.

STUART MUDD, M.D.
RAYMOND S. PATTERSON, PH.D.
GEORGE ROSEN, M.D.

C.-E. A. WINSLOW, DR.P.H., *Editor*

AUGUSTA JAY, *Editorial Associate*

THE PROBLEM OF REHABILITATION

ONE of the most significant advances made in medicine during the post-war period has been the increased recognition given to medical rehabilitation as an integral part of medical care. Satisfactory job placement is the capstone of any successful vocational rehabilitation program; but medical rehabilitation, starting at the earliest possible moment following acute illness or injury, is its foundation. All subsequent rehabilitation processes must be built upon that residual physical disability which medical treatment cannot eliminate.

The fact that vocational rehabilitation and medical rehabilitation are interdependent and inseparable, has been demonstrated by the successful programs in military and veterans' hospitals, and has been recognized in the civilian field by the enactment of the Barden-LaFollette Amendment, which expanded the Federal-State Vocational Rehabilitation programs to include physical restoration and medical care.

Although the focus of attention has been centered on the disabled veteran, the extent of disability among our civilian population is far greater. There were 19,000 amputations among military personnel during World War II, but over 120,000 major amputations during this same period among our civilian population. Approximately 1,500 men were blinded while in military service during World War II, but 60,000 civilians lost their sight during the same period. Some 265,000 men were permanently disabled as a result of combat injuries during the war, but 1,250,000 civilians were permanently disabled by disease and accidents during the corresponding four years.

The National Health Survey conducted in 1935 led to the estimate that 23,000,000 persons in the United States are handicapped to some extent by disease, accident, maladjustment, or war. Later reports, based on smaller but probably more scientifically chosen samplings, have indicated that disability resulting from chronic disease is even more prevalent. In a recent survey in New Haven, Conn., conducted by the Yale University Department of Public Health, it was found that 121 persons out of each 1,000 in the population surveyed suffered from chronic illness, and that one-third of this number were totally disabled. Today, as medical science moves forward in the prevention and cure

of infectious disease, chronic illness with its resulting physical, emotional, social, and vocational disability, is becoming one of the nation's primary health and welfare problems.

That rehabilitation pays economic as well as social dividends, has been amply demonstrated by the military services, the Veterans Administration, and some model civilian programs. During 1944, 43,997 persons underwent rehabilitation under the joint Federal-State Vocational Rehabilitation programs. Of this group, 22 per cent had never held jobs, and 90 per cent were not employed at the time they started rehabilitation. Their average annual wage after rehabilitation was \$1,768, as compared with \$148 before. Many had been on public assistance at a cost of \$300 to \$500 annually, but the cost of their rehabilitation was but \$293 per case, a single rather than an annually recurring expenditure.

That rehabilitation is possible even with many of the aged chronically ill, has been shown by a study of 130 chronic neurological patients in the Veterans Administration Hospital at Minneapolis, Minn. All but two of this group were World War I veterans, and many had not been out of bed for 10 years. After 9 months of medical rehabilitation, 25 had left the hospital and were employed, 40 others had been discharged to their homes capable of light work, and of those remaining, 30 were ambulatory and undergoing advanced rehabilitation, and 25 were capable of some self-care. All but 10 of the group had shown significant permanent improvement. With a 5 year life expectancy for these patients, and a patient-day hospitalization cost of over \$12, rehabilitation of this one group alone has saved the government over \$1,250,000.

In the civilian field, rehabilitation, in varying degrees, has been available in some tuberculosis, mental, and other specialized hospitals, but little provision has been made for rehabilitation and dynamic therapeutics for the 14,000,000 persons who are patients in general hospitals each year.

The first comprehensive, total, medical rehabilitation program in any community hospital in this country was started at Bellevue Hospital in New York a year ago. Operated under the professional direction of the Department of Rehabilitation and Physical Medicine of the New York University College of Medicine, the service has bed facilities for 80 patients, and offers a program of physical medicine, physical therapy, occupational therapy, corrective physical rehabilitation, social service, corrective speech, psychological service, vocational guidance, education and planned recreation. It provides service to the other departments of the hospital in much the same manner as the x-ray and laboratory, and treats both inpatients and outpatients on reference from other services. This rehabilitation service in Bellevue Hospital, which will be enlarged to 600 beds when presently planned construction is completed, is the first step in a plan by the Department of Hospitals of the City of New York to provide all patients in municipal hospitals of the city with medical rehabilitation services.

The extent to which rehabilitation has entered into future planning in New York City in both public and private hospitals, is shown by a report of the Hospital Council of Greater New York, in which it was suggested that 25 per cent of the bed capacity of the city's general hospitals should be allocated for convalescence and rehabilitation. This would mean one such bed for each 1,000 of the city's population.

The Health Officer is an indispensable member of the rehabilitation team. Probably his most important role is in public and professional education as to the therapeutic possibilities offered by rehabilitation. He has a primary

part to play in case finding and in correlating all community and health resources into a unified program.

During the past several decades, the field of preventive medicine and the practice of medicine, surgery, and public health have made tremendous advances. Ironically, those advances, by delaying death, have created the need for a new "third phase of medical care"—rehabilitation—to meet the responsibility which Dr. Edward L. Bortz, President of the American Medical Association so aptly summarized when he said, "The society which fosters research to save human life, cannot escape the responsibility of the life thus extended. It is for science not only to add years to life, but, more important, to add life to the years."

THE FIRST WORLD HEALTH ASSEMBLY

AN important milestone in the history of public health was the first World Health Assembly of the World Health Organization, which met at Geneva on June 24, 1948. It will be recalled that the remarkably broad and inspiring Constitution of the WHO was drawn up at the New York International Health Conference in the summer of 1946. The World Health Organization came into official existence on April 7, 1948, when the necessary 26 nations had notified the Secretary-General of ratification of this constitution. At the Geneva meeting in June, delegates or observers from more than 70 participating countries were in attendance.

The United States (represented by Thomas Parran, Martha M. Eliot, and James R. Miller as official delegates, with a large staff of alternates and advisers) found itself in a somewhat difficult situation. The Rules Committee of the House of Representatives, in its long delayed reporting of the bill authorizing our membership, tacked on two ill-mannered and objectionable amendments. The first of these reserved the right of the United States to withdraw at any time on a one year notice; the second, limited the financial contribution of the United States, with unfortunate results which will be noted in a succeeding paragraph.

The reservation with respect to possible withdrawal of membership raised serious legal problems. No other nation had made any such stipulation. The United States was, however, at once granted full rights as a member, subject to final decision of the Assembly; and when the matter of the validity of the qualified ratification of the Constitution by the United States came up in the 10th plenary session, Sir Wilson Jameson of the United Kingdom opened with a brief statement accepting the validity of our ratification. He was followed by Sir Dhiren Mitra, a legal adviser to the High Commissioner for India in the United Kingdom, who also accepted the validity of the ratification from a legal point of view. At this point, Dr. Parran made a brief speech pointing out the great interest of the United States in the World Health Organization, quoting from the President's release at the time he signed the Act ratifying the WHO Constitution. The President of the Assembly then recognized the Chief Delegate from the USSR who referred to the legal problem raised, but after some discussion moved that the United States be accepted as a full member of the World Health Organization. The adhesion of the United States was thereupon accepted by general acclamation. From this time on there was no further question as to our full membership and desire to coöperate completely; and this unfortunate episode may be considered as closed.

EDITORIALS

Vol. 38

The main business of the Assembly was the consideration of a report by the Interim Commission appointed at New York, under the very able leadership of Dr. Andrija Stampar of Yugoslavia; and Dr. Stampar was elected President of the World Health Assembly to serve until the next meeting of that body. He presided with the forcefulness and fairness which we all associate with his distinguished personality.

The nations elected to the Executive Board for actual administration of the WHO program were Australia, Brazil, Byelorussian Soviet Socialist Republic, Ceylon, China, Egypt, France, India, Iran, Mexico, Netherlands, Norway, Poland, Union of South Africa, Union of Soviet Socialist Republics, United Kingdom, United States of America, and Yugoslavia.¹ The Executive Board elected Sir Aly Tewfik Shousha Pasha of Egypt as its Chairman. Dr. Brock Chisholm of Canada (who has served as director of the Interim Commission) was elected Director-General of the World Health Organization. No better choice could possibly have been made. Permanent central headquarters were established at Geneva; and six regional offices are contemplated, in the Eastern Mediterranean and Western Pacific regions, Southeast Asia, Africa and Europe (the last-named to render temporary service in war-ravaged countries). It is, of course, hoped to complete negotiations for integrating the Pan American Sanitary Bureau and the Pan-Arab Sanitary Bureau at Alexandria within the framework of the WHO. In this emphasis on decentralization, the new Organization is far superior to that of the League of Nations.

In general, the spirit of the Assembly reached a high plane of generous and whole-hearted coöperation; and we, as public health workers, may feel proud of the harmony and the enthusiasm which prevail in this area of international comradeship. Dr. Martha M. Eliot reports "at the First Assembly the program of action was finally adopted without dissent. The committee that formulated it was a 'committee of the whole' on which every nation was represented. When different views were expressed from the floor, 'working parties' were appointed. Usually these working parties were made up of those countries whose views were at variance, together with a few neutrals. Solutions to problems were as a rule promptly found, though, in a few instances, negotiations took both time and patience. In no case, when the matter under discussion related to health service or technical policy, was there an impasse. Only occasionally was a vote necessary in any 'committee of the whole' or in the plenary sessions, and, in such instances, the will of the majority was accepted without question."²

The program adopted by the Assembly gave top priority to six major problems—malaria, maternal and child health, the control of tuberculosis, and of the venereal diseases, environmental sanitation, and nutrition. In these fields, substantial budget allotments were made for staff and travel costs which would make possible, not only investigation of basic problems but also direct assistance to governments, at their request, in the form of expert advice, demonstration teams, and training programs. Public health administration (including public health nursing), parasitic diseases, virus diseases, and mental health were given a second grade of priority, each to be represented by at least one staff member and a small committee of experts.

All in all, the First World Health Assembly was an inspiring success. The

¹ Only three nations in the Western Hemisphere are included because only 8 out of 22 nations in this hemisphere had ratified the Constitution at the time of the Assembly.

² *Survey Graphic*, Sept., 1948.

only limitation on its future usefulness is a financial one—a problem created by the second reservation in the Act of Congress providing for our ratification. This Act fixed a limit of \$1,920,000 on the annual contribution of the United States—again a unique reservation, since no other nation had protected its pocket-book by similar action. The WHO voted to accept as its scale of proportionate financial support by various nations the scale established by the United Nations which calls for a contribution of about 38 per cent of the total world budget by the United States. This has been agreed upon as a reasonable arrangement for the year 1949, but it was decided to review the scale of contributions before the budget for the year 1950 is adopted. While prosperous peoples furnish more dollars under such a plan, it is no more onerous for the United States to provide \$38 than for many peoples to provide \$1. The total budget will most certainly, therefore, be kept by the Assembly within reasonable bounds, since all are equally interested in economy.

The establishment of \$1,920,000 by the United States automatically freezes the total budget of the WHO at \$5,000,000. This is quite reasonable for the moment, providing all the money which could be spent wisely for the first year. It is obviously inadequate for future developments. It is no more than the health budget of a single large city. It cannot suffice to finance a fully developed central organization, half a dozen regional offices with research and working parties, and a training program. We do not believe that any citizen of the United States will hesitate to contribute one three-cent postage stamp a year to the cause of world health, which would more than double the limit set by Congress. The establishment, in advance, of a ceiling for our contribution should be eliminated by future congressional action.

THE HEALTH RECORD OF THE EIGHTIETH CONGRESS

THE Congress which has recently expired (unless another special session is called this fall) has been described as the "worst" and "best" Congress in our national history. Both are perhaps exaggerations. In the health field, the average accomplishment is about 35 per cent of an ideal record.

We listed in the *Journal* for last January, eleven major bills (or groups of parallel bills) bearing on health problems which had been introduced. Of these, three have been passed in satisfactory form; and represent important advances in public health. They are the National Heart Act (Public Law 655), the Dental Research Act (Public Law 755), and the Stream Pollution Bill (Public Law 845). We urge public health workers to obtain copies of these three laws and to consider their possibilities.

A fourth measure, involving adhesion of the United States to the World Health Organization (Public Law 643) was passed with serious, but not fatal, amendments which have been discussed in a preceding editorial.

The other seven measures, dealing with cancer research, maternal and school health, training of public health personnel, the creation of a Federal Department of Health, Education and Security, and with the problems of housing and of medical care, were all smothered in committee. Almost all of them would have readily passed if they had come to the floor. It is important to recognize that the major procedure by which interested minorities strangle useful social legislation is through failure to hold hearings or failure to report a bill or refusal of

the rule necessary for consideration of a bill. Through the manipulation of committee machinery, a handful of influential politicians can block the realization of legislation which is desired by the majority of Congress, as has been the case in both the 79th and the 80th Congresses, with regard to housing. Our membership in the World Health Organization was salvaged, only at the last moment by great pressure upon the Rules Committee of the House of Representatives. This is a point important to bear in mind in working for sound health legislation in future sessions.

NINTH INTERNATIONAL CONGRESS ON INDUSTRIAL MEDICINE

IT is a decade since the last International Congress on Occupational Accidents and Disease took place—a decade in which industry, working conditions, and industrial health have undergone tremendous changes. It was therefore timely that the "Ninth International Congress on Industrial Medicine" should be called at London in September. This was originally described as an "International Congress on Occupational Accidents and Disease." The change in title significantly reflects a change in viewpoints which the past ten years have wrought in men's minds in this important segment of public health.

This year the program, instead of discussing accidents and disease as in former Congresses, had as its nucleus the factory and its environment, and then proceeded to the diseases of occupations, the organization of medical and nursing services, the training of medical and nursing personnel, legal aspects of industrial medicine, the social programs involved, and finally the integration of industrial medicine and community health services. It is significant but not surprising to note that a whole session was devoted to problems in the field of radiant energy.

The Congress should do much to clarify world thinking in its field. Its conclusions will be awaited with the keenest interest.

Clearing House on Public Health Salary Information

SALARIES IN LOCAL HEALTH

DEPARTMENTS

The State Personnel Administration Unit of the U. S. Public Health Service has completed its analysis of a sample study of salaries of professional workers in 236 local health departments in 37 states. This number of questionnaires was returned, of 366 sent to all full-time local health jurisdictions serving populations of from 50,000 to 250,000.

Salaries currently paid were reported for the following groups of workers, together with the number and the median salary of each:

Of the 39 health educators, 10 received \$3,600 or more and 5, less than \$2,400. These salaries include any cost of living bonuses or other temporary adjustments.

With some notable exceptions it is true that the higher salaries were found in the higher income and higher cost of living states. But the salaries as reported are eloquent testimony as to reasons for the high turnover; the overall shortage, and the defection from the ranks, of public health workers. If a fourth of the sanitary engineers and the professional laboratory personnel of

	Number Reporting		Range of Median Annual Salary
	States	Health Departments	
Health officer	34	191	\$6,480-\$6,720
Sanitary engineer	25	90	3,840- 4,080
Sanitarian	36	212	2,640- 2,760
Professional laboratory worker	23	84	2,640- 2,880
Supervising public health nurse	36	159	3,000- 3,120
Staff public health nurse	37	224	2,400- 2,510
Public health educator	16	36	2,880- 3,120

Six health officers received \$9,600 or more annually, but 7 received less than \$4,800. No sanitary engineer received as much as \$6,000 and 15 received less than \$3,000.

Only three sanitarians received \$4,800 or more and 245, more than one-fourth of the total, received less than \$2,400. Two professional laboratory workers received \$6,000 or more but 48, or more than one-fourth, less than \$2,400.

Ten supervising nurses received \$4,200 or more but 10 received less than \$2,400, 17 staff nurses received \$3,600 or more but 655, more than one-third of the total, received less than \$2,400.

local health departments serving populations of from 50,000 to 250,000 are receiving less than a capable stenographer can demand it is little wonder that there are not enough recruits.

This study is a part of the plan of the A.P.H.A. Committee on Professional Education and the Association of State and Territorial Health Officers to make available to administrative and appropriating bodies current information on public health salaries. The report of the initial study, based on salaries in state health departments, was made in the *Journal* of May, 1948, p. 715. A second analysis of salaries in

state health departments is now in process.

General guidance of the studies is provided by a Subcommittee on Salaries, whose chairman is William R. Willard, M.D., Assistant Professor of Public Health, Yale School of Public Health. The analysis and tabulation of returns are done by the Administrative Analysis Unit of the U. S. Public Health Service

under the direction of its chief, Don F. Simpson.

This study, published in limited quantity, is not available for general distribution but administrators or personnel officers with a need for it may secure it by request from the Committee on Professional Education, A.P.H.A., 1790 Broadway, New York 19, N. Y.

MASSACHUSETTS STANDARDIZES SALARIES

In 1947 Governor Bradford of Massachusetts appointed an advisory salary standardization board. The report of this board was published early in 1948 and is now available in printed form. Further, its recommendations were adopted by the General Court of Massachusetts.

Among the first results of the board's study and report is a standardization of the salary structure. Whereas previously there were more than 300 grades of positions in the state service, these have been consolidated into 74 grades for all except labor service, each with a salary scale, schedule of annual increments, and a maximum that takes effect beginning with the twelfth year of service. Minimum salaries for the 74 grades range from \$1,200 to \$9,900, maximum from \$1,800 to \$11,400. It might be added that only two current titles are in the lowest salary grade—union messenger and guide to the blind.

The immediate urgency of the cost of living was recognized by the board and the General Court which carried out its recommendations in a cost of living payment of \$100 to every state employee on April 1, 1948. Permanent salary increases became effective July 1, 1948, for every state employee not on statutory salary. In no case was the increase less than the lowest annual increment of \$120. The cost of the temporary cost of living adjustment

was \$2,200,000, the annual cost of the permanent salary increases \$3,800,000, the maximum amount, the board said, "which it is possible to provide at the present time without calling for new or additional taxes."

Below are shown public health titles in the various salary grades and salary scales and increments for each of these grades:

14. Dental Hygienist, Junior Sanitary Engineer Aid
22. Assistant Biometrician, Inspector of Eggs, Public Health Nutrition Worker, Tuberculosis Field Nurse
24. Inspector Mastitis Control, Milk Records, Dairy Products; Milk Control Inspector, Investigator; Junior Bacteriologist, Chemist, Senior Sanitary Engineering Aid
28. Food Inspector
29. Health District Sanitary Officer, Milk Control Enforcement Officer; Public Health Dental Hygiene, Public Health Nursing, and Public Health Social Work Supervisor; Supervising Tuberculosis Field Nurse; Poultry Inspector
30. Public Health Nutrition Supervisor
31. Veterinary Food Inspector
32. Assistant Bacteriologist, Chemist; Junior Sanitary Engineer, Public Health Education Worker
35. Assistant Epidemiologist, Biometrician, Milk Control Hearings Officer, Supervising Health District Sanitary Officer, Supervising Instructor Public Health Nurse
37. Assistant Public Health Physician, Supervising Poultry and Egg Inspector
45. Assistant Industrial Sanitary Engineer; Assistant Sanitary Engineer; Senior Bacteriologist, Chemist

47. Associate Public Health Physician
48. Assistant Director Milk Control, Assistant District Health Officer, Chief Supervisor Public Health Nursing, Chief Veterinary Health Officer, Public Health Dental Supervisor, Teacher Training Coördinator Public Health Education
50. Epidemiologist
51. Associate Sanitary Biologist, Chief Coördinator Public Health Education, Chief of Laboratory, Senior Sanitary Engineer, Public Health Personnel Training Supervisor
52. Tuberculosis Clinic Physician
54. Chief Public Health Dental Supervisor, Public Health Physician
56. Director Food and Drug Supervision
58. Associate Sanitary Engineer
59. Assistant Director Biologic Laboratories, Cancer and other Chronic Diseases, Communicable Diseases, Local Health Administration, Maternal and Child Health, Public Health Administration, Venereal Diseases; Director Dental Health, Public Medical Care, District Health Officer; Supervisor, Crippled Children's, Tuberculosis Clinics; Supervisor Hospital Inspection
61. Sanitary Engineer
63. Director Biologic Laboratories, Cancer and other Chronic Diseases, Communicable Diseases, Local Health Administration, Maternal and Child Health, Venereal Diseases
67. Deputy Commissioner and Director Sanatoria and Tuberculosis

Rates

Salary Grade	Annual Increment	Minimum	Second Year	Third Year	4th through 7th Year	8th through 11th Year	Maximum from 12th Year
14	\$120	\$1,980	\$2,100	\$2,220	\$2,340	\$2,460	\$2,580
22	120	2,460	2,580	2,700	2,820	2,940	3,060
24	120	2,580	2,700	2,820	2,940	3,060	3,180
28	120	2,820	2,940	3,060	3,180	3,300	3,420
29	120	2,880	3,000	3,120	3,240	3,360	3,480
30	120	2,940	3,060	3,180	3,300	3,420	3,540
31	180	3,000	3,180	3,360	3,540	3,720	3,900
32	180	3,120	3,300	3,480	3,660	3,840	4,020
35	180	3,240	3,420	3,600	3,780	3,960	4,140
37	180	3,360	3,540	3,720	3,900	4,080	4,260
45	180	3,840	4,020	4,200	4,380	4,560	4,740
46	180	3,900	4,080	4,260	4,440	4,620	4,800
47	180	3,960	4,140	4,320	4,500	4,680	4,860
48	180	4,020	4,200	4,380	4,560	4,740	4,920
50	240	4,200	4,440	4,680	4,920	5,160	5,400
51	240	4,320	4,560	4,800	5,040	5,280	5,520
52	240	4,440	4,680	4,920	5,160	5,400	5,640
54	240	4,680	4,920	5,160	5,400	5,640	5,880
56	240	4,920	5,160	5,400	5,640	5,880	6,120
58	300	5,100	5,400	5,700	6,000	6,300	6,600
59	300	5,400	5,700	6,000	6,300	6,600	6,900
61	300	6,000	6,300	6,600	6,900	7,200	7,500
63	300	6,600	6,900	7,200	7,500	7,800	8,100
67	300	7,800	8,100	8,400	8,700	9,000	9,300

Credit Lines

PUBLIC HEALTH WORKERS AND REHABILITATION

"Since Pearl Harbor, five American civilians have become disabled for every American soldier. At least 1,500,000 men and women in the civilian population have some disability which constitutes a barrier to their fullest mental, physical, social, vocational, and economic usefulness. And their number increases by 200,000 a year, through accidents and illness or from congenital causes." This paragraph is part of the foreword of a brief, concise and clear booklet on Vocational Rehabilitation which should be useful to all health workers (*Vocational Rehabilitation for Civilians*, Office of Vocational Rehabilitation, Federal Security Agency, Washington 25, D. C. 21 pp.).

Workers in health agencies become increasingly aware of the importance of well coördinated rehabilitation activities on the community level and of the part they must play in such planning. The booklet mentioned above lists as eight steps in vocational rehabilitation: case finding, medical and vocational diagnosis, guidance and counseling, physical restoration, training for a job; auxiliary services, placement, and follow-up. Case finding—the first step—depends on various sources. According to a statistical analysis on the sources of almost 150,000 referrals to state rehabilitation agencies, health agencies ranked as the largest single source (13.6 per cent), with insurance agencies, employment services, and selective service as close seconds.

Vocational rehabilitation activities are directed toward restoring the handicapped to employment at the highest possible level. This includes the spastic, the blind, the deaf, cardiac patients,

amputees, the paraplegic, the mentally deficient, and many others, at home or in institutions. It includes those who have never worked and others who have to relearn their usefulness. "Employ the Physically Handicapped Week" (October 3-9) reminds the general public that this is a community problem. Employment of handicapped workers does not represent charity since it has been shown that the physically or mentally handicapped have been able to perform efficiently 3,500 different jobs and, in general, the handicapped have a better volume of production, higher attendance rates, better safety records and stability than non-handicapped workers.

HOW IT'S DONE IN OREGON

The July 14 weekly *Oregon State Board of Health Bulletin* tells how the 25th county and 19th full-time county or multi-county health unit was organized. Securing such a unit has long been an objective of the Malheur County Tuberculosis and Health Association, it reports. The County Medical Society not only approved but appointed a county health council with a prime objective of obtaining a health department. The Oregon Tuberculosis and Health Association financed a full-time staff member for 4 months to acquaint citizens with the need, purposes, and functions of a county health department. The part-time county health officer and the county nurse approved.

Result: the citizens voted a bond issue to support a health department, the county court approved a budget of \$24,000 for the first year, sufficient to employ a full-time medical director, two nurses, a sanitarian, and a clerk.

Malheur County, with an area of nearly 4,000 square miles, in 1940 had a population of about 20,000. *Local Health Units for the Nation*, the report of the Subcommittee on Local Health Units, recommended a 3 county unit for this area including Grant and Harney Counties. This would make a unit of more than 10,000 square miles in area and less than 35,000 in population (1940) and illustrates graphically some of the problems of sparsely settled areas.

THE VERSATILE GOOBER

While Fairfield Osborn and William Vogt have been sounding their alarms about world-wide destruction of soil and dwindling food supplies, the British Government has developed a unique food program in Tanganyika, East Africa. The story is available in a very attractive pamphlet—*Not Just Peanuts*—available from British Information Services, 30 Rockefeller Plaza, New York 20. It is the story of a series of vast mechanized peanut farms planned for East Africa, to harvest three-quarters of a million tons of peanuts yearly and thus add to the world's edible fat and oil supply, to say nothing of raising the living standards of East Africa. This is one more evidence of the high level planning Britain initiated during the recent war in the effort to give all its citizens adequate nutrition. When the peanut project is in full swing every person in Britain will get 35 per cent more fat than the present ration of 8 ounces weekly.

ORIENTING DENTAL STUDENTS IN PUBLIC HEALTH

In order to aid the dental student "to appreciate the scientific and technical problems with respect to public health theory and practice and their various relationships to dental care," Alfred J. Asgis, D.D.S., Assistant Professor of Oral Surgery and Lecturer in

Public Health, New York University College of Dentistry, has prepared *Public Health and Dental Care*. He describes it as a "work book for the classroom." It is a tool to introduce the dental student to the background of the public health movement, essentials of public health dentistry, dental economics, training, and dental health planning.

Suggested topics and questions for exploration and discussion and a list of references together with blank pages accompany each paper. This should be a valuable aid both to the teacher and to the student in giving direction to the latter's interest and activity. Its design should help to interest the oncoming dentist in the public health aspects of his profession. Available from New York University College of Dentistry, 209 E. 23rd Street, New York. \$2.00.

THE STORY OF BRITISH CHILDREN DURING THE WAR

"The Health of the School Child" is the title of the 1939-1945 war period report of the Chief Medical Officer of the British Ministry of Education, Sir Wilson Jameson.

It is the story of the evacuation of three-quarters of a million children, of the annual medical examination of more than a million and a quarter children of school age, of improved health and nutritional standards during the war, of lowered infant and child mortality rates.

The reasons are many but chiefly the "brilliantly successful food policy," described as "the first large-scale application of the science of nutrition to the population by rationing according to needs, by subsidies on staple foodstuffs, by home production and importation of suitable foods in suitable amounts, and by Lend-Lease arrangements. All these except Lend-Lease have been taken over into Britain's post-war national organization.

This is an exciting story of how, with an expenditure of \$20,000,000, Britain's children were involved in "a victory more lasting than the greatest military triumph . . . the victory has been consolidated and has created a base for further advance."

Available from the Sales Department, British Information Services, 30 Rockefeller Plaza, New York 20. 90 cents.

MORE STIRRINGS IN INDIANA

The first annual report of the Health Section of the Indianapolis Council of Social Agencies (901 Lemcke Building, Indianapolis 4) has recently been published—modest as becomes youth—signaling the first year of full-time staff service. Its story is one of solid accomplishment nevertheless. In May also it issued Volume 1 Number 1 of a one page monthly *Health Bulletin*. The report of the Priority Committee makes the development of a master health plan for metropolitan Indianapolis a major goal, the foundation of which is full-time public health department service in both city and county.

CONSOLIDATION HITS ITS STRIDE

Ohio Public Health, of the Ohio Tuberculosis and Health Association, is authority for the news that the Metropolitan Health Council of the City of Columbus and Franklin County has made one of its major projects a proposal to merge the five health departments in the county—Columbus and Franklin County with full-time health officers, the towns of Bexley, Grandview, and Upper Arlington—into a single county health department. This recommendation was first made a year ago by the Rural Health Committee of the Council after a survey of health services in the rural areas of the county.

The proposal for merging city and county health services has been endorsed by the Columbus Mayor, Academy of Medicine, Farm Bureau,

and Community Health Services, as well as the Metropolitan Health Council. The last has created a Health Department Integration Committee which includes membership, both official and voluntary, from the smaller communities in the county.

The population of Franklin County is about 400,000 of which all but one-fifth is in Columbus. Thus the four administrative units outside of Columbus have been serving a total population of less than 85,000. Per capita health expenditures have ranged from \$1 in Columbus to 15 cents in two of the suburbs.

INDUSTRY AND SANITATION

Another example of the growing recognition by industry of the money value of good sanitation is given in the *Sanitation News* bulletins published by the National Confectioners' Association, 1 N. LaSalle St., Chicago 2. Directed to the confectionery industry, these have been published at intervals of about 6 weeks and cover such topics as product control, storage, insect growth and control, rodents and their control, and personal hygiene.

EACH HAS ITS JOB IN DENTAL HEALTH

The Georgia Department of Public Health, Atlanta, has put out an attractive pamphlet in color, *For Dental Health*. In pictures and a few words it tells what the responsibility of the individual, the parent, teacher, dentist, public health worker, and citizen is in promoting dental health. Pictures of attractive youngsters are its passport to attention.

WORTH ACQUIRING

War in the Kitchen was prepared in the New York State Department of Mental Hygiene (State Office Building, Albany, N. Y.) by someone with a sense of humor and an appreciation of "brevity as the soul of wit." Calling

the kitchen a fortress against a deadly enemy—germs—in brief compass and bright language it tells food service employees of New York State mental institutions how not to contaminate food, how to wash it, what foods need thorough cooking, how to wash dishes, etc. The booklet does not say so, but perhaps a pretty please will get it for you. It ought to be a right smart help in food handlers' courses.

This Will Kill You will interest you because (1) it illustrates how words, pictures, color, and style generally can deliver their message so that he who runs may read, even without a Phi Beta Kappa key, (2) it gives the simple arguments in favor of a national health insurance plan. Illustrations by Eric Godal. Committee for the Nation's Health, 1790 Broadway, New York 19.

\$.03–\$.0375 per copy depending on size of order.

You Can Make a Good Radiograph: Here's How, prepared by Arnold J. Moen, X-Ray Engineer of the Washington State Department of Health's Tuberculosis Division, (1412 Smith Tower, Seattle 4) is subtitled, Practical Dark-room Procedure for X-Ray Film. Detailed instructions then follow on mixing solutions, temperature control, order of processing, exposure technique and all the necessary details for good results. The longest section is "The Reasons Why" and the payoff is, "These directions may sound like a lot of bother but experience has proved that when such a standard routine procedure has been established in the dark-room, the radiographic results are more consistent."

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted. All books reviewed in these columns may be purchased through the Book Service.

A History of Medicine — By Douglas Guthrie. Philadelphia: Lippincott, 1946. 448 pp. Price, \$6.00.

This is a reprinting of an excellent *British History of Medicine*, with an introduction by S. C. Harvey of Yale. It is unusually well written and can be read, as well as used, for reference. The information seems to be well documented, and the 72 plates are illuminating and most of them from sources not otherwise readily accessible. The discussions of prehistoric medicine and of the ancient medicine of India were of particular interest to the reviewer. The chapter on "The Rise of Specialism and of Preventive Medicine" brings together in convenient form much valuable information on the specialties. Preventive medicine, however, is dismissed in six pages in this chapter and the Appendix lists only five references on public health, of which but one is of primary importance.

This is perhaps the best brief work on general medical history which we have—perhaps the best which could be prepared. It will be of value for reference and may be read by the medical student to advantage. It is obviously impossible, however, in one volume of some 400 pages to develop the historical perspective and the philosophical interpretation necessary for an understanding of the real significance of the history of scientific advance in this field. One may fairly raise the question whether the history of medicine is not too vast and complex a subject to be profitably treated in one small volume. Castiglione takes over 1,000 pages for the job. The history

which Sigerist is preparing will—we understand—include at least eight volumes; and there is only one Sigerist. What we most need, perhaps in the future, is the thorough and thoughtful exploration of particular periods of medical history or of particular problems of medical science on a scale that permits a real critical illumination of the topic involved.

C.-E. A. WINSLOW

Physiologic Therapy in Respiratory Diseases—By Alvan L. Barach, M.D. (2nd ed.). Philadelphia: Lippincott, 1948. 408 pp. 74 illus. Price, \$9.00.

This book is a discussion of the use of oxygen, carbon dioxide, and helium in the treatment of pulmonary disorders. It should interest scientists particularly concerned with the processes of respiration, anesthetists who use nitrous oxide, and clinicians who specialize in pulmonary disease.

The first 3 chapters cover the historical development of these modalities. Then there are 20 chapters each devoted to the treatment of a chest condition (among them pneumonia, asthma, emphysema, bronchiectasis, pulmonary embolism and infarction, post-operative atelectasis, congestive heart failure, asphyxia, nitrous oxide anesthesia, pulmonary tuberculosis, hiccough, and coronary thrombosis), and finally 5 chapters concerning apparatus and methods.

Much of the discussion of anoxia is quite theoretical and some of it seems repetitious at times, but it is not obscure. Chemotherapeutic aerosols are considered in relation to pneumonia, asthma,

bronchiectasis, and sinusitis. The chapters on apparatus are well illustrated, they enumerate the advantages and disadvantages of oxygen tents and rooms, oxygen masks, and nasal and pharyngeal catheters, and give specific advice concerning their use in different conditions.

There is a general index and at the end of each chapter there is a rather long bibliography.

The book is obviously the work of a man who understands the physiology of respiration in health and disease and who has had wide experience in this field. The clinician will find it easy to use as a reference book and should find it valuable in this capacity.

ALAN L. HART

Principles of Occupational Therapy—*Edited by Helen S. Willard and Clare S. Spackman. Philadelphia: Lip-pincott, 1947. 416 pp. Price, \$4.50.*

Nineteen authors collaborated with the editors to produce this excellent collection of monographs to serve as a basic text for doctors, nurses, social workers, and occupational therapists.

The history, scope, and aims of occupational therapy and the organization of occupational therapy departments are discussed. The principles of occupational therapy are applied to a multitude of general problems within hospitals. Special chapters are devoted to mental disease, cerebral palsy, arthritis, tuberculosis, and visual handicaps. Finally, Army and Navy occupational therapy departments and the Veterans Administration rehabilitation program are described.

Until 1941 there were only 5 schools for professional occupational therapy training: today there are 26. The great increase in registrations, approximately from 100 to 1,750, has necessitated some control of the number of new schools.

This is not a textbook to describe, in detail, technical methods employed by occupational therapists. Its purpose is

to set forth the principles underlying occupational therapy—an objective which is admirably achieved. The general plan of presentation is: (1) description of chief characteristics of each disability; (2) discussion of general principles of occupational therapy in relation to these characteristics; and (3) enumeration of definite occupational therapy procedures which can be used in specific instances. This presentation of the basic principles and objectives should be valuable not only to occupational therapists but to other professional workers who can use it to understand and utilize occupational therapy and appreciate its value to the disabled.

As is frequently true when authors separately contribute to a symposium, duplication occurs. Examples are the several descriptions of desirable personal attributes for occupational therapists, and the many recommendations for workshops for the disabled. The reader who needs a composite of such opinions will find the index helpful but, frequently, not sufficiently extensive.

NORVIN C. KIEFER

Basic Facts of Health Education, Selected Articles from the Ministry of Health Bulletins published in the Pharmaceutical Journal, 1944-1947. *London: The Pharmaceutical Press, 1948. 193 pp. Price, 7 s. 6d.*

This publication is an interesting assortment of brief health articles by officers of the British Ministry of Health and allied health authorities published at quarterly intervals over a three year period in the *Pharmaceutical Journal*.

The articles were designed primarily to help pharmacists keep abreast with developments about which they might be consulted by the general public. The wide range of subject matter covered reflects well the important educational role of pharmacists with individuals in their "across the counter" contacts.

This volume will be of general inter-

est to members of the medical, pharmaceutical, nursing, and public health professions. A. HELEN MARTIKAINEN

Principles of Medical Statistics—
By A. Bradford Hill, D.Sc., Ph.D.
(4th ed.) London: The Lancet Ltd.,
1948. xii and 252 pp. Price, 10s. 6d.

It is always interesting to follow the development of a successful textbook in its course through successive editions: to deduce something of the author's development as life and experience impinge on him. The present edition of Hill's book is a thorough revision and expansion of the third (it has 61 more pages) and so incorporates much of the author's thinking in the past years.

The core of the book is unaltered. The presentation is still designed to give the student a clear idea of the simple, essential tools necessary for the statistical attack on quantitative data in medicine and public health. The careful reader will learn to use these tools; what is more important, he will know why he is using a particular one, and its limitations. He should also find it more difficult to draw wrong conclusions from apparently correct procedures—probably the most frequent and damaging fault of statistical analysis.

The bulk of the new material is devoted to the expansion and clarification of points which have proved to be troublesome. A whole new chapter is devoted to "The Average," and a second chapter on "Standardized Indices" has been added. Considerable additions have been made to the discussions of distributions, the characteristics of rates, and the use of "significance" tests. The inclusion of an occasional word or phrase gives evidence of heated arguments which must have taken place in classes, or outside.

HUGO MUENCH

**Oral Vaccines and Immunization
by Other Than Usual Routes—**By
David Thompson and Robert Thomp-

son, assisted by James Todd Morrison.
(Published for the Pickett-Thompson
Research Laboratories, London, Eng-
land.) Edinburgh: E. S. Livingstone,
Ltd., 1948. xi and 329 pp.

This book is a reference work for the research worker interested in immunization by other than parenteral routes, and for this group it should prove of great value. It is divided into four parts, three of which deal with oral immunization, and these sections make up the greater portion, while Part IV is concerned with immunization by other unusual routes, including the respiratory tract, and immunization through the skin by means of ointment vaccines. As stated in the preface, the authors attempt to bring together into one volume the results of many researches on the subject, and although not all of the literature is covered, a large portion is summarized here—a spot check of references on a few diseases discloses this to be so. The bibliography is alphabetical, and the references are unnumbered with relation to the text, making it less handy to use.

The authors feel that immunity can be obtained using vaccines administered by unorthodox routes. It is safe to say that with certain vaccines this is possible, but practical considerations such as size and number of doses is pertinent, and in general the authors' opinion of efficacy is optimistic, measured against what is known today concerning inoculation against the same diseases by the more orthodox routes.

FRANKLIN H. TOP

Tuberculosis Nursing Manual—
By Martha E. Flynn and Doris Roberts,
under the direction of Dr. LeRoy R.
Allen. Baltimore: Maryland State De-
partment of Health, 1948. 40 pp.

The revised tuberculosis section of the *Public Health Nursing Manual* of the Maryland State Department of Health provides the public health nurse

with pertinent information regarding the disease tuberculosis and summarizes the responsibilities of the public health nurse in the tuberculosis nursing service.

In the introduction the authors point out that "the follow-up standards of visits to cases and contacts are minimum and will have to be modified upward at the advice of the physician or at the discretion of the public health nurse." This is important to remember when reading the manual, as some physicians may desire closer supervision and others may feel less supervision is necessary for their tuberculosis patients and contacts. The authors have included summaries of the minimum follow-up standards for tuberculous patients and the minimum follow-up standards for contacts, which is of value as a quick reference. A definition of who is a contact could be included to clarify further the follow-up of contacts.

They point out that the frequency of nursing visits to the home must be decided on an individual family basis and factors influencing this decision are presented. The selection of the public health nurse's tuberculosis case load and the clinic case load is clarified so that supervision is advised for those who need it and not continued indefinitely to families when contact with the source case has been broken over two years.

This manual is carefully prepared with a detailed index and reference. Any nurse who is interested in tuberculosis control will find this book stimulating and valuable, and it is highly recommended for those who are compiling or revising a tuberculosis nursing manual.

HELEN M. GREEN

The Care of the Teeth, Prenatal and in Infancy—By C. Herbert H. Russell, M.B., Ch.B., L.D.S., *Altringham, Eng.: John Sherratt & Son, 1948, 48 pp. Price, 2/ net.*

The author of this handbook for mothers and expectant mothers pre-

sumes that it is not "a matter of chance whether teeth, when erupted, were of good or poor quality, and whether they were arranged evenly or too crowded. . . . Now we know that to a great extent these things can be controlled." Most dental authorities in the United States would not support this premise. As Higley points out, "all the etiologic factors are not known, many are not or cannot be detected until a deformity appears, some are practically unavoidable because inherited. . . . Incipient deformity does and probably always will occur regardless of the dentist's desire to practice prevention." However, our American authority adds "Serious deformity can be minimized if the dentist recognizes incipient deformity."

The concept of dental caries etiology, as expressed in this volume, is likewise not in agreement with the consensus in this country. Most American authorities would contradict the statement that, "difference between good hard teeth and soft chalky teeth is largely dependent upon prenatal care."

This volume clearly indicates the urgent need for research in dental fields. The recent passage by Congress of an appropriation for dental research should therefore be acclaimed by public health personnel.

J. M. WISAN

Ordinance No. 2467 — Providing for the Regulation and Operation of "Care Homes"—*City of Fort Worth, Texas: Public Health and Welfare, 1947.*

This is an extraordinary ordinance. Those who plan to have such an ordinance drawn or amended can profit from its study. This ordinance has good and bad features. The companion "Rules and Regulations" apparently are separately adopted.

Even "Boarding Homes" for persons 60 years or more of age are required to secure permits. The Director of Public Health and Welfare is authorized,

among other things, (1) to determine type as well as the number of patients to be cared for in a given home; (2) to cause the operator, including each member of an association or corporation, to furnish satisfactory evidence of financial responsibility (desirable but probably too extreme and unenforceable); and, (3) to require that the operator file floor plan detailing beds, exits, etc.

Some desirable and unusual requirements set forth in the "Rules and Regulations" include: an isolation room with separate toilet and lavatory for terminal cases; a suitable room for the proper care of the dead pending removal; a properly equipped recreation room; a room where patient may (upon request) talk privately with relatives, clergymen, etc.

A building of wood frame construction, having inside walls and ceilings covered with plaster (on wire lath) or gypsum board, and without enclosed stairwells and boiler room, and, whenever indicated, sprinkler and signal systems, would be disapproved for such use by fire authorities in the New York City Area.

The major shortcomings of the ordinance and its rules appear to be, (1) no provision is made for probationary licensure; (2) publicly operated "Care Homes" are exempted; (3) placement of patients in basement rooms may be permitted; (4) the requirements regarding extent and quality of medical care and supervision of patients in such facilities (although sounder than those in most such ordinances) fall short of those possible, under a hospital affiliation plan (rehabilitation and occupational therapy are not mentioned).

One could question the advisability of admitting alcoholics, providing for appeal of the operator to City Council, requiring health certificates for food handlers, relating number of sanitary installations on all floors to number rather than to extent of ambulation of pa-

tients, stating only a minimal width of beds, prescribing minimal quantity of bedding, linens, etc., in terms of pieces per patient, giving all operators opportunity to qualify for "Life Fee" and having permits expire 1 year after date of issue.

This ordinance has been in effect 8 months. Administrative problems involved in its enforcement should be recounted at an early date.

JOSEPH H. KINNAMAN

Essentials of Nursing—By Helen Young, R.N., Eleanor Lee, A.B., R.N., and Associates. (2nd. ed.) New York: Putnam's, 1948. 556 pp. Price, \$3.75.

This second completely revised edition of one of the important basic texts for students offers up-to-the-minute information on essential nursing procedures. It is well illustrated and with its tables of weights, measurements, abbreviations, and normal values in common diagnostic tests should serve as an indispensable reference book in the offices of public health nursing agencies. It is a pleasure to recommend it unreservedly for that purpose. Anyone wishing more detailed information will find the copious reading lists at the end of each chapter helpful.

DOROTHY DEMING

You Can Lick TB—Handbook for Tuberculosis Patients, Pamphlet 10-18. Washington, D. C.: Veterans' Administration, 1947. 36 pp.

This 36 page handbook for tuberculosis patients, designed for G. I.'s, contains suggestions which civilian tuberculosis hospitals might pursue with profit. It presents in extremely simple, non-technical, sometimes slangy English basic non-controversial facts about tuberculosis, always keeping the patient as a human being and his probable mental attitude in mind.

The patient is warned against false advice and misinformation by others; also against his own failure to follow his

physician's advice. He is reminded of the concern of large numbers of people for his recovery, and of various governmental services, including rehabilitation, available.

The booklet has a cheerful look. Hope of permanent recovery is stressed. Multicolored charts for recording hourly schedules advised by the physician then observed by the patient are included.

JOHN H. KORN

Occupational Medicine and Industrial Hygiene—By *Rutherford T. Johnstone, M.D.*; St. Louis: Mosby, 1948, 604 pp. 117 illus. Price, \$10.00.

The largest portion of this well balanced volume is devoted to the clinical aspects of industrial poisonings and diseases. The subject matter is grouped according to the chemical and physical nature of the materials to which the worker is exposed, for example, solvents, metals and dusts. There are, in addition, excellent discussions of the subject of workmen's compensation, the teaching of industrial medicine, functions of the industrial physician, preemployment examinations and the placement program. Industrial hygiene receives lesser emphasis but certainly is sufficiently detailed for the general information of the plant physician.

In all, there are not many textbooks in the field of the occupational diseases and in the past these have, for the most part, been devoted to elaborate descriptions of industrial processes and the substances employed in industry which produce disease. Detailed clinical knowledge of the occupational diseases has been accumulating rapidly during the past twenty years. The real contribution of the present volume is the assembling of such detailed clinical information which is made available to the medical profession in one place.

Two additional portions of the book require mention and commendation. One is a list of chemicals which are present

in common "trade name" products. The second is an outline of methods for the sampling and analysis of atmospheric contaminants, prepared by Senior Chemist, F. H. Goldman of the National Institute of Health.

Many photographic reproductions are presented, some of which are in color. These serve admirably to present some of the bone marrow, blood, and other pathological findings so well described in the text.

It is the opinion of the reviewer that the present volume supplies an important need in the field of the occupational diseases and industrial medicine. The practising physician, as well as the specialist in this field, should find the book of essential importance.

LEONARD GREENBURG

Taking the Cure—By *Robert G. Lovell, M.D.*, New York: Macmillan, 1948. 93 pp. Price, \$2.00.

As a former patient the author of this book has gone through that difficult period of adjustment that every new patient encounters when he enters a hospital for the first time. He has attempted to present to the new patient an explanation and answer to the most perplexing problems that arise in his new environment. At times the phraseology is a bit advanced for many patients in our hospitals and it would have been improved with more illustrations.

In paragraphs listed in the index in the first half of the book, the chief topics of interest to the new patient are discussed briefly. In the latter half of the book the author has delved more deeply into the peculiarities of the disease and here one might wish to find even more complete explanations than are given. So important a part of our program as rehabilitation, for example, is given scant space and such references as occur are barely suggestive of its real possibilities. The patient is to believe that there is a better life ahead but

he is shown few real guides to achieve it once his hospital phase is completed. Also, it would have been valuable had the author discussed the facilities for supervision and care outside the hospital. Nothing is said about the family doctor, the health department, the visiting nurse, and other agencies that so frequently contribute in some manner to the well-being of the patient and his family. The appendix presents excellent suggestions on the art of reading, listening to music, and a few games.

This is a worth while book that will help many patients in the hospital to understand more clearly their personal responsibility in the cure of their disease.

HERBERT R. EDWARDS

Mental Health in Modern Society
—By Thomas A. C. Rennie, M.D., and
Luther E. Woodward, Ph.D. New York:
The Commonwealth Fund, 1948. 410
pp. Price, \$4.00.

This is really two books in one; a genuine bargain for those interested in both subjects treated. Parts I and II of the text deal with psychiatric lessons learned from the recent war. Part III, the latter half of the book, moves into what may be termed the public health phase of mental hygiene, and justifies the title *Mental Health in Modern Society*.

This title will attract the attention of an ever-widening circle of persons concerned, both for themselves and others, with developing and maintaining amidst the perplexities of the times this priceless thing called mental health. Although there is danger that some war-weary minds will be repelled by the opening chapters devoted to the psychiatric problems of war, yet the contents of Part III will more than repay earnest seekers after the more comprehensive desiderata promised by the title.

Public health mental hygiene, as stated in the preface, rests on the promise that "Whereas the clinician's con-

cern is with illness, the public worker is concerned with positive help. His job is keeping people well. . . . His effort is directed primarily to finding and controlling foci of infection. By analogy, those who are concerned with mental health will have to deal with ignorance, superstition, unhealthy cultural patterns, and the rigidities and anxieties of parents, as well as with social conditions which foster the development of neuroses and maladjustment."

Chapters XII and XIII, devoted respectively to Family Living and Education, comprise one of the most adequate statements known to the reviewer of the basic concepts of preventive mental hygiene. These chapters alone are worth the price of the book. The remainder of Part III—dealing by chapters with the contributions of practising physicians, social workers, psychologists, pastoral counseling and church life, mental hygiene in industry, and interviewing and counseling—all support the central thesis that "mental health problems are to a large degree socially conditioned and that to promote mental health it is necessary to give attention to groups as well as to individuals."

This book, specifically for the special contents noted above, is strongly recommended for all public health workers.

PAUL H. STEVENSON

Noah Webster: Letters on Yellow Fever Addressed to Dr. William Currie—Introductory essay by Benjamin Spector. (*Supplements to the Bulletin of the History of Medicine No. 9.*) Baltimore: The Johns Hopkins Press, 1947. vi + 110 pp. Price, \$2.00.

In the history of American civilization, the name of Noah Webster stands out preëminently as a lexicographer and schoolmaster. Like so many of his contemporaries, however, Webster had a wide variety of other interests, among

them various scientific subjects. His major contribution to science was in the field of epidemiology, culminating in the publication in December, 1799, of his *Brief History of Epidemic and Pestilential Diseases* (2 volumes). This work is noteworthy on two grounds: it offers an excellent summary of epidemiological thought at the close of the 18th century, including a history of epidemiological theory from ancient times to 1799; and it presents a clear exposition of the anticontagionist standpoint with particular reference to the influence of the epidemic constitution in the causation of pestilence.

Webster had arrived at this position after a decade of study. The basis for the *Brief History* had, however, already been published several years earlier. It appeared in 1797, in the October, November, and December issues of the *New York Commercial Advertiser* as a series of 25 letters addressed to Dr. William Currie of Philadelphia. When yellow fever appeared in Philadelphia in 1797, Dr. Currie had written a series of newspaper letters advocating the theory that the disease was propagated by contagion and had been imported. Webster denied the foreign origin of the disease and asserted that it arose from local causes.

These letters Dr. Benjamin Spector has reissued, together with an introductory essay in which he appraises Webster's contribution to American medical thought, and in particular evaluates the content of the letters in terms of epidemiological ideas prevalent at the

time. Webster's letters will be of interest to all those who realize that epidemiology is still a science with many unsolved problems, and that in essence the riddles that Webster tried to solve are still with us. Dr. Spector is to be congratulated for having made these letters available to a wide audience.

GEORGE ROSEN

Laboratory Experiments in Physiology—By William D. Zoethout, Ph.D., Professor Emeritus of Physiology in the Chicago College of Dental Surgery (Loyola University). (4th ed.) St. Louis: Mosby, 1948. 263 pp. Price, \$3.00.

This is the fourth edition of a standard and widely used manual covering laboratory experiments designed to give firsthand information on all the major functional aspects of biological systems, particularly as these relate to human physiology. The first two chapters deal with the properties of experimental equipment and the nature of relevant chemical and physical systems and their effects on body function. Experiments are arranged in the eleven chapters of the first part of the manual on the basis of the body system under consideration. The second part of the manual deals in six chapters with metabolism, nutrition, and related biochemistry. The textual treatment is brief and, like the physical aspects of the book itself, is of a high order. This modest volume deserves continued success.

DONALD YOUNG SOLANDT

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

- ADVANCES IN BIOLOGICAL AND MEDICAL PHYSICS. Vol. I. John H. Lawrence and Joseph G. Hamilton. New York: Academic Press, 1948. 484 pp. Price, \$8.60.
- ADVANCES IN PEDIATRICS. Vol. 3. S. Z. Levine, Allan M. Butler, L. Emmett Holt, Jr., A. Ashley Welch. New York: Interscience, 1948. 363 pp. Price, \$7.50.
- DAIRY MANUFACTURING PROCESSES. E. L. Fouts and T. R. Freeman. New York: Wiley, 1948. 237 pp. Price, \$3.50.
- EVERYDAY MIRACLE. Gustav Eckstein. New York: Harper & Brothers, 1948. 235 pp. Price, \$2.75.
- FELLOW AMERICANS. Vol. I. Orientation: The World We Live In. Syrus Bass. Chicago: Atomic Age Publishers, 1948. 501 pp. Price, \$3.75.
- MEDICAL WRITING. Morris Fishbein, M.D. (2nd ed.). Philadelphia: Blakiston, 1948. 292 pp. Price, \$4.00.
- MORE THAN ARMIES. The Story of Edward H. Cary, M.D. Booth Mooney. Dallas: Mathis, Van Nort, 1948. 270 pp. Price, \$5.00.
- NEW TECHNIQUES OF HAPPINESS. Albert Edward Wiggam, D.Sc., LL.D. New York: Wilfred Funk, 1948. 352 pp. Price, \$3.75.
- NURSING FOR THE POLIO MYELITIS PATIENT. Prepared and Published by the Joint Orthopedic Nursing Advisory Service of the National Organization for Public Health Nursing and the National League of Nursing Education. New York: N.O.P.H.N., 1948. 88 pp. Free.
- PEDIATRIC NURSING. Gladys S. Benz, R.N., B.S., M.A. St. Louis: Mosby, 1948. 638 pp. Price, \$4.00.
- PIONEER HEALTH CENTRE—Peckham, London. London: National Trust for the Promotion and Study of Health. 16 pp. Price, 6d.
- PLANNING FOR HEALTH IN POSTWAR HAWAII. Public Health Committee. Honolulu, Hawaii: Chamber of Commerce, 1948. 76 pp.
- PRACTICAL BACTERIOLOGY, HEMATOLOGY, AND PARASITOLOGY. E. R. Stitt, M.D., Paul W. Clough, M.D., and Sara E. Branham, M.D. (10th ed.). Philadelphia: Blakiston, 1948. 989 pp. Price, \$10.00.
- PUBLIC HEALTH ENGINEERING. Vol. I. Earle B. Phelps. New York: Wiley, 1948. 655 pp. Price, \$7.50.
- RONALD ROSS, DISCOVERER AND CREATOR. R. L. Mégroz. New York: Macmillan, First Published in 1931. 282 pp. Price, \$3.00.
- SOCIAL DENMARK. A Survey of the Danish Social Legislation. Edited and Published by Socialt Tidsskrift Copenhagen, 1947. 475 pp.
- SOCIAL GROUP WORK. Principles and Practices. Harleigh B. Tracker. New York: Woman's Press, 1948. 313 pp. Price, \$3.50.
- SURVEY OF FOOD AND NUTRITION RESEARCH IN THE U. S., 1947. Washington, D. C.: National Research Council, 1948. 306 pp. Price, \$1.00.
- SUCCESSFUL MARRIAGE: A MODERN GUIDE TO LOVE, SEX AND FAMILY LIFE. Edited by Morris Fishbein, M.D., and Ernest W. Burgess, Ph.D. New York: Doubleday, 1948. 547 pp. Price, \$6.00.
- YOUR DILT FOR LONGER LIFE. James A. Tobey, Dr.P.H. New York: Wilfred Funk, 1948. 280 pp. Price, \$3.50.
- ZINSSER'S TEXTBOOK OF BACTERIOLOGY. Revised by David T. Smith, M.D., Donald S. Martin, M.D., M.P.H., Norman F. Conant, Ph.D., Joseph W. Beard, M.D., Grant Taylor, M.D., Henry I. Kohn, Ph.D., M.D., and Mary A. Poston, M.A. (9th ed.). New York: Appleton-Century-Crofts, Inc., 1948. 992 pp. Price, \$10.00.

THE FOLLOWING REPORTS HAVE BEEN RECEIVED

- ARKANSAS STATE BOARD OF HEALTH. Division of Communicable Disease Control. Tenth Annual Report for the Year Ending December 31, 1946. A. M. Washburn, M.D., Director. Little Rock: State Board of Health, 1948. 23 pp.
- ARKANSAS STATE BOARD OF HEALTH. Annual Report July 1, 1946 to June 30, 1947. Little Rock: State Board of Health, 1948. 66 pp.
- Baruch Committee on Physical Medicine. Annual Report 1947. New York: Baruch Committee on Physical Medicine. 182 pp.
- BETH ISRAEL HOSPITAL. Bi-Annual Report 1946-1947. Boston, Mass.: Beth Israel Hospital. 40 pp.
- EVANSTON, ILLINOIS. DEPARTMENT OF HEALTH, 1947. Annual Report. Evanston, Ill.: Department of Health.
- HOSPITAL FOR JOINT DISEASES. Annual Report for the Year 1947. New York: Madison Avenue and 123rd Street. 103 pp.
- LINCOLN CITY-LANCASTER COUNTY, NEBRASKA

- BOARD OF HEALTH. 1st Annual Report. July 1947-June 1948. Lincoln, Neb.: Department of Health City-County. 16 pp.
- PENNSYLVANIA TUBERCULOSIS SOCIETY. Annual Report April, 1947, to March, 1948. Philadelphia: Pennsylvania Tuberculosis Society. 16 pp.
- PUERTO RICO, Report on the Statistical System. Puerto Rico: Division of Statistics, Bureau of the Budget, 1948. 53 pp.
- SAGINAW COUNTY DEPARTMENT OF HEALTH. Annual Report, 1947. Saginaw, Michigan: County Health Center. 58 pp.
- SHELBY-EFFINGHAM BICOUNTY DEPARTMENT OF HEALTH. Annual Report for Fiscal Year Ending June 30, 1948. Shelbyville, Ill.: Health Center Building. 8 pp.
- WORCESTER, MASS. DEPARTMENT OF PUBLIC HEALTH. Annual Report, 1947. Worcester: Harrigan Press. 81 pp.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Unfancy Writing — All right, infant hygiene isn't your job! Very well, you aren't a baby's parent! Read this paper anyway. (Time out for your skimming.) Have you ever seen a scientific treatise with less stuffy writing? Or one more readable? The reason the writer wished to remain anonymous is beyond my comprehension.

ANON. "Baby Independence": A Mother-Baby Situation. *Pub. Health Nurs.* 40, 7:359 (July), 1948.

Some Mild, Tepid Crowing—None of the large cities had a diphtheria mortality rate (for 1947) in excess of 5. Those cities with no deaths increased to 49. These are the best records since 1940, and the total of all diphtheria deaths in all the cities was lowest on record.

ANON. Diphtheria Mortality in Large Cities of the United States in 1947. *J.A.M.A.* 137, 17:1525 (Aug. 21), 1948.

Tuck This Away—Routine use of alum-precipitated diphtheria toxoid and pertussis vaccine mixture should give a higher degree of protection against diphtheria than the toxoid alone. This is just one finding of a nicely controlled study.

BILL, J. A. Diphtheria Immunization. *J.A.M.A.* 137, 12:1009 (July 17), 1948.

Just Pure Fun — Please don't anybody miss this. It's Mary Ellen Chase at her best.

CHASE, M. E. The Country Doctor on the Maine Coast. *New England J. Med.* 239, 8:283 (Aug. 19), 1948.

What Do People Like to Read?—What they can read easily, says this student of writing. Perhaps this discussion of easy reading will prod you to buy Flesch's *The Art of Plain Talk* if the preceding paper by this writer—praised in the February bibliography—didn't quite send you to your book sellers. What about exposing your mind to that danger a second time?

COWING, A. G. Writing That Sells Good Diet. *J. Am. Dietet. A.* 24, 7:592 (July), 1948.

New Broom—How the \$3,000,000 grants-in-aid for state mental hygiene programs are being put to work is a matter you should know about. In five short months, wonders have been accomplished, but the job ahead is as formidable as ever.

FELIX, R. H. The National Mental Health Program. *Pub. Health Rep.* 63, 26:837 (June 25), 1948.

Population vs. Subsistence—Do you occasionally feel the urge to look up from, and beyond the confines of, your particular job? Well, here are nine grim papers about modernizing undeveloped areas, that make stimulating—if not easy—reading. If nine are more than you find assimilable, then read the one about what WHO proposes to do about the health of these areas.

FORREST, W. P., *et al.* Health Aspects of International Approaches to Problems of Undeveloped Areas. *Milbank Quart.* 26, 3:280 (July), 1948.

Not for Nurses Only—These questions are raised: Is mental ill health a major public health problem? Can nurses give the same sort of help in this field that they do in their "regular" work? Can they do it without neglecting the rest and without psychiatric training? Are you interested in the answers? You'll get some of them here.

GUNDY, C. H. Mental Hygiene in the Child Health Program. *Canad. Pub. Health J.* 39, 7:255 (July), 1948.

Miscellany — Of all the scientific periodicals I read, the (British) *Health Education Journal* gives me the most pleasure. In this issue, for instance, the latest pronouncements on dental health are set forth by our A. D. A.'s Executive Secretary. In a postscript, the editor says blandly, this is what the Americans think, the authoritative British viewpoint differs. In the same number are a variety of papers on psychological problems of marriage, industrial hygiene, and medicine in the ancient world. Gebhard tells about the Cleveland Museum.

GRUEBEL, A. O. New Concepts in Dental Health Education. *Health Education J.* 6, 3:117 (July), 1948.

Seeing It in Print Helps—This sage advice to dieticians about child feeding "Be ready to listen to the child. He often talks more sense than we realize," carries overtones of meaning

for many, many workers in the health field. The whole paper is excellent and comes from one who knows whereof she speaks.

LEE, F. L. The Child's Idea of What and How to Eat. *J. Am. Dietet. A.* 24, 8:658 (Aug.), 1948.

Fortunate Blunder—Quite by accident the water supply of three New Jersey towns became fluorinated. Nearby are three comparable towns continuing to enjoy fluorine-free drinking water during the 19 years the residents of the first ones were consuming 1.2 to 2.2 p.p.m. of fluorine. No, I won't spoil this story by giving you the nub of the findings here. There is more to come, so you should begin by reading this issue.

KLEIN, H. Dental Effects of Accidentally Fluorinated Water: 1. Dental Caries Experience in Deciduous and Permanent Teeth of School Age Children. *J. Am. Dent. A.* 36, 5:443 (June), 1948.

Isn't This the Limit?—Conditions producing good general health were found to be associated with severe dental decay, and conversely, poor health was associated with excellent teeth. If that quote doesn't give you pause, as the orators put it, what will?

LARSEN, N. P. Tooth Decay in Relation to Diet and General Health. *J.A.M.A.* 137, 10:832 (July 3), 1948.

More Bad News—No protective effect following influenza A and B vaccination given 4 to 5 months prior to an outbreak in 1947 was evident among a large group of college students. There was no close antigenic relationship between the viruses in the vaccine and the strain causing the epidemic.

LOOSLI, C. G., *et al.* Results of Vaccination Against Influenza During the Epidemic of 1947. *J. Lab. & Clin. Med.* 33, 7:789 (July), 1948.

Politely Disagreeing—This is an answer to Wolman's suggestions that we go slow in the medication of municipal

water supplies with fluorine, and that we "wait and see." The writer balances the probable advantages and *known* disadvantages and says let's get going.

NICHOLS, M. S. Supplementing Water Supplies with Fluorine. *J. Am. Water Works A.* 40, 7:751 (July), 1948.

Nest Egg—Here's something there should be more of! The nurses have worked hard to determine how much it costs to make a home visit and to give other nursing services. Doesn't anyone care how much other public health activities cost?

REID, M. What Does Public Health Nursing Cost? *Pub. Health Nurs.* 40, 8:399 (Aug.), 1948.

Department of Syphilologic Ignorance—Just because penicillin seems to be resolving most of our therapeutic problems concerned with syphilis, there is no reason for our dropping all the experimental researches that need to be done before we know enough about that infection. The amazing extent and diversity of our syphilologic naivete will be clear to anyone who skims this review.

STOKES, J. H., and BEERMAN, H. Some Problems in the Biology of the Syphilitic Infection. *Am. J. M. Sc.* 215, 4:461 (Apr.), 1948.

It Works: They Say—In five representative cities, health or city planning officials used our housing appraisal form and found it helpful in determining where sub-standard dwellings exist, why they are sub-standard, and what can be done about them.

TIBONI, E. A., *et al.* Systematic Inspection of Sub-Standard Housing. *American City.* 63, 5:82 (May), 1948.

Sporting Event—Do you enjoy witnessing an occasional good, clean fight? Then you'll rise to the expert drubbing this Swedish proponent of BCG vaccination administers to a distinguished British opponent. This is all aside from the merits of the cause of the battle royal, quite naturally. A following paper on BCG vaccination should be read, too.

WALLGREN, A. B.C.G. Vaccination: Is It of Any Value in the Control of Tuberculosis? (and) MALMROS, H. The Efficacy of B.C.G. Vaccination. *British M. J.* 4562:1126 (June 12), 1948.

ASSOCIATION NEWS

SEVENTY-SIXTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
BOSTON, MASS., NOVEMBER 8-12, 1948

Hotel Reservations at Boston

Members are asking which is the "Headquarters" hotel for the Boston Annual Meeting. The answer is that no one hotel has been designated headquarters for delegates because Boston's hotels, though numerous, are not large.

A Housing Bureau is being operated for the Association by the Boston Convention Bureau. We are asking members to select their own hotel from among those listed on page 1178. The application should be carefully filled in and mailed to:

The Housing Bureau
Boston Chamber of Commerce
80 Federal Street
Boston, Mass.

Convention activities will center largely in Mechanics Building. We rearrange the list of hotels below to show you their location with relation to Mechanics Building. No. 1 is nearest, 2 next in order of distance, and so on.

- | | | |
|-----------------------|-------------------------|----------------------|
| 1—Hotel Minerva. | 6—Hotel Statler | 16—Hotel Manger |
| 2—Copley Square Hotel | 7—Hotel Bradford | 16—The Parker House |
| 3—Copley Plaza Hotel | 8—Hotel Touraine | 17—Hotel Continental |
| 4—Hotel Lenox | 9—Hotel Puritan | 13—Hotel Kenmore |
| 5—Hotel Gardner | 10—Hotel Somerset | 14—Hotel Braemore |
| 5—Hotel Hemenway | 11—Hotel Myles Standish | 15—Hotel Bostonian |
| 5—Hotel Vendome | 12—Hotel Sheraton | 16—Hotel Bellevue |

Single rooms are few and are hard to obtain. Rooms for double occupancy are strongly recommended. There is no question about the ability of Boston's hotels to accommodate the delegates to the Annual Meeting, but the Housing Bureau and the Local Committee ask the coöperation of the membership in seeking double rather than single room accommodations.

A.P.H.A. membership application blank on page XXXV

THE 76TH ANNUAL MEETING

Boston, Mass., November 8-12, 1948

Hotel Reservation Form

The hotels listed below have rooms available for Association delegates at the rates indicated. Please note that NO RESERVATIONS WILL BE ACCEPTED DIRECTLY BY HOTELS. Make your reservation through:

The Convention Bureau, Boston Chamber of Commerce, 80 Federal Street, Boston 10, Mass.

Hotels	Singles	Doubles	Twin Beds	Suites
Bellevue	\$4.00-\$6.00	\$6.00-\$8.00	\$7.25-\$10.00	\$12.00-\$15.00
Bostonian	3.00- 4.50	5.00- 6.50	5.00- 7.00	8.00- 10.00
Bradford	4.00- 6.00	6.00- 7.00	6.50- 8.00	12.00- 14.00
Braemore	4.40- 6.60	6.40- 9.90	6.60- 9.90	9.90- 25.00
Continental	3.50- 4.00	6.60	7.00	8.00- 25.00
Copley Plaza	4.50- 6.60	7.75- 8.80	8.80- 10.00	15.00- 25.00
Copley Square	4.00- 5.00	6.00	7.00	10.00- 14.00
Gardner	2.50- 5.00	4.00- 6.00	4.00- 6.00	7.50
Hemenway	3.00- 3.85	4.40- 5.50	4.40- 5.50	None
Kenmore	4.00- 6.00	6.50- 8.50	6.50- 8.50	10.00- 12.50
Lenox	3.75- 5.00	5.50- 6.50	7.50	10.00- 16.00
Manger	3.85- 5.50	5.00- 7.50	5.50- 7.50	None
Minerva	3.00- 5.00	4.00- 6.00	5.00- 7.00	5.00- 8.00
Myles Standish	3.85- 6.50	5.50- 7.50	6.50- 7.50	6.50- 15.00
Parker House	4.00- 6.50	6.25- 8.50	7.50- 10.00	14.00- 16.00
Puritan	4.40- 6.60	6.60- 8.80	9.90	13.20- 17.60
Sheraton	4.00- 4.50	7.00- 8.00	7.00- 8.00	7.00- 16.00
Somerset	5.00- 9.00	7.00-11.00	7.00- 11.00	10.00- 20.00
Statler	4.00- 9.50	6.50-12.00	8.50- 14.00	17.50- 27.00
Touraine	4.00- 6.00	6.00- 9.00	7.50- 9.00	14.00- 16.00
Vendome	3.75- 7.00	5.50- 8.75	6.50- 8.75	10.00- 15.00

MAKE ROOM RESERVATIONS EARLY

APPLICATION FOR HOTEL ACCOMMODATIONS AMERICAN PUBLIC HEALTH ASSOCIATION

76th Annual Meeting and Meetings of Related Organizations, Boston, November 8-12, 1948

(Note that the Meeting opens Monday, November 8, at 9.30 A.M.)

Please make hotel reservation as indicated below:

Give three choices of hotels.

Hotel 1st Choice; Hotel 2nd Choice; Hotel 3rd Choice
 Room with Double Bed at \$. per day for persons
 Room with Twin Beds at \$. per day for persons
 Room for three people at \$. per day for persons
 Single room at \$. per day
 Suite at \$. per day for persons

ARRIVING. NOVEMBER Hour LEAVING: NOVEMBER Hour

Please print (or type) names and addresses of all occupants including persons making reservation.

NAME	STREET ADDRESS	CITY	STATE
.....
.....
.....

Name
 Street Address
 City State

MAIL TO: The Convention Bureau, Boston Chamber of Commerce, 80 Federal St., Boston, Mass.

RESERVATIONS WILL BE HELD UNTIL 6:00 P.M. ONLY, UNLESS
 THE HOTEL IS NOTIFIED OF LATE ARRIVALS

PROPOSED AMENDMENTS TO CONSTITUTION OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

THE Committee on Constitution and By-laws presents herewith for the information of the Fellowship certain proposed amendments to the Constitution of the American Public Health Association. The changes proposed affect the voting privileges of members and Fellows and they grow out of a careful consideration of the subject given by the Executive Board and the committee in an attempt to broaden the basis of participation in Association affairs.

Four amendments will be necessary to put into effect the changes that have been recommended by the Executive Board and approved by the Committee on Constitution and By-laws and by the Governing Council, and they occur in Section 2 of Article III, Sections 1 and 2 of Article IV, and in Article VIII of the present Constitution. Amendments No. 1 and No. 2 provide for the election of the ten elective members of the Governing Council by the members and Fellows instead of by Fellows only; Amendment No. 3 clarifies the terms of newly elected Councilors which begin with the first meeting of the new Governing Council which is held immediately after the old Governing Council adjourns; Amendment No. 4 provides for a mail vote by Fellows on amendments to the Constitution instead of restricting this important responsibility to the Fellows present and voting at an Annual Meeting. Another important

change that has been proposed is to allow members and Fellows to vote in a mail ballot for the elective members of the Governing Council instead of limiting the balloting to the time of the Annual Meeting. However, this change involves an amendment to the By-laws which will be presented for the consideration of the Governing Council at the Boston Annual Meeting, together with certain other By-law changes that have been recommended.

The attention of the Fellows is directed to the fact that in these suggested modifications of the present system no change is proposed in the exclusive right of Fellows to hold office in the Association and in the Sections, to serve as chairmen of committees and as members of standing committees, and to vote upon amendments to the Constitution.

The four amendments were submitted to the 106 members of the Governing Council of the Association in a memorandum from the Executive Secretary dated and mailed July 20 and were overwhelmingly approved.

The entire Constitution is reprinted below and the amendments are clearly indicated in the sections concerned. The amendments will be adopted if approved by a two-thirds vote of the Fellows of the Association present and voting at the Boston Annual Meeting in November.

NOTE: Amendment No. 1 is shown in Article III, Membership, Section 2.

Amendment No. 2 is shown in Article IV, Governing Council Composition, Section 1, paragraph (e).

Amendment No. 3 is shown in Article IV, Governing Council Composition, Section 2.

Amendment No. 4 is shown as an entire revision of Article VIII, Amendments.

In these sections, new material is in bold face type and material to be deleted is in parentheses.

CONSTITUTION OF THE AMERICAN PUBLIC HEALTH ASSOCIATION SHOWING AMENDMENTS
PROPOSED FOR ADOPTION AT THE BOSTON ANNUAL MEETING

ARTICLE I NAME

The name of this Association, incorporated under the laws of Massachusetts, is the American Public Health Association.

ARTICLE II OBJECT

The object of this Association is to protect and promote public and personal health.

ARTICLE III MEMBERSHIP

Section 1. There shall be seven classes of constituents to be designated as Fellows, Honorary Fellows, Members, Sustaining Members, Life Members, Affiliated Societies, and Regional Branches.

Section 2. The right to hold office, except the office of Vice-President, or to serve as a member of the Governing Council, the Executive Board, or of a Section Council, or of a standing committee, or as the chairman of a committee of the Association or of a Section, or to vote (for elective Councilors or) on any amendment to the Constitution shall be limited to Fellows and to Life Members and Honorary Fellows who have been elected Fellows of the Association.

Section 3. The qualifications of the several classes of constituents, and the dues of each of them, the manner of their election, and their rights and privileges, except as specified in this Constitution, shall be established in the By-Laws.

ARTICLE IV GOVERNING COUNCIL COMPOSITION

Section 1. There shall be a Governing Council which shall consist of:

(a) The officers of the Association and the elective members of the Executive Board.

(b) The Chairman, Vice-Chairman, and Secretary of each Section, and the elective members of the Council of the Health Officers Section.

(c) One representative to be designated by each Affiliated Society.

(d) One representative to be designated by each Regional Branch.

(e) Thirty members of the Council, to be elected by the (Fellowship) Fellows and Members of the Association; for three-year terms, one-third of whose terms shall expire each year. Such members of the Council shall be known as elective Councilors and shall be nominated and elected as provided for in the By-Laws. If an elective Councilor is elected a Section Chairman, Vice-Chairman, or Secretary, or an elective member of the Council of the Health Officers Section, or appointed the representative of an Affiliated Society, or of

a Regional Branch, a Councilor to fill such vacancy shall be elected by the Governing Council. All vacancies while in office shall be filled by election for the unexpired term. After two consecutive terms, an elective Councilor shall be ineligible for reelection to the Council during one Association year.

Section 2. The terms of all Councilors, except the representatives of Affiliated Societies and Regional Branches, shall begin (at the end of the annual meeting at which they are elected) immediately following the adjournment sine die of the Governing Council in existence at the time of their election and shall terminate (at the end of) with the adjournment sine die of the Governing Council at the annual meeting at which their respective terms expire; provided that newly elected Councilors shall have the right to attend meetings of the Council in an advisory capacity as soon as elected.

The terms of the representatives of Affiliated Societies and Regional Branches shall begin and terminate in accordance with the constitutions and by-laws of their respective organizations.

Section 3. The Officers of the Association shall be the Officers of the Council.

Section 4. A Quorum of the Council shall consist of twenty Councilors.

Section 5. Meetings of the Council shall be called by the Executive Secretary at the request of the President, or at the request in writing of any twelve Councilors. In the latter case, the call to the meeting shall be issued at least twenty days in advance of the meeting and shall state the purpose for which it is called.

ARTICLE V GOVERNING COUNCIL FUNCTIONS

The functions of the Governing Council shall be:

Section 1. To establish and amend the By-Laws of the Association.

Section 2. To establish policies for the Association and for the guidance of the Executive Board and the Officers.

Section 3. To consider all resolutions proposed for approval in the name of the Association, and to receive and act upon a report from a committee on resolutions appointed annually by the President.

Section 4. To approve all standards promulgated in the name of the Association.

Section 5. To receive at its first session at the time and place of the annual meeting of the Association, a report from the Chairman of the Executive Board in which the work, the

accomplishments, and the financial status of the Association during the year preceding such annual meeting shall be reviewed and a statement made of the major activities contemplated for the ensuing year.

Section 6. To establish Sections of the Association; to combine or discontinue them when necessary; to prescribe the qualifications of the members of Section Councils and the chairman of section committees; to maintain coördination among Sections; and to formulate general rules governing their policies.

Section 7. To elect the Executive Board, the officers of the Association, with the exception of the Chairman of the Executive Board and the Executive Secretary, to elect Fellows, Honorary Fellows, Life Members, and Affiliated Societies, and to establish Regional Branches.

Section 8. To publish after each of its meetings an abstract of the minutes of such meeting.

ARTICLE VI. OFFICERS

The officers of this Association shall be a President, a President-elect, three Vice-Presidents, an Executive Secretary, a Treasurer, and the Chairman of the Executive Board. The officers, with the exception of the Chairman of the Executive Board and the Executive Secretary, shall be elected by written ballot of the Governing Council as provided in this article and in the By-laws. The President-elect shall serve as such from the close of the annual meeting at which he was elected to the close of the next annual meeting, when he shall automatically become President. As President he shall serve to the close of the next succeeding annual meeting. However, in case of the inability of the President to complete his term for any reason, the President-elect shall at once succeed to the duties of President, filling the unexpired term of his predecessor and his own term consecutively. Other officers, except the Chairman of the Executive Board and the Executive Secretary, shall serve from the close of the annual meeting when elected until the close of the next annual meeting, and all officers shall serve in any case until their successors are elected and qualified. A majority vote of the Councilors voting shall be required to elect, and if no candidate receives a majority vote on the first ballot, the candidate receiving the smallest number of votes shall be dropped after each ballot in succession until a majority vote is obtained. The Chairman of the Executive Board and the Executive Secretary shall be elected by the Executive Board, which Board shall define the duties and authority of these officers, respectively.

ARTICLE VII EXECUTIVE BOARD

Section 1. There shall be an Executive Board, consisting of the President, the President-elect, the Treasurer, and six members, to be known as the Elective Members, elected for terms of three years each by the Governing Council. The Elective Members shall be at the time of their election past or present members of the Governing Council. The terms of the Elective Members shall begin at the close of the annual meeting at which they are elected and terminate at the end of the annual meeting at the expiration of their respective terms. The terms of two Elective Members shall expire each year in rotation.

Section 2. Acceptance of membership on the Executive Board shall terminate any appointment such Fellow may hold on any of the standing committees of the Association.

Section 3. It shall be the duty of the Executive Board to direct the administrative work of the Association; to act as the Trustee of the Association's properties; to elect the Members and Sustaining Members; and in general to carry out the policies of the Governing Council between meetings of the latter.

It may designate an Assistant Treasurer whose powers shall be limited to the disbursement of funds in accordance with duly authorized budgets for the ordinary conduct of Association business. Such power shall be exercised only during a period when, in the opinion of the Board, an emergency is created due to the absence or disability of the Treasurer. Such Assistant Treasurer may be a Fellow or a corporate fiduciary institution.

In the event of a vacancy in the office of Treasurer, the Executive Board shall have power to elect a Fellow to serve as Treasurer for the unexpired term.

It shall have such further powers and duties as may be prescribed in the By-Laws.

Section 4. A Quorum of the Executive Board shall consist of five members.

ARTICLE VIII AMENDMENTS

This Constitution may be amended by the Fellows of the Association voting thereon in a ballot cast by mail, provided that the specific amendment to be acted upon is published in the official publication of the Association not less than thirty days prior to the mailing of the ballots to the Fellows by the Administrative Office, and provided further that the amendment has received prior approval by the Governing Council. The closing date for the reception of ballots shall be forty-five days from the date of the mailing of the ballots.

by the Administrative Office. An amendment shall become effective only upon receiving an affirmative vote on two-thirds of the ballots cast by the Fellows. The

President shall designate Tellers to canvass the ballots and to report the result to the Governing Council as provided in the By-Laws.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

- Martin F. Buell, M.D., 40 S. Washington St., Easton, Mich., Private Practice
- Percy F. de Caïnes, M.B., M.P.H., P. O. Box 199, Georgetown, British Guiana, Health Officer, British Guiana Medical Dept., and Chief Medical Officer, Mosquito Control Service.
- Melville D. Dickinson, Jr., M.D., M.P.H., PHWS, GHQ, SCAP, APO 500, Postmaster, San Francisco, Calif., Chief, Tuberculosis Control Branch, Dept. of the Army, Consultant to the Japanese Government in matters of Tuberculosis, Maternal Infancy, and Child Health
- Carlos Díez Fernandez, M.D., Sanatorio Antituberculoso de Oriente, Cumana, Estados Sucre, Venezuela, S. A., Jefe Medico
- Lt. John D. Glismann, M.C., Kyoto Military Government Team, APO 301, San Francisco, Calif., Public Health Officer
- Leslie P. Landsdown, M.D., D.P.H., Swan Valley Health Unit, Swan River, Manitoba, Canada, Director
- John M. McGarry, M.B., D.P.H., St. Catharines-Lincoln Health Unit, Niagara-on-the-Lake, Ontario, Medical Officer of Health
- John C. McSween, M.D., 803 North Palafox St., Pensacola, Fla., Asst. Public Health Officer, Escambia County Health Dept.
- Otto A. Moellmer, M.D., Rupert, Idaho, Physician and Surgeon, General Practice
- Daniel Orellana, M.D., M.P.H., San Lorenzo a Rosario 98, Caracas, Venezuela, S. A., Director, El Valle Health Center, National Dept. of Public Health
- Mila E. Rindge, M.D., M.P.H., Boston Post Road, Madison, Conn., Field Training
- William P. Smith, 1018 Orange Ave., Cranford, N. J., Health Officer, Township of Cranford
- Irene M. Sousa, R.N., 2664 E. 37th St., Los Angeles, Calif., Nurse, General Petroleum Corp.
- Valentin E. Wohlaer, M.D., Akron, Colo., City Health Officer
- Franklin D. Yoder, M.D., M.P.H., Capitol Bldg., Cheyenne, Wyo., Director, State Dept. of Public Health

*Laboratory Section **

- George Adams, M.D., Ph.D., U. S. Marine Hospital, 210 State St., New Orleans, La., Chief of Laboratory, U.S.P.H.S.
- Ralph O. Anslow, D.V.M., 620 Infantry Post, Fort Sam Houston, Tex., Chief, Veterinarian and Virus Sections, Fourth Army Area Medical Laboratory
- Orlin K. Fletcher, Jr., M.P.H., 205 11th Ave. E., Box 211, Cordele, Ga. Biologist, State Dept. of Public Health

Vital Statistics Section

- Frank C. Bauer, 11076 S. Esmond, Chicago, Ill., Chief, Public Health Methods, Dept. of Health
- Edith G. Bayers, 1493 Cambridge St., Cambridge 39, Mass., Record Librarian, Cambridge City Hospital
- Alma Blum, Niagara Sanatorium, Lockport, N. Y., Medical Record Librarian
- Mary A. DeSelms, Children's Hospital, Akron, Ohio, Medical Record Librarian
- John Eaton, 2409 Niles St., Bakersfield, Calif., Statistical Clerk, Kern County Dept. of Public Health
- Mary S. Hartell, 1105 Divisadero, Fresno, Calif., Medical Record Librarian, Fresno Community Hospital
- Helen D. McGuire, M.A., 4518 Maple Ave., Bethesda 14, Md., Public Health Analyst, U.S.P.H.S.
- Verna Mings, 226 N. Kuakini St., Honolulu, T. of Hawaii, Medical Record Librarian, Kauikoolani Children's Hospital
- Gwendolyn M. Perkins, 1633 Que St., N.W., Washington, D. C., Public Health Analyst, U.S.P.H.S., Division of Public Health Methods
- M. Berneta O. Stallings, R. No. 2, Marion, Ind., Medical Record Librarian, Marion General Hospital

Engineering Section

- Hyman Kolkowitz, M.S., Shikoku Military Government Region, APO 1050, San Francisco, Calif., Sanitary Engineer
- Joseph J. Maguire, 331 State Office Bldg., Providence, R. I., Supervising Sanitarian,

State Dept. of Health, Division of Sanitary Engineering

Charles A. Morse, Jr., Route 3, Winchester, N. H., Sanitary Engineer, Area Hygiene Officer, International Refugee Organization
Harold Romer, M.C.E., 75 Prospect Park, S.W., Brooklyn 15, N. Y., Sanitary Engineer, Veterans' Administration

Industrial Hygiene Section

Donald V. Cooney, M.D., Merchant Marine Medical Service, 531 W. 18th St., New York 11, N. Y., Medical Director

Paul L. Gradolph, M.D., 18934 Oak Drive, Detroit 21, Mich., Consultant in Industrial Medicine

Donald G. Nelson, M.D., D.P.H., Box 65, Milton, Ontario, Canada, Officer Commanding, Royal Canadian Airforce, Hospital Rockcliffe, Ontario

Food and Nutrition Section

Miriam E. Lowenberg, Ph.D., 115½ First Ave., S.W., Rochester, Minn., Nutritional Supervisor, Rochester Child Health Institute

Marion H. Wolf, M.S., 924 Royal, New Orleans, La., Nutritionist, State Dept. of Health

Maternal and Child Health Section

John T. Gray, M.D., 400 West Markham St., Little Rock, Ark., Medical Director, Crippled Children's Division, State Dept. of Public Welfare

Isabelle M. Jordan, 2716 Wisconsin Ave., Apt. 2, Washington 7, D. C., Specialist in the Nursing Care of Children, Division Research Child Development, Children's Bureau, Federal Security Agency

Olisa D. Ndukwe, M.D., D.P.H., 39 Queens Gate Gardens, London S.W. 7, England, Student

Public Health Education Section

Carolyn Gilbert, M.N., Eastern Illinois State College, Charleston, Ill., Health Coördinator

Zelda V. Guttman, M.S., 12-26 31st Ave., Long Island City 2, N. Y., District Secy., Astoria-Long Island City Health Council

Doris M. Healey, 86 Broadway, Newburg, N. Y., Exec. Secy., Newburg Public Health and Tuberculosis Assn.

Margaret Labock, 129 South Front St., Philipsburg, Pa., Dental Health Educator, Bureau of Dental Health, Dept. of Health

Daniel O. Leatherman, 921 Muirfield Ave., Waukegan, Ill., Senior Program Secretary and Physical Director, Young Mens Christian Assn.

Lawrence L. Luther, 6 Commonwealth Ave., Boston, Mass., Director, Massachusetts Blood Program, American National Red Cross

Patricia A. Maloney, M.S., Rensselaer County Health Dept., Troy, N. Y., Health Educator

Ernest M. Sable, 330 Brookline Ave., Boston 15, Mass., Administrative Intern, Beth Israel Hospital

Claire Schiffman, 11319 Fairport, Cleveland 8, Ohio, Health Educator, Cleveland Division of Health

J. Albert Torribio, 116 W. Temple St., Los Angeles 12, Calif., Public Health Educator, City Health Dept.

Carl B. Young, Jr., 3325 Del Monte Drive, Houston, Tex., Student, Univ. of North Carolina, School of Public Health

Public Health Nursing Section

Edith E. Dickson, 1601 E. St., Lawton, Okla., Student, Univ. of Colorado, Public Health Nursing Curriculum

Betty Ficquett, R.N., M.P.H., 2795 Vernon Terrace, Jacksonville, Fla., State Nursing Consultant, State Board of Health

Helen M. Green, R.N., 44 Garden St., Hartford, Conn., Public Health Nursing Consultant, State Tuberculosis Commission

Alice B. Hardy, 767 Chalkstone Ave., Providence, R. I., Nursing Field Representative, American Red Cross

Dorothy S. Hayward, 261 Franklin St., Boston, Mass., Asst. Exec. Secy., Boston Health League

Myrtle Horton, 2614 W. 15th, Little Rock, Ark., Orthopedic Nursing Consultant, Crippled Children's Division, State Welfare Dept.

Ina J. Jensen, Public Health Nursing Service, Gaylord, Minn., Sibley County Nurse

Helen H. Johnson, R.N., 3964 S. Broadway, Englewood, Colo., Student, Univ. of Colorado

Zada N. Keefer, City Hall, Room 309, Toronto, Ontario, Canada, Director, Division of Public Health Nursing, Dept. of Public Health

Emma P. M. Manfreda, R.N., 248 N. Main, Wallingford, Conn., Student, Teachers College, Columbia Univ.

Beatrice A. McHarg, P. O. Box 411, Salt Lake City 9, Utah, Public Health Nurse, Salt Lake City Board of Health

Lucille E. Notter, M.A., 1949 McGraw Ave., New York 62, N. Y., Asst. Director, Visiting Nurse Service of New York

Blanca R. Otero-Nazario, Principal St., Box 37, Morovis, Puerto Rico, Public Health Nurse, Dept. of Health

Agnes V. Peterson, 2426 B. Kuhio Ave., Apt. D, Honolulu, T. of Hawaii, Tuberculosis Nursing Consultant, Territorial Dept. of Health

Clara E. Richmond, M.A., 155 E. 54th St., New York 22, N. Y., Nursing Consultant, Health Insurance Plan of Greater New York

Esther A. Schisa, R.N., 971 Westmoreland Ave., Syracuse 10, N. Y., Asst. District Public Health Supervising Nurse, New York State Dept. of Health

Helena E. Tavernetti, 416 Salinas National Bank Bldg., Salinas, Calif., Exec. Secy., Monterey County Tuberculosis and Health Assn.

Rhoda A. Willard, B.S.N., 2003 Tenth St., Bay City, Mich., Field Worker, Wayne University

Mary C. Wolking, 1828 Cypress Ave., San Diego, Calif., Director of Public Health Nurses, San Diego County Health Dept.

School Health Section

Thomas E. Eyres, M.D., M.P.H., 18 N. University, Vermillion, S. D., Professor of Public Health, Univ. of South Dakota

Frank V. Powell, 146 N. State Capitol, Madison, Wis., Director, Bureau for Handicapped Children

Marie Swanson, R.N., M.A., 1790 Broadway, Room 1004, New York 19, N. Y., Asst. Director, National Organization for Public Health Nursing

Lorna W. Thigpen, Ph.D., State Teachers College, Health Cottage, River Falls, Wis., Health Instructor

Dental Health Section

Ross E. Gutman, D.D.S., M.P.H., 2151 Walton Ave., New York 53, N. Y., Dentist
Glenn T. Mitton, D.D.S., D.D.P.H., 294 Glen-grove Ave., W., Toronto 12, Ontario, Canada, Assoc. Professor, Faculty of Dentistry, Univ. of Toronto

Unaffiliated

Arthur N. Aitken, M.D., Niagara Sanatorium, Lockport, N. Y., Director, Tuberculosis Hospital

Abraham Azulay, M.D., U.S.P.H.S. Medical Center, Hot Springs, Ark., Ward Officer

Walter E. Batchelder, M.D., State Office Bldg., Div. of Cancer Control, Providence 2. R. I., Medical Director

Lawrence A. Brennan, M.S., 2404 Greeley, Kansas City, Kans., Health Program Representative, U.S.P.H.S.

Henry Toole Clark, Jr., M.D., Vanderbilt University Hospital, Nashville, Tenn., Director

Aileen E. Foley, Johns Hopkins Hospital, Baltimore 5, Md., Administrative Intern

John Garb, M.D., 219 E. 19th St., New York 3, N. Y., Physician specializing in Dermatology and Syphilology

Sarah E. Judy, 150 N. Clay Ave., Ferguson 21, Mo., Information Specialist, National Cancer Institute

Margaret C. Klem, 1726 M Street, N.W., Washington 6, D. C., Chief, Medical Economics Section, Bureau of Research and Statistics, Social Security Administration

David Littauer, M.D., 4949 Rockhill Road, Menorah Hospital, Kansas City 4, Mo., Director

E. J. MacNamara, State Office Bldg., Room 529, Harrisburg, Pa., Comptroller, State Dept. of Health

James W. Marine, 2240 Mt. Curve, St. Joseph, Mich., Administrative Intern, Community Hospital, Battle Creek

Maynard W. Martin, M.D., 5535 Delmar Blvd., St. Louis 12, Mo., Director, St. Lukes Hospital

John O. Meetze, Wade Hampton Office Bldg., Columbia 1, S. C., Director of Finance, State Board of Health

Ida L. Sherman, M.S., 25 Evelyn Way, N.W., Atlanta, Ga., Statistician, Communicable Disease Center, U.S.P.H.S.

Paul A. T. Sneath, M.B., M.D., D.P.H., Medical Hqs., Dar-es-Salaam, Tanganyika Territory, East Africa, Director of Medical Services, Colonial Medical Service

Frank Waldo, Pittsburgh Plate Glass Co., 5th at Bellefield, Pittsburgh 13, Pa., Manager, Pittchlor, Pittcide Sales, Columbia Chemical Division

Mildred F. Walker, 2716 Wisconsin Ave., N.W., Washington, D. C., Consultant in Hospital Administration, U. S. Children's Bureau, Federal Security Agency

Robert L. Worthington, M.D., 3617 W. 6th St., Topeka, Kans., Medical Director, Menninger Sanitarium

J. B. Yutzy, 417 E. 13th St., Kansas City 6, Mo., Administrative Analyst, U.S.P.H.S.

FIRST ANNUAL CONFERENCE OF FISCAL, BUSINESS, PERSONNEL AND PLANNING
OFFICERS OF STATE AND TERRITORIAL DEPARTMENTS OF HEALTH

A group of administrative officers are desirous of organizing all health department officers concerned with Administrative Management (Fiscal, Business, Personnel, and Planning and Procedures) into one group or organization to provide a means for interchange of information, discussion of problems and ideas pertinent to this important phase of health department organization and administration.

It was agreed that membership in the American Public Health Association would give us the contacts and provide the facilities at the Annual Meetings to achieve our objective.

Accordingly, a committee was appointed to further this organization idea. The committee has circularized all

health department officers concerned with administrative management whose names were furnished by the state and territorial health officers, and the response in A.P.H.A. membership applications has been sufficiently successful to warrant a conference.

This conference will be devoted primarily to formal organization of the group, election of temporary officers, appointment of committees, and laying plans for next year's conference.

All health department officers engaged in administrative management are invited and urged to attend this conference. Please refer to the program of the A.P.H.A. Annual Meeting in Boston for particulars as to time and place.

LETTER TO THE EDITOR

TO THE EDITOR:

Many thanks for sending me a copy of Colonel Hardenbergh's comment concerning my article in the July number of the *American Journal of Public Health*. His complaint is entirely justified. My apologies to him and to the U. S. Army and Navy for failing to mention the impressive amount of anti-malaria work accomplished within military establishments in the Continental United States during the war years. That these preventive efforts contributed significantly to the minimal malaria experience of the Armed Forces in this country during World War II can hardly be doubted.

I am very sorry that the omission occurred. I can hardly claim to be unaware of the cantonmental malaria prevention operations. I suspect that I was so absorbed in the purely civilian phases of my thesis that I failed to include the military accomplishments. The omission was certainly not intentional.

JUSTIN M. ANDREWS,
*Medical Director in Charge,
Communicable Disease Center,
U. S. Public Health Service,
Atlanta, Ga.*

August 2, 1948

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

(Supplemental to list in September Journal)

POSITIONS AVAILABLE

Sanitarian with some college training or practical experience in sanitation for Effingham County, Illinois, population 22,000. Salary range \$250 to \$290 monthly. Immediate employment. Write: Fred O. Tonney, M.D., Medical Director, Shelby-Effingham Bicounty Department of Health, 511½ West Fayette Avenue, Effingham, Illinois. Tel. 1580; or 206 Morgan Street, Shelbyville, Illinois, Tel. 480.

Sanitarians (two); general environmental sanitation. County population 83,000. Annual salaries \$3,600 and \$3,120. Write: Irving D. Johnson, M.D., Health Officer, Marin County Health Dept., 704 Fourth Street, San Rafael, Calif.

Laboratory Technician, male or female, for city Health Department laboratory. Must have certificate. Salary \$200 monthly. Write: J. M. Cameron, M.D., Health Officer, City Hall, St. Joseph 56, Mo.

Tuberculosis Supervisor: opening for public health nurse with graduate course in TB, B.S. degree and some experience in supervision. Program in generalized visiting nurse association carrying official TB nursing for the city. Affiliation with university. Beginning salary \$265 monthly. Retirement plan and progressive personnel policies. Write: Mrs. Elizabeth Martin, Visiting Nurse Assn., 1008 SW 6th Ave., Portland 4, Ore.

Full-time Dentist to serve as dental clinician in rural school dental health program. Salary \$5,000 per annum. Appointee will operate a modern mobile dental unit. Write: Mrs. Alfred Chanutin, President, Child Welfare Assn., Room 201, Jefferson Theater Bldg., Charlottesville, Va.

Health Educator for Chicago and Cook County TB Institute with public health background and experience. Salary open. Excellent opportunity for developing broad education in TB control programs in community, industry, and schools in co-operation with the official agency. Write: Elizabeth Dean, Tuberculosis Institute of

Chicago and Cook County, 1412 West Washington Blvd., Chicago 7, Ill.

MCH Health Nursing Consultant. Minimum 3 years' experience in public health nursing plus background in maternity and pediatrics. B.S. Civil Service status. Permanent.

TB Nursing Consultant. Minimum three years' experience in supervisory or consultant position with public health agency. Experience in TB control. B.S. Civil Service status. Permanent. Write: Harold M. Erickson, M.D., State Health Officer, 1022 S. W. 11th Avenue, Portland 5, Ore.

Supervisor of Education with Visiting Nurse Agency offering affiliations with two colleges. Experience in Supervision with a Voluntary Public Health Nursing Agency an essential. Salary range \$2,800 to \$3,200. Write Box A-29, Employment Service, A.P.H.A.

Health Educator for generalized full-time public health program; atomic energy project Pacific Northwest; salary depending upon experience and training; 40 hour week; complete community and plant program; M.P.H. required. Write or wire: Administrator, Kadlec Hospital, Richland, Wash.

Sanitarian. Principal duties—restaurant sanitation and milk control. Other duties relating to sanitation as assigned. Salary open. Knowledge of sanitary chemistry and bacteriology essential. Write: Health Officer, City and County Health Dept., 315 West 20th Street, Cheyenne, Wyo.

Teacher—Man, Ph.D. desired, but Master's degree in Health Education plus experience will be considered. Salary and rank will depend upon training and experience. Southern State University. Opportunities in newly organized department. Teach Hygiene, Health, and Physiology. Write: Box A-30, Employment Service, A.P.H.A.

Superintendent—for large New York City Ambulatory Clinic. Experience in all phases OPD administration and super-

vision. Experience in purchasing, personnel management, and maintenance. Good working knowledge of medical supplies, record keeping, statistics, accounting, etc. Give qualifications, stating training, experience, age, expected salary. Write Box A-31, Employment Service, A.P.H.A.

Public Health Staff Nurses needed in La Crosse City Health Dept. Newly revised generalized program. Opportunity to work under highly qualified supervision. Starting salary \$2,721. Car furnished. Write: Chairman, Board of Health, City Hall, La Crosse, Wis.

Public Health Nurses—three vacancies; applicants must be graduate public health nurse with at least one year of experience; age between 21 and 35. Starting annual salary \$2311. Car provided. Write: Box A-32, Employment Service, A.P.H.A.

Orthopedic Nursing Consultant—Degree with training and experience in public health nursing and orthopedics required. Excellent opportunity to develop and coordinate orthopedic services in community.

Educational Director—Degree with special training and experience in public health nursing.

Child Welfare Consultant—Degree with special training and experience in public health nursing, and well child clinics. Write: Executive Director, The Visiting Nurse Association, 401 Municipal Bldg., Dayton 2, Ohio.

Health Officer—health unit in Western Florida, headquarters at DeFuniak Springs. Population 44,653. Will employ medical doctor at \$6,600 per year if trained or experienced, plus travel at $7\frac{1}{2}\text{¢}$ per mile for use of own car. If untrained will pay a salary of \$6,000 at completion of one month's training and orientation at Field Training Center at \$375 per month.

Health Officer—Jefferson County Health Unit, headquarters at Monticello, Fla. If experienced or trained, can pay salary of \$6,600 plus travel at $7\frac{1}{2}\text{¢}$ per mile for use of own car. If untrained will pay a salary of \$6,000 at completion of one month's training and orientation at Field Training Center. Write: Wilson T. Sowder, M.D., State Health Officer, Florida State Board of Health, P.O. Box 210, Jacksonville, Fla.

Supervising Public Health Nurse. Salary \$288-\$360.

Public Health Analyst. To analyze and interpret morbidity and mortality data relating to communicable diseases, epidemiological studies, health surveys, and vital statistics. Civil Service position. Salary

range \$273-\$341. Sick leave, vacation and liberal retirement plan. Write: R. N. Klein, Director of Personnel, Civil Service Commission, City Hall Annex, San Jose, Calif.

Two Staff Nurses in Health Department at Hillsboro, Ill. Salary range \$200 to \$250 per month. General nursing program. Car required. Liberal allowance for depreciation and mileage. Write: Montgomery County Health Dept., Hillsboro, Ill.

Staff Nurse preferably with public health nursing experience for generalized public health nursing program in a county Health Unit in S.E. Colorado. Salary dependent on qualifications; must own car, mileage paid. Write: Acting Director, Otero County Health Department, 17 West 4th, La Junta, Colo.

Public Health Statistician to direct bureau of health (vital) statistics. Salary \$407.08 to \$481.67 plus \$25.00 monthly bonus. Five years of statistical experience including three years in research and supervisory capacity in public health, graduation from a recognized university with courses in advanced statistics and one year of graduate work in public health, major in public health statistics. Write: air-mail to: President, Board of Health, P. O. Box 3378, Honolulu 1, Hawaii.

Staff Physician for Tuberculosis Sanatorium. 270 beds, salary \$4,848. Write: training area. Opportunity for supervised Dr. C. W. Scott, Superintendent, Piedmont Sanatorium, Burkeville, Va.

Sanitary Engineer or Sanitarian, engineering or science degree. Generalized program, rural and urban, two county district. Car necessary, mileage 7¢. Salary open. Write: Director, Delta-Menominee District Health Department, Escanaba, Mich.

Public Health Nurses; Southern Michigan City-County Health Department, field training area. Opportunity for supervised experience and university extension courses. Forty hour week; 4 weeks' annual vacation; liberal sick leave. Salary liberal, systematic increments. Travel allowance. Write: Director, Calhoun County Health Department, Battle Creek, Mich.

Public Health Nurse, preferably with training and experience. County of 35,000 population, 100 miles from Chicago; 3 weeks' vacation, sick leave with pay; \$60 monthly travel allowance, monthly salary range \$200-\$250. Write Box A-25, Employment Service, A.P.H.A.

Chief Bacteriologist for State Health Department Laboratory, northeastern U. S. Advanced degree required. Salary \$4,170 maximum, depending on qualifications. Write Box A-28, Employment Service, A.P.H.A.

Director, Bureau of Tuberculosis, New York City Health Department. M.D., 1 year approved internship, 1 year residency in approved TB Hospital, 3 years' full-time administrative metropolitan public health experience, 3 years' full-time experience in examination and treatment of TB patients and radiological diagnosis or equivalent. New York State License; blanks must be applied for and delivered personally or by messenger at 299 Broadway, New York City.

Several qualified Sanitarians. Bachelor's degree with related science or engineering major and 1 year qualifying experience. Experience in sanitation may be substituted for two years college. Beginning monthly salary \$200. Write Merit System Supervisor, Box 939, Santa Fe, N. M.

Two positions for Staff Nurses, salary \$250-\$310; one position for Director of Nursing; Sutter-Yuba Health Dept., Central California, including two counties, urban and rural. Total staff of twenty. Housing available. Salary for Director of Nursing \$360. Write, C. A. Scherer, M.D., Health Officer, 309 C St., Marysville, Calif.

Health Educator, with M.P.H. major in health education or equivalent, or degree plus minimum 3 years' public health experience with official or voluntary agency. Salary \$3,000-\$4,000. To work with metropolitan voluntary health agency, mid-west. Write Box A-27, Employment Service, A.P.H.A.

Educational Director for a growing student and staff education program. Salary open. Also several qualified staff nurses, salary \$185-\$245. Write: Director, Public Health Nursing Association, Des Moines 9, Iowa.

Public Health Nurses for generalized nursing program, salary range \$255-\$275 per month. Civil Service, 40 hour week, vacation and sick leave privileges. Car furnished. Write: Director of Public Health Nursing, 504 County City Building, Seattle 4, Wash.

Hearing and Vision Consultant. Minimum two years' experience in hearing and vision programs including hearing and vision testing. College graduate with one year graduate training in psychology, speech, or related field. Salary range \$3,600 to \$4,440. Considerable state-wide travel with per diem of \$6.75 and mileage. Permanent; Civil Service status. Write: State Health Officer, Oregon State Board of Health, Portland 5, Ore.

Alaska

Public Health Nurses, well qualified with at least 1 year of generalized field experience under supervision. Openings chiefly in one-nurse community, or itinerant services. Minimum requirements include an approved course of study in Public Health Nursing. Salaries begin at \$3,960 (\$4,554 if assigned to Interior); with annual increase to maximum salary of \$4,860 at end of six years (\$5,589 if in Interior).

Senior Public Health Nurse or Public Health Nurse-Midwife. Generalized programs in more isolated areas, including itinerant services. Minimum requirements for both include an approved course of study in public health nursing. Senior nurses must have carried comparable senior or supervisory experience in another public health agency having a generalized program. PHN-Midwives must be certified. Salary begins at \$4,140 (\$4,761 if assigned to Interior); with annual increase to \$5,040 (\$5,796, if in Interior). All employees receive 30 working days' annual leave plus 2 weeks' sick leave; benefits under Workmen's Compensation Act. Write: Division of Public Health Nursing, Territorial Department of Health, Juneau, Alaska.

District Health Officer and a Director, Communicable and preventable disease control. Graduation from an approved school of medicine, one year's internship in an approved hospital, master's degree or its equivalent from a recognized school of public health. At least 4 years of progressive and successful experience in the practice of medicine, 2 years of which within the past 10 years shall have been full-time in an administrative position in public health. Merit System status. Annual salary \$8,700 to start.

District Representative, MCH and Crippled Children's Services: Anchorage, Alaska. Starting salary with interior differential \$8,004 annually. Graduation from an approved school of medicine, one year's internship in an approved hospital with one year's residency in pediatrics or obstetrics and one year's postgraduate study in public health or one year's specialized internship in pediatrics or obstetrics and one year's postgraduate study in public health. One year successful practice of medicine also required. Write: C. Earl Albrecht, M.D., Commissioner of Health, P. O. Box 1931, Alaska Department of Health, Juneau, Alaska.

Kentucky

Assistant State Health Commissioner, well qualified, salary open. Public health officers, nurses and other public health personnel. Some are key positions on state and local levels. Write: Bruce Underwood, M.D., State Health Commissioner, Kentucky State Department of Health, Louisville 2, Ky.

Arizona

Arizona Merit System Council announces continuous recruitment for the following positions.

Staff Nurse (Social Security and Welfare) (State Department of Health)	\$200-\$230 175- 200 175- 185
Public Health Nurse Assistant	185- 200
Junior Public Health Nurse	200- 240
Public Health Nurse	240- 280
Senior Public Health Nurse	280- 320
Public Health Nursing Consultant	325- 385
Senior Sanitary Engineer	200- 240
Dental Hygienist	325- 385
Assistant Medical Officer	350- 425
Medical Supervisor—TB Sanatorium	425- 485
Class B—Director of Local Health Unit	425- 485
Class A—Assistant Director of Local Health Unit	425- 485
Clinician in Special Fields	500- 580
Director of TB Control	500- 580
Director of MCH	240- 280
Health Educator	

For application forms write to: Zilpher Fuller, Merit System Council, Room 104, Winters Building, 39 West Adams Street, Phoenix, Ariz.

Illinois

The Illinois Department of Public Health needs District Health Officers. Salary range \$5,760-\$6,960, plus travel. Liberal retirement system. Experienced men preferred and will start above minimum salary, with regular raises for satisfactory service. Qualified individuals may be placed in Division Offices of State Department. Possibility of positions in newly established city and county health departments paying approximately \$7,000 plus travel, or higher. Only graduates of Class A medical schools and AMA approved internships considered. Applicants must be willing to take special training on stipend if indicated. Write: Roland R. Cross, M.D., Director, State Department of Public Health, Springfield, Ill.

Kansas

	Salary Range
Director of the Division of Local Health Administration	\$6,900-\$8,400
Director of Division of Tuberculosis Control	6,000- 7,200
Director of Venereal Disease Control	6,000- 7,200
Epidemiologist	6,000- 7,200
Local Health Officer II	6,000- 7,200
Local Health Officer III	5,100- 6,300
Industrial Hygiene Engineer I	3,900- 4,800
Industrial Hygiene Engineer II	3,300- 4,200

Write to: Division of Personnel
Kansas State Board of Health
Topeka, Kansas

Washington

The Washington State Department of Health announces vacancies of Chief Industrial Hygiene Engineer and Senior Industrial Hygiene Engineer. The former position requires a degree in engineering, preferably chemical engineering and 5 years' experience in engineering (3 in public health including 2 in industrial hygiene). Salary range of \$4,800 to \$6,000 per annum. The Senior position requires a degree in engineering, preferably chemical or mechanical, and 3 years' experience in engineering (2 in industrial hygiene). Salary range of \$3,900 to \$4,800. These positions are established Merit System positions with annual and sick leave and retirement benefits. Write: Dr. Arthur L. Ringle, State Director of Health, 1412 Smith Tower, Seattle.

Fellowships

Postgraduate public health Fellowships—A limited number of fellowships are available to physicians for one year of postgraduate study leading to a Master of Public Health degree. This study requires one academic year at a school of public health approved by the American Public Health Association, followed by 3 months of acceptable or approved field training. Awards are based on the individual need of each applicant. Fellowships may cover tuition, maintenance, and an allowance for books, if required. For further information write to: National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y.

POSITIONS WANTED

Public Health Administrator: ten years' public health experience, six of which were spent in charge of health departments with up to a third of a million population. M.D., M.P.H., Fellow Health Officers Section. Available for responsible Public Health, Medical Care, or Medical Administrative position. Willing to start at \$12,000 per year, provided there is a reasonable opportunity for increase. Write: Box C-4, Employment Service, A.P.H.A.

Public Health Physician seeks position in medical care, mental hygiene program or as health officer in or outside U. S. M.P.H., Harvard University, major medical care and public health practice. Some administrative experience in city health department. National Board Diplomate. Negro, married, 27. Write Box Ph-7, Employment Service, A.P.H.A.

Health Educator, woman, M.S. Considerable experience in executive capacity in voluntary agencies, in community organization and group work with adults, school-agers and preparation of material. Interested in health education. Teaching or administrative position. Write: Box HE-6, Employment Service, A.P.H.A.

Executive or Associate Position, health or welfare field. M.S.S., 12 years' experience (case work, supervisory, administrative) public and semi-private welfare, health, hospital and community organization agencies. Male. Write: Box C-3, Employment Service, A.P.H.A.

Public Health Statistician and Administrator. Thirteen years' administrative, statistical and technical experience in federal and state public health agencies, both foreign and domestic. Five years Director of large division of public health statistics and also State Health Department Registrar. Formal postgraduate training in recognized school of public health. Bio-

statistics teaching experience in large medical school. Salary open. Available immediately. Write Box ST-2, Employment Service, A.P.H.A.

Laboratory Assistant—medical or biological. B.A. biology, physiology; experienced in routine and research medical laboratories. Position in large scientific institution preferred either in laboratory or gathering scientific data in field. Write: Box L-4, Employment Service, A.P.H.A.

Veterinarian—M.P.H., experienced in meat inspection and milk hygiene. Formerly in charge of sanitation in Army camps in U. S. and overseas. Will consider part-time with practice opportunity in State of Connecticut and New Jersey. Available immediately. Write: Box V-6, Employment Service, A.P.H.A.

Veterinarian with training in bacteriology, organic chemistry and pathology; experience in public health work as a veterinary inspector for large midwestern city and in clinical laboratory procedures. Will consider position in or outside the U. S. Write: Box V-1, Employment Service, A.P.H.A.

Engineer, B.E., M.S. in Sanitary Engineering. Eighteen years' experience in construction, including sanitary construction. Desires position in Sanitary or Public Health Engineering with Health Department, Industry or Consulting Engineer, preferably in Texas. Write: Box E-6, Employment Service, A.P.H.A.

Sanitary Engineer, M.S.—Six years' experience with Sanitary Corps, federal and private agencies in field of water supply, sewage treatment, insect and rodent control, and general sanitation. Desires position in the East. Write Box E-5, Employment Service, A.P.H.A.

*Advertisement***Opportunities Available**

WANTED—(a) Professor of preventive medicine; should be qualified to teach preventive medicine and public health with a primary emphasis on preventive medical aspects; university medical school; East. (b) Public health physician to direct newly formed city-county health department; headquarters in town of 40,000; Southeast. (c) Student health physician; staff consists of 10 full-time physicians, 60 part-time; opportunity of attending clinics and seminars; university medical school; 9 month year. (d) Chief of bureau of school medical inspection and, also, chief of department of epidemiology; former should be qualified in school health; eastern metropolis. (e) Several physicians qualified in general public health or one of the clinical specialties; opportunities also for physicians interested in obtaining public health training; positions of varying responsibility in city and county health departments; salaries depend upon qualifications, ranging from \$5,650 to \$10,000; East. (f) Public health physicians to set up local health associations throughout United States; must be willing to travel; administrative public health experience desirable; \$8,000-\$10,000. (g) Director of medical and health service; national organization; public health physician with administrative experience required; \$9,000. PH10-1

WANTED—(a) Director of public health nursing; state department of health; \$3,800-\$4,800; West. (b) Assistant professor of public health nursing; preferably one with Master's degree and supervisory experience; collegiate school; \$4,000-\$5,000; 10 month year; additional income for summer teaching. (c) Student health nurses; liberal arts college, coeducational; town of 40,000; Middle West. (d) Public health nurse to conduct city tuberculosis nursing program with university affiliation; Pacific Coast. (e) Public health nurse to direct pediatric clinic; duties include directing teaching program for pediatric nursing; university medical center; Southwest. (f) Public health supervisors and staff nurses for positions in South America;

knowledge of Spanish or Portuguese desirable. (g) Public health nurse trained in venereal disease investigation and control; town of 25,000; 5 day, 40 hour week; minimum, \$66 weekly, early increase; West. (h) Senior and junior public health nurses; generalized program; interesting location in California; salary range, \$245-\$310. PH10-2

WANTED—(a) Dentist with Master's degree in public health; key position with public health agency; West. (b) Public health dentist; well equipped dental clinic; duties principally operative work for underprivileged school children; \$4,800, plus \$600 for car allowance; Georgia. (c) Public health dentist for field position in Alaska; also, public health dentist to serve on health boat, plying waters near Alaska. (d) Dentist qualified in public health dentistry or children's dentistry; administrative position; voluntary health agency having children's dental clinics in various parts of city and suburbs; East. PH10-3

WANTED—(a) Sanitary engineer; faculty appointment; Middle Western university. (b) Health educator; newly created position, municipal health department, Middle Western town of 150,000. (c) Director of new agency organized to care for chronically ill; graduate training in social or public health work, several years' supervisory experience required. (d) Public health engineer; state department of health; Middle West. (e) Statistician to become associated with one of the national professional organizations; duties involve statistics on blood plasma program. (f) Health educator to work with colleges and educators; preferably one who has taught health education in a teachers college; willing to travel; East. (g) Sanitary chemist; working knowledge of chemistry of water or sewage required; chemist with interest in sanitary chemistry eligible; important research; Southwest. (h) Sanitary engineer qualified to handle malaria control work; operation of large industrial company in Africa. PH10-4

*Advertisement***Opportunities Wanted**

Dentist; D.D.S., M.S. degrees; recently received Master's degree in Public Health; has done considerable research work on problem of dental caries; prefers public health dentistry or teaching position in pedodontia; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Chemical engineer; M.S. (Sanitary Engineering); 11 years, division of industrial health, state department of health, 5 years as assistant director and 6 as director; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Health educator; B.S., M.A., degrees, eastern universities; several years, director of physical education in public schools; 4 years, health educator, nationally known organization; 3 years, health edu-

cator in industry; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health nurse; B.S. in Public Health Nursing; M.A. in Administration; Ed.D. Nursing Education; 7 years, teaching her specialty; 4 years, public health nursing administration; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health physician; M.D., and Master's degree in Public Health, eastern universities; 8 years, administrative health officer, principally in rural areas; past 5 years, director large metropolitan health department; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

NEWS FROM THE FIELD

INTERNATIONAL CLASSIFICATION OF DISEASES, INJURIES AND CAUSES OF DEATH ADOPTED

THE International Statistical Classification of Diseases, Injuries and Causes of Death was adopted by the International Revision Conference at its decennial meeting held in Paris, April 26-30, 1948. This sixth decennial revision of the *International List of Causes of Death* provides for the first time a uniform basis for the compilation of both mortality and morbidity statistics to serve the growing needs for a satisfactory classification of causes of illness.

The International Revision Conference, to which delegates from 29 countries were represented, took other significant actions. The Conference adopted a standard form of medical certification of death designed to serve as a basis for the selection of the underlying cause of death for primary mortality tabulations. Also agreed to were the principles and the basic rules for selecting the underlying cause of death which, in the United States, will replace the *Manual of Joint Causes of Death* first introduced in published form in 1914. In regard to future studies of important vital and health statistics problems, the Conference recommended the establishment of national committees to conduct studies and report their findings to the Expert Committee on Health Statistics of the World Health Organization.

The users of the past revisions of the *International List of Causes of Death* may be interested to find that typhoid fever, designated as International List No. 1 through each of the past five decennial revisions, has finally given way to one of the tuberculosis rubrics

in the sixth revision. Sweeping changes were incorporated in the *International Statistical Classification of Diseases, Injuries and Causes of Death*, but most of these changes were made within the general structure of the *International List of Causes of Death*. Of particular significance was the expansion of the list from 450 to 610 categories for diseases and morbid conditions, plus 153 categories for the classification of the external causes of injuries and 189 categories for the characterization of injuries according to their nature. The classifications of injuries are supplements to the disease code, and either the classification according to the external circumstances of the violence or the classification by the nature of injury, or both, may be used.

The new classification consists of obligatory three-digit categories and optional fourth digit subdivisions. The numbering system employed in the code is adapted to mechanical tabulating equipment in contrast to that of the past revisions which required translation of the code from alphabetic to numeric and back to alphabetic in the final tabulations.

The *International Statistical Classification of Diseases, Injuries and Causes of Death* will be published by the World Health Organization in two volumes. The first volume will consist of the introduction, list of categories, the tabular list of inclusion terms, medical certification and rules of classification, and special tabulation lists. The second volume will consist of the alphabetical index of terms and an appendix of rules for coding the underlying

cause of death. It is expected that the two volumes will be available for distribution by January, 1949, when the new classification will be introduced. The World Health Organization will also issue a French and a Spanish edition of the classification.

The international adoption of the new list is a source of gratification to the United States, since it was the U. S. Committee on Joint Causes of Death that produced the original draft of the morbidity-mortality classification. It may be remembered that the U. S. Committee on Joint Causes of Death was one of the recipients of the 1947 Lasker Awards for its work on the classification list. The U. S. Committee on Joint Causes of Death submitted the proposed classification in 1946 to the Expert Committee of the World Health Organization on the Preparation for the Sixth Decennial Revision of the International Lists of Diseases and Causes of Death. The Expert Committee made some modifications in the list after submission to various governments for criticisms and suggestions. The extensive preparatory work which started in 1945 culminated in the unanimous adoption of the classification at the Paris Conference in April, 1948.

The delegates to the International Revision Conference from the United States were: Dr. Halbert L. Dunn, Public Health Service (Chairman); Dr. George Baehr, New York Academy of Medicine; Dr. Harold F. Dorn, Public Health Service; Dr. Edwin F. Daily, Children's Bureau; Dr. Paul M. Densen, Veterans Administration; Dr. W. Thurber Fales, Baltimore City Health Department; Dr. E. L. Hamilton, Office of the Surgeon General, U. S. Army; Dr. I. M. Moriyama, Public Health Service; Dr. Edward S. Rogers, School of Public Health, University of California (also Chairman A.P.H.A. Subcommittee for the Sixth Revision of International List of Causes of

Death); and Captain R. L. Ware, Bureau of Medicine and Surgery, Navy Department.

WISCONSIN PUBLIC HEALTH COUNCIL

On May 12, in Madison, Wis., a group of 45 persons calling itself "just a youngster," organized formally as the Wisconsin Public Health Council. The group was made up of 14 members at large and representative of 25 organizations—professional societies, farm and labor groups, voluntary health agencies, women's groups, and others.

It discussed the purposes of the new organization, the type of membership and program suited to the purposes, selected a constitution and nominating committees, named itself, and heard from Carl Neupert, M.D., State Health Officer, Allan Filek, M.D., Director of Local Health Administration in the State Department of Health, and Carl E. Buck, Dr.P.H., of the Michigan University School of Public Health.

At a second meeting on July 15, a constitution and by-laws were adopted and the following officers elected:

President—Richard Bardwell, Madison

1st Vice-President—William J. Deegan, Superior

2nd Vice-President—Mrs. Oliver Plantinga, Rothschild

Treasurer—Mrs. A. W. Hammond, Beaver Dam

Gertrude Clouse, Consultant Nurse of the State Health Department, has been released to serve as full-time Secretary of the Council.

Committees on membership, program, constitution and by-laws, publications and education, and public relations were appointed. One of the early programs being planned is the development of community health councils in many areas of the state.

The constitution provides for a broad membership representing all citizen interests. The Council is not an official arm of the State Health De-

partment or any other branch of the Wisconsin government.

Carl N. Neupert, M.D., State Health Officer, addressed the July 15 group on "The Most Urgent Public Health Needs in Wisconsin." He pointed out the lack of local full-time health services in large parts of the state, the need for citizen support of the health department's planning in this field, and the importance of supporting the federal Public Health Services Bill of 1948, which would provide federal grants-in-aid for general community health services, and the need for consolidating some 2,000 health jurisdictions in the state into a few large units with populations of at least 50,000.

NEWS IN THE NEW YORK CITY HEALTH DEPARTMENT

Harry S. Mustard, M.D., on leave from the directorship of the Columbia University School of Public Health, became Health Commissioner of New York City's 8,000,000 people nearly a year ago. He has now announced a number of developments.

One is the reorganization of the 19 different units of the department into 5 major divisions, with 2 headed by deputy commissioners. The 5 divisions and the commissioners heading them, all of whom are career men in the department, are:

Community Health Services—Deputy Commissioner, Samuel Frant, M.D.

Administrative Division—Deputy Commissioner, Matthew A. Byrne

Preventable Diseases and Adult Hygiene Services—Assistant Commissioner, Ralph S. Muckenfuss, M.D.

Maternal and Child Health Services—Assistant Commissioner, Leona Baumgartner, M.D.

Environmental Sanitation Services—Assistant Commissioner, Jerome Trichter

Dr. Frant, who has been with the department since 1923, most recently as Director of the Bureau of Preventable Diseases and Deputy Commissioner, will also serve as Commissioner during the

latter's absence. He will coordinate the activities of the various divisions and assign professional personnel, in addition to heading his own Division of Community Health Services which includes District Health Administration, Public Health Nursing, Nutrition, and Public Health Education.

Dr. Muckenfuss has been with the department since 1935, since 1937 as Director of the Bureau of Laboratories. As Assistant Commissioner he will supervise not only the Bureau of Laboratories, but those of Preventable Diseases, Tuberculosis, Social Hygiene, and Adult Hygiene.

Dr. Baumgartner has been Director of the Bureau of Child Hygiene since 1941, having first joined the department in 1937. She will direct the work of 4 bureaus: Mothers and Young Children, Physically Handicapped Children, Dentistry, and School Health.

Mr. Trichter has been Director of the department's Bureau of Food and Drugs since 1939, and first joined the department in 1930. He will be in charge of 2 bureaus: Food and Drugs and Sanitary Engineering.

Coincident with this reorganization, details were announced of plans for a new diagnostic and periodic health examination service. A first "pilot clinic" is in the planning stage, to be opened in the near future. The diagnostic service will be open to patients referred by their private physicians to whom they will be referred back for treatment. The periodic health examination service will be for persons referred by private physicians and persons from groups selected for such study by the department.

In announcing this service, Dr. Mustard pointed out that the department has already had a long tradition of making diagnostic services available to private physicians, chest x-rays, tropical disease and venereal disease ser-
vices, laboratory services and diagnostic

services in communicable diseases, the latter two having been provided for half a century. Said Dr. Mustard further, "The new diagnostic service program is being put into operation because, as medical knowledge has progressed, specialized information, skills, and equipment have become increasingly necessary if patients are to receive the full benefits of modern medicine. These things are expensive. Too frequently when the private physician orders specialized examinations, x-rays, and tests, the family of ordinary means is unable to obtain them because of the cost."

INTERNATIONAL POLIOMYELITIS CONFERENCE TO HAVE PERMANENT STATUS

At the final session of the International Poliomyelitis Conference in New York on July 17, an Organization Committee was created to form a permanent body for a global study of poliomyelitis. This committee of 15 is made up of the President and Medical Director of the National Foundation for Infantile Paralysis, the 7 members of the Advisory Committee of the International Conference, its Executive Secretary, and representatives of 5 nations other than the United States.

The committee list follows:

Irvin Abell, M.D., Clinical Professor Emeritus of Surgery, University of Louisville, Louisville, Ky.

Fritz Buchthal, M.D., Director, Institute of Neurophysiology, University of Copenhagen, Denmark

Oswaldo P. Campos, M.D., Hospital Jesus, Rio de Janeiro, Brazil

Morris Fishbein, M.D., Editor of *The Journal of the American Medical Association*, Chicago, Ill.

Stanley E. Henwood, Executive Secretary, First International Poliomyelitis Conference

David Lloyd, Ph.D., Associate Member of the Rockefeller Institute for Medical Research, New York, N. Y.

Kenneth Maxcy, M.D., Professor of Epidemiology, The Johns Hopkins University, Baltimore, Md.

Rustin McIntosh, M.D., Professor of Pediatrics, Columbia University, New York, N. Y.

Frank Ober, M.D., Professor Emeritus of Orthopedic Surgery, Harvard University, Boston, Mass.

Basil O'Connor, President, The National Foundation for Infantile Paralysis.

Thomas Rivers, M.D., Director of The Hospital of the Rockefeller Institute for Medical Research, New York, N. Y.

Hernan Romero, M.D., Professor, Hygiene and Preventive Medicine, University of Chile, Santiago

Professor Herbert J. Seddon, Medical Director, Wingfield-Morris Orthopaedic Hospital, Oxford, England

Professor Dr. S. Van Creveld, of Pediatric Clinic, University of Amsterdam, The Netherlands

Hart E. Van Riper, M.D., Medical Director, The National Foundation for Infantile Paralysis

The Executive Committee of this group is made up of Drs. Fishbein, Maxcy, McIntosh, Rivers, and Van Riper.

The resolution creating the Organization Committee empowers it to adopt by-laws for the international congress, secure a charter under the laws of New York State, and fix the place and date of the first formal international congress to be held in 1951.

IS THIS A TREND?

The Hartford (Conn.) Health Department is developing a medical-social service with headquarters in its clinic building. Financed for the first year by the Hartford Foundation for Public Giving, its purpose is to assist patients and their families with social problems incident to their illness. In addition to working closely with other health department bureaus, the service accepts referrals from other city departments, social agencies, industrial nurses and physicians, and the patient himself or his family. Service to private physicians is of two types: (a) Consultative services giving information about sources of help either to the physician or his patient; (b) Intensive service to

the patient including an interview by the staff worker.

The announcement further says, "Occasionally persons who reside outside of the city limits, if they cannot be cared for in any other way, may be referred by local agencies, doctors, and firms since many of the agencies with whom the social worker is in contact serve an area larger than the city."

The Director of the new service is Barbara A. Wells, graduate of the Simmons College School of Social Work, and formerly with the Hartford Hospital, the Greater Hartford Community Council, and the American Red Cross Overseas Service.

COLLEGE SORORITIES HELP CEREBRAL PALSID

The National Society for Crippled Children and Adults has awarded scholarships to 8 persons for specialized training in cerebral palsy. This program is made possible by a national women's college sorority, Alpha Chi Omega, which has adopted help to the cerebral palsied as its major national service project. It has made available to the National Society for Crippled annually for 6 years, \$5,000 to support the program of cerebral palsied training scholarships. The first 8 scholarships went to 4 physical therapists and 4 physicians.

Simultaneous with this news is the further announcement that another national women's sorority, Zeta Tau Alpha, at its recent Golden Anniversary Convention, made a grant of \$10,000 to the National Society for compiling and publishing an equipment brochure for the treatment of palsied children. This is in addition to an initial grant of \$2,500 the previous year for preliminary work on the brochure.

CONTROL OF LEAD EXPOSURE

Three aspects of the control of lead exposure are presented in a 21 page

pamphlet published by the Lead Industries Association. They are: "A Medical View of the Lead Problem," by William C. Wilentz, M.D., Medical Director of the Perth Amboy plant of the National Lead Company; "Medical and Hygiene Aspects of Plant Lead Control," by Lloyd E. Hamlin, M.D., Medical Director, American Brake Shoe Company; and "Lead Hygiene in the Plant—The Industrial Hygiene Aspect," by Herbert J. Weber, Industrial Hygienist, also, of the American Brake Shoe Company. Lead Industries Association, 420 Lexington Avenue, New York 17, N. Y., 50 cents.

MANUAL OF SAFETY IN SANDBLASTING

The Industrial Hygiene Foundation of America, Inc., has prepared for the National Industrial Sand Association a manual entitled *Safety in Sandblasting*. The manual offers helpful hints concerning sandblasting operations. It includes brief descriptions of the processes, equipment, points of safety, and protective equipment desirable in sandblasting operations. Available from the N.I.S.A., Washington, D. C., \$1.00.

WINTHROP-STEARN'S NAVY CITATION FOR WAR WORK

Award of a certificate of achievement to Winthrop-Stearns, Inc., manufacturer of pharmaceuticals, was made in New York on July 15 by the Surgeon General, U. S. Navy, in recognition of "meritorious and outstanding services rendered to the Navy's Medical Department during World War II." In presenting the certificate to Theodore G. Klumpp, M.D., President of Winthrop-Stearns, Rear Admiral A. H. Dearing, District Medical Officer, said in part, "exceptionally outstanding co-operation and assistance voluntarily rendered by your organization to the Materiel Division, Bureau of Medicine and Surgery, throughout the war period . . . were of inestimable value to the

Bureau, and enabled it to maintain at all times a high degree of proficiency in keeping a constant flow of essential material and equipment to the Medical Department in all parts of the world."

During the war Winthrop-Stearns produced antimalarials and other drugs used in the treatment of such tropical diseases as African sleeping sickness, kala-azar, filariasis, and schistosomiasis. The firm discovered a method of producing atabrine on a commercial scale early in the war, and developed aralen, an antimalarial considered more potent than atabrine or quinine by the National Research Council.

WATER POLLUTION BILL PASSED

The water pollution bill (S. 418) has been signed by the President. Its purpose is to establish a national program for eliminating or reducing pollution of interstate waters while at the same time recognizing and preserving the primary responsibilities and rights of the states in controlling water pollution. The U. S. Public Health Service is made responsible for the preparation of comprehensive programs plus specified regulatory activities. The bill authorizes the expenditure of \$1,000,000 a year for 5 years for grants to states to support investigations on ways to prevent and control pollution by industrial wastes; another \$1,000,000 a year for 5 years to assist public bodies in making needed studies preliminary to construction projects; and \$22,500,000 a year for 5 years as loans to help finance construction of necessary treatment works.

HOWARD M. KLINE TO HOOVER COMMISSION

Howard M. Kline, Ph.D., has been appointed Executive Secretary of the Medical and Hospital Services Committee of the Hoover Commission, which is studying reorganization of the United States Government's executive branch.

This committee, whose chairman is Tracy S. Voorhees, Under-Secretary of War, and President of Long Island College Hospital, Brooklyn, N. Y., has established an office in Washington with a full-time executive.

Dr. Kline has been Technical Secretary of the A.P.H.A. Subcommittee on Medical Care since its Washington office was established in 1946. He was on leave of absence in the spring of 1948 to serve as General Secretary of the National Health Assembly held in Washington in May.

Among recent appointments to the Medical and Hospital Services Committee is Hugh Leavell, M.D., Professor of Public Health, Harvard School of Public Health. Dr. Leavell was chairman of the controversial Medical Care Section of the National Health Assembly.

RESEARCH INSTITUTION IN NATIONAL INSTITUTES OF HEALTH

A new clinical research institution for the National Institutes of Health of the U. S. Public Health Service is now in the pre-construction stage and is expected to be ready for use by mid-summer of 1951. Bids were invited in July for this 13 story building that will have a floor space of approximately 1¼ million square feet.

It will house the National Institute of Mental Health, including 150 beds for neuropsychiatric patients, as well as the hospital facilities of the National Cancer Institute, National Heart Institute, and National Institute of Dental Research, and clinical services for the study of patients with infectious and tropical diseases.

Although the institution will contain 500 hospital beds and receive patients referred from all parts of the country, scientific laboratories will occupy two-thirds of the building. In one wing new products arising out of atomic energy researches and highly complex machines

will be used to treat certain types of tumors and to study body functions in health and disease.

Medical and psychiatric social service, physical and occupational therapy, and rehabilitation services will be provided in addition to the conventional services of a general hospital.

In announcing the details for the new Clinical Center in Bethesda, Md., R. E. Dyer, M.D., Director of the National Institutes of Health, said, "By an unusual combination of laboratory facilities to aid physicians in diagnosis and treatment, this Center will make possible a unified, planned attack upon some of our most baffling medical problems and will also assure patients of the very highest quality of medical care. Major emphasis will be placed on the predominant causes of death and disability in our nation today.

"The building is designed to enable physicians, chemists, physicists, bacteriologists, sociologists, psychologists, and other scientists to work in close collaboration. Using the team technique which has already produced notable research discoveries, they will be able to pursue every ramification of the diseases they study."

POSTGRADUATE SEMINARS AT COLORADO UNIVERSITY

The University of Colorado School of Medicine, at its Medical Center in Denver, will hold two short seminars on subjects of interest to public health physicians. One, in coöperation with the State Health Department on problems of new-born infants, both premature and full term, will be held October 14-16. Registration fee is \$10.

The second, on public health and preventive medicine, will be held October 18-21. It is designed to give the general practitioner, particularly in rural areas, the fundamentals of communicable disease control through sanitation,

immunization, and other procedures. Coöperating agencies are the Colorado State Medical Society, the Department of Public Health, and the U. S. Public Health Service.

Apply University of Colorado Medical Center, 4200 East 9th Avenue, Denver 7.

LOS ANGELES COUNTY HEALTH INDEX

The Los Angeles County Health Index for December 27, 1947, and July 10, 1948, contains interesting tabulations of tuberculosis statistics, which remind us that this disease causes 20 per cent of all deaths in the 30-40 age group; and that the potential years of life lost by those who died from tuberculosis in the United States in 1944 was 1,175,000, as compared with 1,287,245 from cancer and 1,929,953 from heart disease.

The second article calls attention to the marked excess of mortality among males as compared with mortality among females at the older age periods—a problem discussed in the August issue of this *Journal*.

REORGANIZATION FOR NEW JERSEY

On June 7, 1948, the Public Health Council of New Jersey unanimously approved a plan for the functional reorganization of the New Jersey State Department of Health presented by the new Commissioner, Daniel J. Bergsma, M.D.

Under this plan the activities of the department will be carried on through six main bureaus, each under the leadership of a director qualified for the specific responsibility involved. The bureaus are: Environmental Sanitation, Preventable Diseases, Laboratories, Local Health Services, Vital Statistics and Administration, and Constructive Health. The last named will be specifically responsible for the development of plans that can be applied locally to

increase the good health of the community. It will include the state department's activities in the field of nutrition, public health nursing, maternal and child health, adult health and health education.

MEDICAL ADVISORY COMMITTEE TO RESOURCES BOARD

The chairman of the National Security Resources Board, Arthur M. Hill, recently announced appointment of a Medical Advisory Committee to consult with the Board on security aspects of public health. The committee members are William P. Shepard, M.D., in charge of the Metropolitan Life Insurance Company's health and welfare activities in the western part of the United States; A. C. Bachmeyer, M.D., Director of the University Clinics and Hospital, University of Chicago; James C. Sargent, M.D., Chairman of a permanent council of the American Medical Association, set up to deal with problems of national emergency; Edward L. Bortz, M.D., Associate Professor of Medicine, University of Pennsylvania and recent President of the American Medical Association; Michael E. DeBakey, M.D., Assistant Professor of Surgery, Louisiana State University; and Percy T. Phillips, D.D.S., Secretary, New York Dental Society.

PERSONALS

E. J. ADE has been appointed Fund-Raising Director of the American Heart Association, New York City. Formerly associated with the John Price Jones Corporation, Mr. Ade has directed fund-raising activities for the Planned Parenthood Federation of America and the New York University-Bellevue Medical Center. JAMES R. AMOS, M.D.,† formerly Health Officer of Greene County,

Missouri, has become Medical Director of a regional blood donor service of the American Red Cross, covering 28 Missouri counties. With headquarters in Springfield, a "bloodmobile" will make regular visits to all communities within a 100 mile radius. This is said to be the second community in the Midwest and the first in Missouri to establish a regional blood service program.

JOSEPH C. ANDERSON, M.D., in March, was appointed District Medical Director for the Pennsylvania Department of Health in Cambria and Somerset Counties with headquarters in Ebensburg.

FRANK C. BAUER† has been appointed Chief of the newly organized Public Health Methods Division which will collect and analyze Chicago Health Department birth, death, and disease statistics. Mr. Bauer was Chief of the Import Statistics Section of the Bureau of the Census in Washington from 1942 through 1947.

W. A. BROWN, M.D., became City-County Director of Health of Evansville, Indiana. He was formerly Director of the Bureau of Communicable Diseases, Virginia Department of Health.

LEROY E. BURNEY, M.D.,* Indiana State Health Officer, recently received the 1948 Good Governmental Award of the Indiana Junior Chamber of Commerce, in the form of a glass plaque. This is given annually for the outstanding young man (under 35) of the year.

H. D. CROW, M.D.,† who has just completed the work for the degree of Master of Public Health at Johns Hopkins School of Public Health, Baltimore, Md., has been appointed Health Director of the Fredericksburg City-King George, and Stafford

* Fellow A.P.H.A.
† Member A.P.H.A.

Counties Health District in Virginia.

IRENE M. DONOVAN, R.N.,* Director of the Division of Public Health Nursing, North Dakota State Department of Health, since 1939, resigned her position with the Department effective August 1.

LYNDE FALES recently joined the staff of the Alaska Department of Health. She was previously employed in the Visual Aids Section of the U. S. Office of Education, Washington, D. C., and had also been with the Washington Office of the London Daily Express, the British Information Service in New York City, and the American Embassy in France.

BEN FISHER, M.D., Milwaukee, Wis., has been named the winner of University of Illinois Borden Undergraduate Award for 1948, a gift of \$500, for research in "Clinical Observations on the Prothrombin Test."

CHANGES IN FLORIDA HEALTH OFFICERS:

BURTON F. AUSTIN, M.D.,† is now Health Officer of the Palm Beach County Health Department with headquarters at West Palm Beach. Dr. Austin was formerly State Health Officer of Alabama and Regional Medical Director of the American Red Cross. The Assistant Health Officer is CHARLES G. CHAPLIN, M.D., formerly Health Officer of the Jefferson County Health Department.

JOSEPH H. BATSCHE, M.D., has been employed as Assistant Director at the Rapid Treatment Center at Melbourne.

G. L. BEAUMONT, M.D., of New Cumberland, W. Va., is now Health Officer of Highlands, Glades, and Hendry Counties, with headquarters at Sebring, succeeding E. W. HOLLINGSWORTH, M.D.

HOLLAND M. CARTER, M.D., of Smoaks, S. C., has been elected Health Officer of the Madison and Taylor County health unit with

headquarters at Madison. He succeeds ROBERT F. SAYRE, M.D., resigned.

RAYMOND J. DALTON, M.D.,† resigned as Health Officer of the Lake County Health Department, effective August 1.

JAMES W. FERRIS, M.D., formerly Health Officer of Putnam and Flagler Counties has been elected Health Officer of Hardee, DeSoto, and Charlotte Counties, with headquarters at Arcadia. He succeeds DANIEL H. ROWE, M.D., who has resigned to become House Officer at the Boston City Hospital, Boston, Mass.

ALBERT O. RYAN, M.D., has been appointed Assistant Health Officer to EDWIN G. RILEY, M.D.,† in the Polk County Health Department with headquarters in Bartow.

WILLIAM W. FRYE, M.D.,* has been appointed Professor of Tropical Medicine and Public Health and Assistant Director of the Division of Graduate Medicine, Tulane University, New Orleans, La. Since 1945 he has been Professor and Head of the Department of Preventive Medicine and Public Health, Vanderbilt University, Nashville, Tenn.

TINSLEY R. HARRISON, M.D., Professor of Medicine at Southwestern Medical College, Dallas, Tex., became President of the American Heart Association at its annual meeting in Chicago, June 18-19, succeeding ARLIE R. BARNES, M.D., Rochester, Minn. HAROLD M. MARVIN, M.D., New Haven, Conn., former Executive Secretary of the Association, was chosen President-Elect.

HENRIETTA HERBOLSHEIMER, M.D.,† has been appointed Medical Administrative Assistant to ROLAND R. CROSS, M.D.,† Director of the Illinois Department of Public Health. A member of the staff of the department for 7 years, she has been Chief

of the Division of Hospital Construction and Services for the past year, and earlier Chief of the Division of Maternal and Child Health. She has been succeeded as Chief of the Division of Hospital Construction and Services by GEORGE K. HENDRIX,† who has been in the Department since 1937, first in the Division of Sanitary Engineering and later in the Division of Hospital Construction and Services.

HAZEL HIGBEE,† former Professor of Public Health Nursing at the Medical College of Virginia, has succeeded MARY I. MASTIN* as Director of the Bureau of Public Health Nursing, Virginia Department of Health, Richmond.

JOHN P. HUBBARD, M.D.,† has been appointed Assistant Professor of Pediatrics at the University of Pennsylvania, School of Medicine, where he will direct a rheumatic fever teaching program throughout Pennsylvania under the auspices of the State Health Department. He will simultaneously direct a nation-wide program of the American Academy of Pediatrics for the improvement of child health from offices in the hospital. He has been directing a study of child health services for the Academy.

BURTON K. KILBOURNE, M.D.,* was recently reelected for a two year term as Secretary and Executive Officer of the Montana State Board of Health, Helena.

JOHN H. KLOPP, M.D.,† has been appointed State Medical Director of Delaware County, Pennsylvania. He will supervise local health programs, control of communicable diseases, and health activities in fourth class school districts.

DAVID B. LEE,* Chief Sanitary Engineer, Florida State Board of Health, Jacksonville, recently received the Kenneth Allen Award for outstanding

service to the state and national Sewage Works Associations. The award is presented every 3 years by the state chapter of the Federation of Sewage Works Association.

KATHARINE F. LENROOT,* Chief of the Children's Bureau of the U. S. Federal Security Agency, delivered the 1948 commencement address at Tulane University, New Orleans, which conferred upon her the honorary degree of Doctor of Laws. Three days earlier Russell Sage College, Troy, N. Y., conferred the honorary degree of Doctor of Humane Letters upon Miss Lenroot at its commencement on May 30.

ESTELLE MARKS,† who has been Acting Registrar for some time, was recently appointed Virginia Registrar of Vital Statistics, Richmond.

HARLAN P. McNUTT, M.D., M.P.H., who has just received the M.P.H. degree from Johns Hopkins School of Public Health, has been appointed Director of the Oregon State Board of Health's Mental Hygiene Section, effective August 1. He served as neuropsychiatrist with the U. S. Veterans' Administration in Portland in 1946-1947, and served in a similar capacity with the U. S. Army Medical Corps from 1944 to 1946.

ORLO MILLER† has been appointed to the newly established position of School Health Coördinator in the Wisconsin State Department of Public Instruction, Madison. Mr. Miller formerly worked on a state-wide school program of health and physical education in Indiana.

ROBERT R. MORGAN, M.D., has been appointed Associate Professor of Epidemiology at the School of Public Health, University of Michigan, Ann Arbor. Dr. Morgan has recently been working at the Thorndike

* Fellow A.P.H.A.

† Member A.P.H.A.

Memorial Laboratory in Boston as Senior Fellow in Virus Diseases, National Research Council, in investigations concerned with Salmonella and chemotherapy of virus infections.

ELDRED K. MUSSON, M.D.,* on July 15 began his duties as Peoria, Ill., City Health Officer. He was formerly Health Officer of Schoharie County, New York.

JOHN W. R. NORTON, M.D.,* was elected North Carolina State Health Officer by the State Board of Health. He succeeds CARL V. REYNOLDS,* retired June 30. Since 1940 Dr. Norton has been with the Tennessee Valley Authority at Chattanooga, Tenn. Previously he was Assistant Director of county health work and later Assistant Director of Preventive Medicine in the North Carolina State Health Department.

NETTIE PRICE, R.N., has accepted a position as Coördinator for County Hospitals and the County Health Department, Monongalia County, West Virginia. Coming most recently from the Brooklyn, N. Y., Visiting Nurse Association, Miss Price has a varied background of journalism, social work and statistical research, and public health nursing.

MORTON M. RAYMAN, M.D., has been appointed Chief of the Microbiological Branch of the Food Research Division, Quartermaster Food and Container Institute for the Armed Forces, Chicago. He will direct research concerning the nature and factors affecting the microbiological and histological changes which occur during the processing and storage of foods for the use of the Armed Forces.

PHYLLIS RING, R.N., public health nurse, has joined the staff of the Alaska Department of Health, Juneau, having previously been in the Minneapolis Community Health Service.

PHILIP C. RISSE, M.D., of Blackwell, Okla., has been appointed Medical Health Officer for the Olympia Peninsula Health District of Washington, including Clallam and Jefferson Counties and with headquarters in Port Angeles. He succeeds SHIRLEY BENHAM, JR., M.D.,† who has been appointed District Health Officer for the Kitsap County-City of Bremerton Health Department.

L. J. ROPER, M.D.,* was recently reappointed to a new 4 year term as Virginia Health Commissioner by GOVERNOR TUCK.

W. H. RUMBEL, D.D.S.,* is the new Director of the Division of Mouth Hygiene, Virginia Department of Health. He was most recently Director of the Bureau of Dental Hygiene, West Virginia Department of Health.

JAMES G. SHAFFER, D.Sc.,† Assistant Professor of Preventive Medicine and Public Health at Vanderbilt University School of Medicine, Nashville, Tenn., has resigned, effective July 1, to become Associate Professor of Bacteriology and Virology, and Associate in Preventive Medicine at the University of Louisville School of Medicine, Ky.

ROBERT E. SHANK, M.D.,† has been appointed Professor of Preventive Medicine and Public Health of the Department of Preventive Medicine and Public Health at the Washington University School of Medicine, St. Louis, Mo., effective July 1. Dr. Shank was previously with the William H. Park Laboratories in New York.

MARGARET T. SHAY, R.N., has been appointed Director of the Adelphi College School of Nursing, Garden City, N. Y. She was most recently Associate Professor of Nursing, Wayne University, Detroit, Mich.

* Fellow A.P.H.A.

† Member A.P.H.A.

JAMES W. SMITH has been named Director of the Virginia Health Department's new Division of Tourist Establishment Sanitation in the Bureau of Local Health Services. He has been in the Department of Health since 1921, most recently as Supervisor of Sanitation in the Richmond office.

JOSEPH EARL SNYDER, M.D., was recently named Director of Vanderbilt Clinic and Administrative Assistant in charge of Professional Services to Patients by the Executive Committee of the Board of Trustees of the Presbyterian Hospital, New York, N. Y.

SAMUEL D. STURKIE, M.D., M.P.H.,† has resigned as Health Officer of Lynchburg, Va., to become the Director of the Charlottesville-Albemarle County Health Department in the same state.

SIDNEY I. WOLFSON † has resigned as Health Officer of Dover, N. J., to accept the position of Public Health Administrator in the Montgomery County, Maryland, Health Department.

G. W. WYATT, D.D.S., has been named Director of the Bureau of Dental Health, West Virginia State Department of Health, Charleston, succeeding W. R. RUMBEL, D.D.S.,† resigned. Dr. Wyatt has been field clinician and later Assistant Director of the Division.

FRANKLIN D. YODER, M.D., M.P.H.,† has been appointed Director of the Wyoming State Department of Health, Cheyenne, effective August 1.

Deaths

TALIAFERRO CLARK, M.D., former Assistant Surgeon General of the U. S. Public Health Service, died July 4 in the U. S. Marine Hospital, Ellis Island, N. Y., at the age of 81. As Assistant Surgeon General, Dr. Clark

served as Chief of the Venereal Disease Division from 1930 to 1933.

RICHARD PEARSON STRONG, M.D., authority on tropical diseases and epidemics, died on July 4 at the age of 76. Dr. Strong's research took him to all parts of the world and he was decorated for his achievements by Britain, France, China, and Serbia. In 1946 he won the Legion of Merit for his work in World War II. The Theobald Smith medal of the American Academy of Tropical Medicine was bestowed on him in 1939. The first Richard Pearson Strong medal for distinguished achievement in tropical medicine was presented by the American Foundation for Tropical Medicine, February, 1944, to Dr. Strong for whom the medal was named.

CONFERENCES AND DATES

American Dietetic Association. Boston, Mass. October 18-22.

American Public Health Association—76th Annual Meeting. Boston, Mass. November 8-12.

American Public Welfare Association. Chicago, Ill. December 9-10.

American Public Works Association. Boston, Mass. October 17-20.

American Society of Planning Officials. New York, N. Y. October 11-13.

American Water Works Association:

Alabama-Mississippi Section. Montgomery, Ala. October 13-15.

Arizona Section. Phoenix, Ariz. October 15-16.

California Section. San Francisco, Calif. October 27-29.

Florida Section. Panama City, Fla. November 18-20.

Iowa Section. Fort Dodge, Iowa. October 5-6.

Joint Meeting of Four States and Western Pennsylvania Sections. Philadelphia, Pa. October 20-22.

Missouri Section. Jefferson City, Mo. October 24-26.

New Jersey Section. Atlantic City, N. J. November 4-6.

North Carolina Section. Asheville, N. C. November 8-10.

- Ohio Section. Mansfield, Ohio. October 7-8.
 Southeastern Section. Augusta, Ga. December 6-8.
 Southwest Section. Galveston, Tex. October 10-13.
 Virginia Section. Richmond, Va. October 25-26.
 Wisconsin Section. La Crosse, Wis. October 28-29.
 Civil Service Assembly of the United States and Canada. Ottawa, Canada. October 4-7.
 College Physical Education Association. 52nd Annual Convention. Hotel La Salle, Chicago, Ill. December 27-28.
 Florida Public Health Association. Dixie Sherman Hotel, Panama City, Fla. October 7-9.
 Michigan Public Health Association. Grand Rapids, Mich. December 1-3.

- National Association of Housing Officials. Seattle, Wash. October 13-16.
 National Pest Control Association. Royal York Hotel, Toronto, Canada. October 18-20.
 National Safety Council. Stevens Hotel, Chicago, Ill. October 18-22.
 North Dakota Public Health Association. Minot, N. D. October 28-29.
 Southern Branch, American Public Health Association. Baker Hotel, Dallas, Tex. April 14-16, 1949.

WANTED

Virologist—or Bacteriologist Ph.D.

Preferably with production experience to head developmental research section. Send personal Data and references in answering.

Write Mr. M. C. Bloom

E. R. SQUIBB & SONS, NEW BRUNSWICK, N. J.

Every Rat has his Day
 Use **Ratopax**
 the **SAFE** Raticide
 write for Literature



BIOCERTIA CORPORATION
 303 FIFTH AVENUE NEW YORK 16, N.Y.

Publications of the A.P.H.A.

- An Appraisal Method for Measuring the Quality of Housing: A Yardstick for Health Officers, Housing Officials and Planners. Part I. Nature and Uses of the Method. 1945. 71 pp. \$1.00.
 A.P.H.A.-Year Book 1947-1948. 112 pp. \$1.00.
 Part II. Appraisal of Dwelling Conditions. Director's Manual; Field Procedures; Office Procedure (1946). \$5.00.
 Basic Principles of Healthful Housing. 2nd ed. rev. 1946. Report of the Committee on the Hygiene of Housing. 34 pp. \$4.00.
 Control of Communicable Diseases, The. 6th ed., 1945. Size 4 3/4" x 7 3/4". 149 pp. \$35.
 Diagnostic Procedures and Reagents. Technics for the Laboratory Diagnosis and Control of the Communicable Diseases. 2nd ed., 1945. \$4.00.
 Diagnostic Procedures for Virus and Rickettsial Diseases. 1948. 347 pp. \$4.00.
 Health Practice Indices, 1943-1946. A collection of charts showing the range of accomplishment in various fields of community health service, 1947. 77 pp. Free.
 Membership Directory. 1946. (Free to A.P.H.A. members). \$5.00.
 Methods for Determining Lead in Air and in Biological Materials. 1944. 41 pp. \$75.
 Occupational Lead Exposure and Lead Poisoning. 1943. 67 pp. \$75.
 Panum on Measles. By P. L. Panum (translation from the Danish). Delta Omega ed., 1940. 111 pp. \$2.50.
 Photographic Sediment Chart, 1947 ed., \$1.50.
 Planning the Neighborhood. Committee on the Hygiene of Housing, 1948. 89 pp. \$2.50.

Check above the publications desired and mail this advertisement to us, together with your remittance to cover (check, money order, or stamps). Members of the Association are entitled to 10% discount on the above.

Name.....Address.....

Order from the Book Service

AMERICAN PUBLIC HEALTH ASSOCIATION

1790 Broadway at 58th Street

New York 19, N. Y.

American Journal of Public Health and THE NATION'S HEALTH

Volume 38

November, 1948

Number 11

Cultivating Our Human Resources for Health in Tomorrow's World*

MARTHA M. ELIOT, M.D., F.A.P.H.A.

Associate Chief, U. S. Children's Bureau, Washington, D. C.

I WANT to take this opportunity to express to you, the members of this Association, my appreciation of the honor that you have done me in making me your President for this past year. To have been so chosen by one's colleagues is the highest honor that could come to any of us here. That it should have come to me means much to me personally, but even more because of what it means in the terms of the concern of this Association for the better provision of medical care to the people and for the health of children in particular. I am happy that this concern has been expressing itself recently through the activities of our alert Committee on Medical Care which has taken the lead in the current discussions on the establishment of a new section on medical care and through the action of the Executive Board in setting up a new Committee on Child Health. Both of these actions broaden the horizons of the Association. They may well be reflected ultimately in great good to all our people. They help us take a long look ahead.

A few days ago my attention was called to a recently published book, *Our Plundered Planet*, by Fairfield Osborn, that opens as follows: "Yesterday morning more than 175,000 mothers looked down upon the vague uncomprehending eyes of their new-born babes. Today a similar number are doing likewise, and tomorrow and the next day. . . . These are the children of the earth, each day in every land they come, insistently in such numbers, the daily host reproducing the human species the world over. . . . So great a company of new-born children . . . become day after day a living part of the environment into which each of them has come. Its strength will be theirs, and its weaknesses." This, in a way, is the core of what I want to say tonight.

I have chosen as my subject on this occasion "Cultivating Our Human Resources for Health in Tomorrow's World." I have chosen it because it expresses the need for a dynamic approach to our problem of health, because it directs attention to the role of positive health in the lives of people, especially in the lives of children; because it implies that the growth of an idea, or a program of action, like the

* Presidential Address presented before the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

growth of a plant, an animal, or a child, calls for thoughtful, imaginative preparation, for careful fostering, for fertilization with the elements essential for its development. I have chosen this subject because it takes us beyond limits of our own national life and suggests that what we do for the health of our children and youth today will influence the whole world tomorrow.

We cannot, and I do not believe we want to, escape from the principles that underlie this concept. You will bear with me, I know, when I press upon you the urgency and the necessity of focusing national attention on action in behalf of children. I do this without apology, for the basic principles underlying our total health program are essentially the same whether we are considering children or the total population. I believe you will agree with me when I say that what we do for the child can be taken as a fair measure of social progress.

Most of us, I believe, are at last aware that we are living in a period of great change; in a new age growing out of man's great skill in discovering facts about the physical and biological world and his ingenuity in applying them. We cannot escape from the fact that knowledge in this realm has surged far ahead of our knowledge in the social sciences, far ahead of our knowledge of the nature of man, himself. Mankind finds itself with many tools that may be used constructively or destructively for the welfare of man. Enormous benefits to our health, to our social and economic status have accrued or may accrue. So too out of scientific advance may come our destruction. What we have failed to grasp is that the use to which these tools may be put by man will be determined by his social philosophy, by his emotional reactions and behavior, and that it is to a large extent a matter of human relations.

The situation in which we find ourselves is full of confusions rising out of a multitude of ideas and opinions and too little and too poorly disseminated knowledge of why we believe as we do. One thing is clear. We must increase still more our knowledge in this field of human relations—and having increased it, we must transmit it, we must use it; channels for its communication must be opened and free flowing. We must produce a whole new generation of young people—people who are free to explore and to learn, to base action on knowledge, to weigh, understand, and interpret human behavior, to find ways of overcoming the aggressive attitudes and actions growing out of our culture, and the unreasoned fears built into us in our childhood, ways of living harmoniously together.

Man has shown that he can build a Tennessee Valley Authority. He can dam up the headwaters of a great river to control floods; he can free and use the waters to produce power. He can irrigate the dry lands. He can bring health and economic prosperity to a vast number of people. He has learned that he must stop erosion of the soil and the destruction of forests back of the dams if the individual farm is to prosper, if water is to be kept in the soil, and if the headwaters back in the hills are to grow in size and strength to form the pools of power above the dams. He has learned that if the land is to be productive he must nurture it, he must tend it carefully and wisely, he must fertilize it.

So must our health programs develop from cultivation at the grass roots. Upon the nurture we give to local health activities will depend the vigor of our state and national health services. Upon the nurture we give to man in his infancy and early childhood, upon the opportunities and guidance we give him in his adolescence and youth, upon the strength we develop in the relation-

ship of parent to infant, parent to child, child to child will depend to a great extent what man will be like when he comes to maturity. In a very real sense the child is the touchstone. What we do for him we do for all mankind; what we do for adults, we also do for children.

So far, however our advances in improving health have come mostly through the flow of new knowledge from the laboratories of the physical and biological sciences; less from the social sciences. A substantial start has been made in relating the physical health of individuals to social factors, in cultivating the human resources for health—what Richard Cabot called the social component of medicine—as well as those of the physical environment. The roots of our knowledge spread out in many directions and go back to such great men as Charles Darwin, Edwin Chadwick, Abraham Jacobi, William James, Adolf Meyer, Sigmund Freud, and many others. Many of us are aware of the relationship between the somatic and the psychological components of illness, and a variety of approaches to the study of this relationship are being explored. The public is growing more and more aware of the cost of mental disease in terms of human happiness and productiveness.

During the past half century we have acquired a vast body of knowledge on how to assure good nutrition and normal physical growth of children and to control communicable diseases. Gradually this knowledge has been made a part of the everyday existence of the everyday parent. It is true that we have an ever increasing understanding of the emotional life of man and of why children grow to maturity with behavior patterns that bring about individual and group conflicts. But we are only on the threshold of knowing how to incorporate our newer knowledge of dynamic psychology into

the lives of our citizens. Fortunately there is a ground swell of demand among parents for information and help on how behavior difficulties in children can be avoided, and how they and their children can be helped to understand and overcome such difficulties when they arise. Parents are aware that they need to understand more fully the elements that go into child rearing, the emotional factors as well as the physical, and the influence that their own life experiences may have on the way their children's development takes place and emotional maturity is reached.

We are all aware of these stirrings, and yet, at the same time, we are overwhelmed by the size of the task and perhaps discouraged that, even in a land of abundance such as ours, advances in making adequate health services and good medical care available to all the people come so slowly. We know that children still die or are sick or handicapped needlessly; that boys and girls still reach adolescence and maturity insecure in their individual, family, and community relationships; that they compensate for this insecurity by an abnormal degree of aggressiveness leading to overt asocial behavior, delinquency, or retreat within themselves. We know mothers still die in childbirth because expert care is not available. We know men and women still succumb to diseases or conditions that could be prevented or controlled. We know that one child in twenty will need care in a mental institution sometime during his life. Perhaps most important of all, we know that we have not yet learned how to persuade society that our medical knowledge and skills must be put to work for the benefit of all the people. We like to believe that our standard of living is high enough to provide not only food, shelter, clothing, education, recreation for families, but also

health and medical care, but when we look at the statistics, using children as a measure of social progress, we find that this is not the case.

Children are concentrated in low-income families; two-thirds live in families with total family incomes under \$3,500. They are concentrated in low-income states; about one-fourth of our children are found in the southeastern states that have but 12 per cent of the national income. Farm families have nearly one-third of our children, but only about 11 per cent of our income.

These facts make it obvious that many families with children cannot afford to pay for medical care, or when they do afford it, they do so at the expense of other essential items. Even comparatively well-to-do families, those with an income of \$5,000, would have difficulty meeting the costs of prolonged or serious illness. Yet today nearly 80 per cent of our families have less than \$5,000 income.

I see no way out of this dilemma except by finding some way of pooling funds to meet all the costs of care. For our public health programs we already do this through the device of collecting taxes. Eventually, we must use this device in some form to provide a medical care program for all our people.

Because our children's needs are urgent, I believe that it is a public responsibility to see that all services and facilities necessary to meet these needs are made available as rapidly as possible. The only way we can be sure of doing this is through a public program, one that does not involve a "means test," one that is as freely available to mothers and children as is our public education system.

Recently at the National Health Assembly, we took stock of our national health; we assessed our progress during recent years and projected a plan of action for the ten years ahead. The proposals made in the Federal Security

Administrator's report to the President include planning and action in every phase of the total health and medical service, whether by public or voluntary agency, by individual or group effort, by private practitioner or public health service. The action proposed is in the main concrete and within the realm of accomplishment in a decade. Throughout the report there is a core of concern and interest that prevention be emphasized, that human needs be served, that the healthy development of the child, including his ability to live harmoniously with his fellows, be given high priority. The proposals are based upon the premise that cultivation of our human resources is required; not just the conservation of them. We must renew the soil from which our citizens spring, look to the contours of the land producing them, plough in new patterns to stop the erosion of human strength and stability, and provide the fertilizers necessary to assure both quality and quantity in the production of the new generation.

Few would deny that our children are our most valuable resource—for on what we do for them today depends the future of our national life, the future of our world life. This is a truism that should scarcely need to be stated, so one would think. But we must state and restate it again and again. Children must become the focus of our everyday thought, of our economic and social planning, and of our domestic and foreign policy. As Grace Abbott once put it: "Children are our seed corn."

As we view the new age in which we live, and face the imperative need to start now on the task of fitting a new generation of children and youth to take their places as citizens in a peaceful world civilization, the old ideas take on new and urgent and profound meaning.

In his new book, *The Proper Study*

of *Mankind*, Stuart Chase points out that "it takes only twelve to fifteen years to train a new-born child to be at home in his parents' culture or any other into which he is accepted. Less than a generation would be enough to train *all the children of the world* to be citizens of the world." Obviously, as Mr. Chase himself recognizes, there would be many practical obstacles to accomplishing this so rapidly. But the ground must be cultivated for a new harvest in terms of mental health as well as physical health for the peoples of the world. At Geneva last July the World Health Organization in a resolution adopted by 54 nations put it in these terms: "The children of today represent the whole future of humanity. Maternal and child health is a problem of primary importance."

In 1934, Homer Folks, in addressing the National Conference on Economic Security, pointed out that the welfare of children—and he used the term welfare in the broadest sense—had been and must continue to be "the spearhead of social security." The history of social progress shows this to be true. It is a matter of record that many advances in the fields of medicine, public health, public welfare, education, and social security, have had their roots in the concern of parents and teachers and professional workers for the health and welfare of children. One can cite, for example, the campaign to reduce infant mortality gave impetus to public health measures to provide a pure milk supply; the early infant welfare stations were the beginnings of our modern ideas about individual health examinations and personal health conservation services; or the emergence of community health education programs from programs of health education in the schools.

In terms of our federal-state coöperative action directed toward the expansion of services to individuals

through grants-in-aid in the health, medical care, or general welfare fields, the states and the nation have frequently led off with programs in behalf of children. Here one may cite the Maternity and Infancy Act of 1921, the program for medical care of crippled children in 1935, the child welfare services program in 1935, the Emergency Maternity and Infant Care Program in 1943. Each of these pioneered in new areas. Their great value lay in the fact that they broke new ground for expanding federal-state programs in health and medical care for adults as well as for children. So, too, in the field of fair labor practices. Public interest was first expressed in an Act of Congress in 1916 providing for the regulation of the employment of children through the control of interstate commerce. Although it was declared unconstitutional by the Supreme Court within a year, this law paved the way for a much broader act of Congress, the Fair Labor Practices Act of 1938, based on the same principle but applied to the employment of adults as well as children. The great programs of public assistance for aid to the aged, to dependent children, to the blind, provided for under the Social Security Act, had their origin in the early mothers' or widows' pension programs developed by the states, primarily to benefit children.

I have looked back through the sweep of our history merely to show the usefulness and the strength of approaching problems requiring public action through first providing for children. By so doing, we can tackle health problems in an age group where prevention of disease, both physical and mental, has the greatest possibilities and brings the greatest rewards in terms of human well-being and happiness, length of life, and improvement in economic status. In this new age in which we find ourselves it would seem im-

perative that this approach be continued, that top priority be given to every phase of our national program that has potentialities for saving the lives or improving the total well-being of our children.

This means establishing priorities in developing our economic and social legislation in terms of its effect on child life. It means that we must test against this standard, not only the measures we take in behalf of children, but also measures for social insurance; measures for the control of employment practices; measures affecting the production and distribution of food, clothing, housing; measures for general health service and medical care; measures to extend and strengthen our educational system, including professional and adult education; measures to enhance the development and protection of our social institutions of freedom and justice. It means bringing together the various groups of citizens and agencies concerned with children for the exchange and stimulation of ideas, for better understanding of the effect on children of various public movements, for the development of programs of investigation and action that will directly or indirectly affect child life.

I do not have to say to you that child health workers have much to gain by doing this; that they can strengthen their hands immeasurably by associating themselves with workers in the welfare, education, housing, recreation, and other fields of social action; nor do I need to impress on you the value of support from citizens' groups. The broadening of the health worker's horizon of interest and improved service to children are the rewards of such joint effort.

There are some parts of the maternal and child health program that we know how to do fairly well, but we are not doing them well enough nor

extensively enough. Here we need to use power tractors rather than one-horse plowshares in turning new ground. I refer specifically to the basic preventive program in which the physician and the nurse advise the mother, either in the physician's office, in the health center, school or clinic, or at home, about the health and general care of herself, her baby, and her children. Hundreds of thousands of parents still do not have this help; tens of thousands who have some help are getting poor help; few parents get the best help we know how to give, including pediatric, nursing, dental, nutrition, and social advice; very few receive the kind of mental health advice that pediatric workers trained in child development are equipped to give.

For this basic service we need more and better trained physicians and dentists; more and better trained nurses, nutritionists, social workers, and other auxiliary workers; better equipped, better staffed, and more maternity and child health clinics where families can receive advice on mental as well as physical health; a greatly expanded health service for children of school age, including those in nursery and high schools, a service in which health and education authorities must join forces to see that the total job is done.

This basic maternal and child health program must be the instrument of local health departments if all children are to be served. It is therefore self-evident that such local health departments must completely cover our country and serve people wherever they live. No health legislation today is more important than that which will provide this administrative machinery. A bill that would do this, entitled "Local Public Health Services Act of 1948," was introduced into Congress during the last session. This bill departed from the concept, previously held by many, that responsibility for local health services must rest on the

local community first and be supported by the state and federal government as the local community failed or was unable to meet its responsibility. Under this bill federal responsibility for health programs is not residual. The total responsibility is shared by the local, state, and federal governments.

Basic maternal and child health services, however, are not enough. Many additional services are urgently needed. Mothers must have complete and adequate maternity care available to them everywhere. Infants, especially those prematurely born, all preschool children, and children of school age through adolescence must have freely available to them, wherever they live, not only preventive health services, mental as well as physical, but also all necessary care when they are sick, and child guidance and psychiatric service when required. Unless we have these services, we cannot produce a generation of young people who are fully mature and healthy in body and mind, who are emotionally secure and able to give more than is asked for, to face success and frustration with equanimity, to be self-reliant, to cooperate with their fellows, to take their place in a democratic society as thoughtful, responsible citizens concerned with the common good, and to "live harmoniously in a total changing environment." This is the kind of harvest for which we must now cultivate our soil and husband our resources.

Of course, the job of extending and improving the maternal and child health program cannot be done all at once if it is to be well done. But we can get started. There are some things we could do now, immediately, if funds were available! We could rapidly expand a wide variety of the special demonstration projects through which the states have been developing or applying new methods and procedures for providing complete preventive and

treatment services to children. The wartime EMIC program was such a demonstration. The whole crippled children's service is still another example of this type of special program where the harvest in better methods of administration and procedures in rendering care has been rich. Within our present crippled children's program there are still many special problems to solve—problems in which methods and procedures must be adapted and new ones developed. Particularly we must renew our efforts to expand and improve the special programs for children with rheumatic fever, cerebral palsy, epilepsy, hearing and vision impairments. Our experience clearly shows that a multiprofessional approach to these problems is a necessity.

Certainly equally important, perhaps even more important, is the need to develop demonstration projects for complete and adequate health and medical service for the "run-of-the-mine" children of preschool and school age. This is the only way that states and communities that do not now have the complete services they need for children may discover on the basis of their own experience how these needs can be met most effectively. In all of these programs for children there must be close cooperation between the health agency and the individual or agencies in the community who render or provide medical care, whether under public or private auspices.

I do not have to tell this Association that fundamental to the expansion of any health program—and child health is no exception—is the problem of recruitment and training of the professional and technical personnel. This is a crucial issue today. In the field of child health, particular attention must be given to the dynamic psychology as well as the physiology of child development in both in-service and postgraduate training and in the basic educational programs for physicians, nurses, den-

tists, social workers, and, indeed, all auxiliary personnel.

Before I leave the subject of providing for the particular needs of children, I must point out that without an underlying structure of research and investigation into all matters related to the welfare of children and child life from which new facts will flow, the service programs will sooner or later deteriorate and fail. Medical and related biological research in the past few decades have produced facts and information that led to dramatic reductions in maternal, infant, and childhood death rates, and in sickness rates. Undoubtedly this type of research will go on. The results of the work are easily understood because they so directly affect the health of the man-in-the-street and his family. Legislative support comes relatively easily.

But there is less public and, indeed, less professional understanding when it comes to research that has to do with learning more about the causes and roots of juvenile delinquency; the effect of certain cultural patterns on child and adult behavior; the effect of artificial feeding of infants or the separation of mother and new-born infant in the hospital on the parent-baby relationship and the emotional development of the child; the pathology, physiology, treatment and education of the cerebral-palsied child; or a multitude of other problems in child life that call for inquiry by a team of research workers seeking information in the field of the social as well as the biological sciences.

Research workers in a number of fields are now calling for legislation that would make possible such multidiscipline research in child life—legislation that would provide grants-in-aid to universities and child research institutes to carry out long-term as well as short-term projects. Although basic research is needed in these fundamental social and biological sciences, carefully

planned "operational" research that explores the success or failure of our methods of applying basic knowledge in child health and child welfare operating programs is also important. The proposals under discussion by these scientists would call for a National Child Research Institute which would serve as a clearinghouse for information on current research and provide a channel for the development of types of research that cannot be undertaken by any one university or research center alone, types of research that require national planning and action.

As I warned you I would, I have focused on the need for cultivating our resources for health by concentrating our attention on action for the nation's children, action that will help to fit them for citizenship in tomorrow's world. The world of adventure and life for our children and youth is not limited by the geographic borders of a town, as it was in 1645; or of a colony, as in 1745, or of a state, as in 1845, or even of the nation, as it was in 1945. Plans for action in behalf of our own children must take into consideration the total world community in which our children will grow up and live. Unlike us, they will have contacts and working relations with all kinds of people all over the world. Our 45 million children will have to take their place with the world's 700 million children.

To this end the First World Health Assembly of the World Health Organization, meeting in Geneva last July, placed maternal and child health in the top priority list of subjects to be given attention, and made funds available to start a program of service to the member nations. All the peoples of the earth crave health. The World Health Organization has the great task of interpreting to the peoples of the world that health means "mental and social well-being as well as physical health"; that it is "not merely the absence of disease

and infirmity"; and that the healthy development of the child is essential to harmonious living among peoples.

Today we are living at the beginning of a new age—an age brought about by the discovery of atomic energy, an age with potentialities and complexities which baffle and confuse and stagger the minds of ordinary men and women. We cannot as yet grasp what it means and, as usual, we are afraid of the unknown. Those of us who work in the fields of health and social welfare and education hopefully believe that we have a job to do which may in time alter the course of history, indeed which may make "history" possible. Our task is a difficult one for it involves changing attitudes of people, helping young people acquire the emotional maturity and the sense of responsibility requisite to living in a world of many nations with diverse ideologies and different cultural and social backgrounds. If we use—and implement—the definition of health set forth in the Constitution of the World Health Organization that I have already quoted to you, it becomes clear that this is a health task. It is a task that every one of us, no matter what his professional training, can work on in his usual daily round.

But accomplishments in this field represent a long haul, a haul that will be

productive only if we are given time, only if we have the imagination, the initiative, the intelligence, and the resources to push ahead with all possible speed.

As we view the critical world situation, we become frantically aware that unless, as Toynbee puts it, we give ourselves "time for peace," unless we find ways for nations to work together and break away from war as a means of settling differences, unless we gain now "the anticipatory wisdom" necessary to avoid world catastrophe, we will have no opportunity for our long haul task.

Our task is twofold then—first to work to gain "time for peace," and second to go about our daily jobs with the conviction that we can lose no time in reaching our full objectives for health for all the people, but with special concentration on the health of the oncoming generation. Our children are indeed our measure of social progress.

As I have been preparing this address, the words of one of our great American poets have echoed and reechoed through my mind. Perhaps they epitomize the challenge of our times. Walt Whitman, when sending a copy of *Leaves of Grass* to Emerson wrote, "Master, I am a man of perfect faith. We have not come through centuries . . . to halt in this land of ours."

tists, social workers, and, indeed, all auxiliary personnel.

Before I leave the subject of providing for the particular needs of children, I must point out that without an underlying structure of research and investigation into all matters related to the welfare of children and child life from which new facts will flow, the service programs will sooner or later deteriorate and fail. Medical and related biological research in the past few decades have produced facts and information that led to dramatic reductions in maternal, infant, and childhood death rates, and in sickness rates. Undoubtedly this type of research will go on. The results of the work are easily understood because they so directly affect the health of the man-in-the-street and his family. Legislative support comes relatively easily.

But there is less public and, indeed, less professional understanding when it comes to research that has to do with learning more about the causes and roots of juvenile delinquency; the effect of certain cultural patterns on child and adult behavior; the effect of artificial feeding of infants or the separation of mother and new-born infant in the hospital on the parent-baby relationship and the emotional development of the child; the pathology, physiology, treatment and education of the cerebral-palsied child; or a multitude of other problems in child life that call for inquiry by a team of research workers seeking information in the field of the social as well as the biological sciences.

Research workers in a number of fields are now calling for legislation that would make possible such multidiscipline research in child life—legislation that would provide grants-in-aid to universities and child research institutes to carry out long-term as well as short-term projects. Although basic research is needed in these fundamental social and biological sciences, carefully

planned "operational" research that explores the success or failure of our methods of applying basic knowledge in child health and child welfare operating programs is also important. The proposals under discussion by these scientists would call for a National Child Research Institute which would serve as a clearinghouse for information on current research and provide a channel for the development of types of research that cannot be undertaken by any one university or research center alone, types of research that require national planning and action.

As I warned you I would, I have focused on the need for cultivating our resources for health by concentrating our attention on action for the nation's children, action that will help to fit them for citizenship in tomorrow's world. The world of adventure and life for our children and youth is not limited by the geographic borders of a town, as it was in 1645; or of a colony, as in 1745, or of a state, as in 1845, or even of the nation, as it was in 1945. Plans for action in behalf of our own children must take into consideration the total world community in which our children will grow up and live. Unlike us, they will have contacts and working relations with all kinds of people all over the world. Our 45 million children will have to take their place with the world's 700 million children.

To this end the First World Health Assembly of the World Health Organization, meeting in Geneva last July, placed maternal and child health in the top priority list of subjects to be given attention, and made funds available to start a program of service to the member nations. All the peoples of the earth crave health. The World Health Organization has the great task of interpreting to the peoples of the world that health means "mental and social well-being as well as physical health"; that it is "not merely the absence of disease

and infirmity"; and that the healthy development of the child is essential to harmonious living among peoples.

Today we are living at the beginning of a new age—an age brought about by the discovery of atomic energy, an age with potentialities and complexities which baffle and confuse and stagger the minds of ordinary men and women. We cannot as yet grasp what it means and, as usual, we are afraid of the unknown. Those of us who work in the fields of health and social welfare and education hopefully believe that we have a job to do which may in time alter the course of history, indeed which may make "history" possible. Our task is a difficult one for it involves changing attitudes of people, helping young people acquire the emotional maturity and the sense of responsibility requisite to living in a world of many nations with diverse ideologies and different cultural and social backgrounds. If we use—and implement—the definition of health set forth in the Constitution of the World Health Organization that I have already quoted to you, it becomes clear that this is a health task. It is a task that every one of us, no matter what his professional training, can work on in his usual daily round.

But accomplishments in this field represent a long haul, a haul that will be

productive only if we are given time, only if we have the imagination, the initiative, the intelligence, and the resources to push ahead with all possible speed.

As we view the critical world situation, we become frantically aware that unless, as Toynbee puts it, we give ourselves "time for peace," unless we find ways for nations to work together and break away from war as a means of settling differences, unless we gain now "the anticipatory wisdom" necessary to avoid world catastrophe, we will have no opportunity for our long haul task.

Our task is twofold then—first to work to gain "time for peace," and second to go about our daily jobs with the conviction that we can lose no time in reaching our full objectives for health for all the people, but with special concentration on the health of the oncoming generation. Our children are indeed our measure of social progress.

As I have been preparing this address, the words of one of our great American poets have echoed and reechoed through my mind. Perhaps they epitomize the challenge of our times. Walt Whitman, when sending a copy of *Leaves of Grass* to Emerson wrote, "Master, I am a man of perfect faith. We have not come through centuries . . . to halt in this land of ours."

The Ailments of Health Departments*

FLORENCE R. SABIN, M.D., F.A.P.H.A.

*Committee on Health, Governor's Post-war Planning Commission, Denver, Colo.;
President, Western Branch, A.P.H.A.*

AT the beginning of his address of last year Dr. Karl F. Meyer expressed his longing for a new definition of health. He was prophetic, for such a definition has now been given to us by the World Health Organization in what Dr. Chisholm, the Canadian psychiatrist, has called the most clearly defined word in the English language: "Health is the condition of physical, mental, and social well-being and not the mere absence of disease or infirmity."

We are met here to consider the health problems common to the western area of our country, but I shall have to take a backward step and consider not health at all, but ask your attention to two chronic ailments that still afflict health departments themselves no matter how progressive they may be. I speak of the chronic lack of funds and of the still worse lack of trained personnel.

It is my opinion that in the appeal for funds from legislatures and city governments, we have nowhere stressed sufficiently the fact that preventive medicine is economically sound. I speak from the standpoint of our two legislative failures in Colorado in 1947 in a session of the legislature conspicuously in favor of health measures. These two failures were to set up preventive measures against brucellosis in our dairy herds, and to provide hospital beds for our excess of tuberculous patients.

It is certainly not difficult to show

that the elimination of Bang's disease from dairy herds would increase the per capita wealth of any dairy state. You all remember the studies made in Michigan by Dr. Huddleson last year and reported in an editorial of the *Journal of the American Medical Association*, July 5, 1947, which stated that inasmuch as an infected cow produced 2,065 less lbs. of milk per lactation period than the non-infected cow, the State of Michigan lost 222,904,000 pounds of market milk per year from the prevalence of this disease. The loss was enough to supply about half a million persons a year with milk; the loss in butter was enough to supply about 600,000 persons. As if this were not a sufficient deficit of real wealth, the loss in calves represented a loss of 1,299,200 lbs. of veal or of 6,494,000 lbs. of beef, or of a proportionate annual loss in dairy products if the calves were raised as milk-producing animals.

Try to imagine these losses of real wealth reported for one dairy state, if computed on a national level, with the number of dairy cows and the percentage of infection used as the basic data. The data on losses is so impressive that it has not been too difficult a task to convince the dairy industry that preventive measures pay in terms of increased dividends.

I wish to have the health forces make more and more use of such data, to convince the business world that we are not just "do-gooders" used as a term of opprobrium, but that preventive

* Presidential address delivered at the meeting of the Western Branch A.P.H.A., Salt Lake City, Utah, May 25-27, 1948.

medicine is interested in increasing the per capita wealth of the community, as well as increasing the well-being of all the people.

Why did our bill, aimed at quarantining infected dairy cows only, fail even with the backing of the dairy industry? The answer is that the bill was killed in the livestock committee; however, defeat is often the first step toward improvement, and we are now convinced that the livestock industry is ready to assume leadership in this problem.

Here is a true western problem: the whole territory just east of the Rockies—Texas, New Mexico, Colorado, and Wyoming—is traditionally a country where "cattle is king," representing an industry of great national importance.

While the dairy industry in Colorado is worth about \$40,000,000, the cattle industry is worth \$113,000,000. No wonder that with all the glamour of their historical traditions and with their present real national importance, they are a controlling factor in the West in measures that affect their industry. Under these conditions, why did the saving of calves lost by a reasonably preventable disease seem of less significance to the cattle industry than to the dairy industry? I suspect that in Colorado, at least, the reason is that a greater difficulty and a more immediate concern to them was the shortage of grazing land. Shrinking of grazing land has a long, long history in the West.

At present, the Governor of Colorado has appointed a special committee with representatives of the livestock industry, of the dairy groups, of veterinarians, of the public health forces, and of the public to make a special study of the best possible control measures for this disease, with the next legislature in mind.

Instead of appointing the individual members to this committee, Governor Knous asked the different groups to

designate their own representatives. This state-wide committee has drawn up a bill of which I quote the section on the "Control and Eradication Program": "In an effort to control and eradicate Brucellosis in the State of Colorado, the Commissioner (Livestock Commissioner) is hereby directed to inaugurate and continue a program for such control and eradication throughout the State, by the vaccination of all heifer calves and the testing of all dairy cattle as hereinafter provided." The committee also authorized the appointment of a small committee to carry on an intensive educational program up to the time of the next legislative session.

I bring this matter before you not to stress the provisions of our particular bill, but—since no state can solve this problem alone—to suggest that it would be good policy for our western states to attack this problem at the same time.

What is our status with respect to tuberculosis in the Western Branch? I lack the data from Hawaii, the Philippines, and from British Columbia, but the records from Alaska are perhaps our very worst. Of the eleven western states, the records of 1945 showed three—Nevada, Arizona, and New Mexico—in the group of the highest death rates (43.6 to 123.1 per hundred thousand), and three—California, Montana, and Colorado—in the next worst group (37.3 to 43.5).

Why should Colorado, surrounded by Utah, Wyoming, Nebraska, and Kansas—all with the lowest rates—have such a record? Analyzing the state records, it is not the state as a whole that has such a poor rating but a zone east of the mountains; moreover, Denver, Colorado Springs, and Trinidad account for much of it. It seems to me that the official agencies should now work with precision to seek out and correct these spots of special concentration of this disease.

The National Planning Association

of Washington, D. C., has been making studies of the economic losses from several diseases—including tuberculosis—which have been loaned to me by John Miller, the Assistant Director of the Association. With his permission, I am using their figures.

The studies were made for the year 1943, since that was the latest date for which they could secure all the data they needed. Nineteen hundred forty-three was a war year and so not wholly typical, but their figures are very moderate and it is their trends we wish to emphasize. They estimated that tuberculosis cost the United States for that year about \$174,000,000. This included the care of the ill in sanatoria and at home, case finding, education, rehabilitation, aid to families when the wage earner had tuberculosis, research, and pensions to tuberculous veterans.

They then considered the loss in personal income to families and the losses in goods and services to the nation from this disease. For the 41,631 wage earners who died in 1943, and from those who were ill with the disease that year, they estimate a production loss of \$348,000,000 worth of goods and services.

Then, turning to the cost of reducing this disease to a very low level with the known methods of case finding, cost of care, of follow-up of contacts, rehabilitation, assistance to families, education, and research—they estimated an annual cost in the peak years of \$320,000,000. This figure of \$320,000,000 did not include the cost of new hospitals to provide the necessary beds for tuberculous patients, but they estimated that about \$70,000,000 of the new program for bed construction and equipment should be ultimately assigned to the eradication of tuberculosis.

This was on the basis of a ten year program, with costs lessening as losses gradually diminished. Think of it! For a cost lower, or—if hospital construction is included—only slightly higher,

than the present losses, our annual expenditure for this disease might be reduced from \$174,000,000 to a maintenance cost of around \$36,864,000. It seems to me imperative that we find out the zones of high incidence of this disease and start a ten year campaign to correct present conditions.

Here have been given two examples of data on the economic losses of preventable disease which we might use with increasing skill and with increasing effect on the first of our two major problems: how to get enough money to carry on preventive measures. Dr. Meyer raised the question: "How are we to devise an education for the legislator?" A part of the answer is the skilled use of data on the economic losses of preventable disease.

Now may we turn to our second great infirmity, the lack of trained personnel. This is such a serious ailment that we may expect but limited suggestions.

The Social Security Administration sent out a map of the states in preparation for the recent National Health Assembly in which all the county health units were marked in black, and their absence marked in white and gray. On this map there are two rows of western states of four states each that make essentially a great white way. They are improving their status in regard to health units, but they still have far to go. I refer to Montana, Wyoming, Colorado, and New Mexico as the Rocky Mountain states; and Idaho, Nevada, Utah, and Arizona as an Intermountain Zone.

Now each of these two great western zones has just one medical school. The members from the Pacific Coast may just count their medical schools and then not listen to our troubles. We are beginning to overlook our county lines now to set up District Health units. Why could not we overlook a *state* line or two? We have a really progressive medical school in Denver; it is now a true medical

center. The medical services of the Denver General Hospital, drawing patients for the entire city, have been put under the direction of the medical faculty, so that the school now draws its patients from all of the counties and from the city, as well. Therefore, the school now has ample clinical material. To increase its student body, it needs additional laboratory facilities and increased state appropriations for education and research. Tuition fees nowhere pay for medical education. I asked the Governor of Wyoming what he thought of the idea of having a real part in our Medical Center, and he was greatly interested. There are this year in Wyoming, 50 pre-medical students ready for entering a medical school, and with our system of state universities, it is almost impossible to place them.

Here is probably a pretty stiff proposition to put up to state legislatures, but why not put it to the people first?

Our school could be the Medical Center for the Rocky Mountain states. I do not know the local problem here in Utah, but why could not your great school here in Salt Lake City become the great Medical Center for the Inter-mountain Zone? At any rate, will the delegates from New Mexico, Wyoming, and Montana talk about a Rocky Mountain Medical Center, an institute of medicine, of research, of psychiatry, of dentistry, and of public health as our common possession? Of course, an increased enrollment of medical students is only one aspect of our deficiencies. We need, also, more nurses, more sanitarians, and more sanitary engineers, for personnel is the major problem of health departments.

The pioneers who settled our western states had a tradition of solving their own problems, so why not maintain this tradition with this new and pressing problem of medical education?



Twenty-five Years in Maternal and Child Health

FELIX J. UNDERWOOD, M.D., F.A.P.H.A.

Executive Officer, Mississippi State Board of Health, Jackson, Miss.

NINETEEN forty-six represented another year of real progress in maternal and child health in Mississippi. A further decline of 20 per cent in maternal deaths and of 8 per cent in infant deaths during that year represented the 11th year of continuous decline in the rates for these two figures. The last 10 years have brought approximately 50 per cent reduction.

To those of us who have had the privilege of pioneering in the early days of the Sheppard-Towner Act in 1921 and even before, the situation was not always the favorable one we face today. In 1913, the first year when reliable statistics were available to any state in the South, the puerperal state in Mississippi was responsible for 447 deaths, and diarrhea and enteritis alone in young children was responsible for 678 deaths. In the U. S. Registration Area, in the early 1900's, the annual average rate for 1906 to 1910 was 15.5 per 100,000 for the former and 96.2 per 100,000 for the latter.

In a published article at that time it was commented that "the huge death rate in Mississippi from the puerperal state can be readily accounted for as being due to the fact that the state does not require midwives to be licensed. The death rate from this cause will never be reduced to any great extent until the state requires such persons as engage in the practice of midwifery to have at least some knowledge of cleanliness."

RURAL SANITATION PROGRAMS

Public health programs in Mississippi, and indeed in the nation as a whole, were directed at that time toward better rural and municipal sanitation. Because of the work in the control of hookworm, which had been going on in Mississippi since 1910, widespread interest had been aroused in the serious results of this disease, and in the 3 years 1911 through 1913 some 84,000 children had been examined and 30,941 shown to be infested.

There is perhaps even now no known disease more insidious in its injurious effects upon child life than is hookworm disease. By 1914, however, there was scarcely a school in Mississippi that had not had an address on hookworm by a representative from the Mississippi State Board of Health. There was rather early recognition on the part of our state health department of the need of activity on the behalf of the children in Mississippi. Interest in behalf of mothers on the other hand came somewhat later.

In 1917 W. S. Leathers, M.D., then Executive Secretary of the Mississippi State Board, wrote, "Child health activity in Mississippi has been neglected in the past. There is no greater need in Mississippi today than the study of infant mortality with the hope of reducing deaths among children less than 2 years old and also the medical inspection of children of school age." It was pointed out in the report of the board

at that time that the English Parliament had enacted legislation for compulsory inspection of school children seven years before and that a system of medical inspection of schools had already been in vogue for thirty years in Japan.

The Board in 1917 recommended that a division of child welfare work be established. At that time there were already employed in the public health work of Mississippi four visiting nurses who according to their secretary were "proving themselves of invaluable assistance to the physicians in their mission of instruction and demonstration of the principles of hygiene and through their work in the schools." Some states at that time had as many as a score of these pioneering women.

INITIATION OF THE MIDWIFE PROGRAM

The first official contact of the Mississippi State Board of Health with the midwives and, indirectly, with maternal problems created by their practices, other than the efforts to instruct them in the reporting of births since 1912, was the passage of the model law for the prevention of blindness. This law passed in 1916 required the State Board of Health to educate the physicians and midwives of the state in the use of silver nitrate at birth and was begun by using the total annual appropriation of \$300 (!) for the distribution of considerable literature to the physicians and to the midwives. For the midwives, the literature read:

"Instruction for the Care of the Eyes of Newborn Babies of the State:

"As soon as the baby is born the midwife must carefully clean the eyelids with water that has been boiled. She must wipe the eye from the nose outward without opening the lids, then the eyelids must be separated and two drops of 1 per cent silver nitrate solution dropped in each eye."

The pamphlet concluded by pointing out that "To lose one's sight is like

losing life itself. Save your baby's sight." The county health officer, at that time, of course, a part-time poorly paid official, was made responsible for the enforcement of the law.

ESTABLISHMENT OF THE BUREAU OF CHILD WELFARE

By 1920 the first Bureau of Child Welfare was created, to include prenatal work, medical supervision of school children, supervision of nutrition clinics, and supervision of midwives of the state. Forty thousand dollars was appropriated by the State Legislature, and the U. S. Public Health Service sent in a woman physician to organize the program. After 6 months a full-time director was appointed from the staff of the State Board of Health itself.

An appeal was made to the newly enfranchised women of Mississippi for interest and support of the new bureau. Eleven counties made the first appropriation (\$1,000) necessary for a child welfare unit. Although the principal work was to examine school children, a limited amount of infant, preschool, and prenatal work was carried on. For example, prenatal letters were sent to expectant mothers.

It was recognized soon, however, that child welfare work to be effective must commence with a more intensive prenatal program. In March, 1921, a nurse from the Public Health Service began the registration and holding of classes for midwives. At that time there were in Mississippi 1,700 practising physicians and 5,000 practising midwives, a ratio of about 1 to 3. In the next 4 months, the first group of 922 midwives were investigated and 563 were given permits to continue the practice of midwifery.

Through the interest of the American Red Cross, a Division of Public Health Nursing was established at about the same time under the direction of Mary D. Osborne, R.N., who assumed the re-

sponsibility of the midwife program in February, 1922, and who carried on continuously the direction of this program until March, 1945, almost a quarter of a century.

INITIATION OF THE MATERNITY AND INFANT HYGIENE PROGRAM

At that time too federal funds first became available under the Sheppard-Towner Act in the amount of \$17,067 to be matched with state funds, with an additional \$5,000 available without matching. These funds were intended for the "promotion of the welfare and hygiene of maternity and infancy." The child health program was, up to that time, almost exclusively one of medical inspection of school children. For this reason, in 1922 a new division of maternity and infant hygiene was established under the Bureau of Child Welfare to devote special attention to mothers and to infants and children under 2 years of age.

At that time no less than one-sixth to one-seventh of all deaths that occurred in Mississippi were among children less than 1 year old. The initial program as outlined was considered by the Children's Bureau as the best single state plan presented for that year. By July 1, 1922, 16 additional nurses were added to the staff of the Bureau of Child Welfare, all paid or partly paid from federal funds. Five of these were district nurses who were assigned to the midwife program and who, in the succeeding two years, saw and examined 3,027 midwives.

In 1922, maternity care was needed for about 45,000 mothers each year in Mississippi, of which no less than 22,700 were delivered by midwives. "Some forty-five thousand lives (mothers and infants) were being entrusted annually to the care of ignorant untrained midwives." It was realized, of course, that this was the biggest factor contributing to the high death rate among both

mothers and infants in Mississippi. During the preceding two years no less than 4,670 babies had been born dead in the state. Deaths among infants under 1 year had numbered 5,983, and deaths due to puerperal causes had numbered 704. The economic loss due to stillbirths alone had been estimated at \$350,000 during the preceding biennial period.

As services were extended to mothers in Mississippi it was found early in the program that syphilis was having an important bearing on child health. For this reason, within three months after the establishment of the new Division of Maternity and Infant Hygiene, a nurse was added full-time "whose efforts have been expended mainly with the midwives of the state, teaching them of the ravages of venereal diseases." Among 4,000 blood tests in expectant mothers, 600 were positive for syphilis and the midwives themselves were found to be infected in about 10 per cent of the instances.

EARLY EMPHASIS ON NUTRITION

It might be well to discuss at this time the early emphasis placed by the Bureau of Child Welfare in Mississippi on nutrition. In part, this dates back to the early work of Goldberger in the state on pellagra, for it was in Mississippi that his studies were made proving the dietary nature of this disease, and in part to the extreme malnutrition which the ravages of the hookworm had made so apparent in children of school ages.

Pellagra, in 1914, in Mississippi, was third in rank on the list of causes of death, and was causing the state an economic loss of at least \$2,280,111 a year. About 15,831 cases were reported by physicians in 1915 and deaths were occurring at the rate of 1,500 a year. Children naturally were affected, too. As part of Goldberger's studies, lean meat, milk, eggs, beans and peas were added to the diets of the children in

two orphanages in Mississippi where 209 cases of pellagra had occurred the previous year and the number of cases was reduced to one.

By January, 1921, over six months after the establishment of the Bureau of Child Welfare, a nutritionist was added to the bureau staff. Even at this period in the nutrition program the nutrition worker pointed out that there "was a lack of knowledge of how to cook vegetables" and that "in a climate where vegetables can be grown almost the year round, the vegetables so needed by children are almost unknown." These are statements which may seem familiar even today, to our modern workers in this field. Parents still seemed to consider "weight a much more definite and urgent problem than individual physical defects."

Prominent among the defects of children in Mississippi then, as now, were dental defects. In January, 1923, a new division, that of Mouth Hygiene was organized and work begun with school children. It had been decided that the logical place to begin a program in the prevention of bad teeth was in work with small children. Some three thousand children were examined by a dentist in the first year. An idea of the need for the program can be gained from the fact that at that time the regular activities of the child health program had found that, among 33,317 children examined, some 25,767 had dental defects.

EARLY PROGRESS IN THE MATERNAL AND CHILD HEALTH PROGRAM

By 1922, the total death rate in Mississippi was showing a steady decrease. Public health applied in a planned efficient manner had saved 6,600 lives in four years and Mississippi's death rate was now 10.8 (while California's was 14.1). With the assumption of the position of executive officer of the Mississippi State Board of Health by the director of the Bureau of Child Welfare,

the latter bureau was combined with that of Public Health Nursing, and the director continued as acting director. The American Red Cross support of the nursing program in Mississippi continued until 1924 and the Children's Bureau continued to offer its support and assistance.

The midwife manual was completed by Mary D. Osborne, R.N., in 1924. Within succeeding years more requests came from foreign countries for the midwife manual than for all other health bulletins of the Mississippi State Board of Health combined. A circular letter was sent to every physician in the state at this time, asking if the intensive work done with the midwives was being reflected by a corresponding improvement in the practices of the midwives. The physicians replied in the affirmative in approximately 78 per cent of the cases. Some 2,000 classes for midwives were now being held biennially, attended faithfully by the midwives of the state.

Local health department child welfare services at this time consisted of physical examinations of school children and better baby conferences for babies and preschool children. Medical maternity services were not as yet available, although public health nursing activities included, in the biennium, nursing services to 3,744 pregnant mothers. Public health nursing services were now available on a full-time basis in 25 Mississippi counties, through funds in part derived from the Children's Bureau.

By 1926, the program of the Bureau of Child Welfare might well be described as state-wide. No additions to the fundamental divisions of medical school inspection, nutrition, mouth hygiene, and maternal and infant hygiene had been made. However, there were now 6 dental hygienists, where there had been 1 before. A new program, the establishment of a children's health camp, was begun in July, 1925, intended for children who were convalescing from various illnesses.

This later developed into a full-time preventorium at the State Sanatorium which is still in operation.

Midwife supervision activities continued at an intensive level and physicians over the state attested to the continued improvement in their cleanliness and in the care of the mothers they attended. The type of midwife meeting had now "changed from a dirty, disorderly group, talking and paying little attention, to a group dressed in clean white uniforms and caps, all eager to learn." Of the 4,209 found in the original survey, 2,495 had given up their practice and, together with the new additions, 3,040 were now on the active list. There were 299 organized midwife clubs over the state. For their cases regular organized medical and nursing maternity conferences—a new aspect of the program—were now being held in one-fourth of the full-time county health departments.

GROWTH OF FULL-TIME COUNTY HEALTH PROGRAMS

By 1930, public health programs in Mississippi had become established on a full-time basis in 25 counties and this improvement in the organization of basic public health services was reflected in more efficient services to mothers and children. A liberal interpretation of the Sheppard-Towner Act by the Children's Bureau helped here. County health department reports began to include such statements under the heading of child welfare programs, as "Three hundred and thirty-nine infants and preschool children have been examined and 776 home visits have been made by the nurses (now full-time members of the health department) in the interest of infant welfare work."

The protection of the health of the children of the state, at one time considered only of minor interest, now constituted one of the major activities of the Mississippi State Board of Health.

The infant mortality rate in 1931 was 56.5 per 1,000 in Mississippi while the corresponding national figure was 62. Midwives were still caring for 50 per cent of all mothers in Mississippi at the time of delivery, but the maternal death rate which had been 9.5 per 1,000 live births in 1925 in Mississippi, was now in 1932, 6.0—below the national average. The 375 midwife clubs which were now meeting regularly were carrying out their functions extraordinarily well.

By 1932, the dental hygiene program in Mississippi received a citation from the president of the American Dental Association as being one of the leading programs in mouth hygiene in the states. In a two year period this program had offered 176,000 children dental inspections through the services of 4 itinerant dental hygienists. The nutrition program, however, which had begun so early as an important part of child health activities, had fallen by the wayside.

A new aspect of the maternal and child health program during the year was a coöperative project with the Children's Bureau in postgraduate instruction in the field of obstetrics, using the services of a professor of obstetrics from a neighboring medical school. Nearly one thousand physicians attended a full 1 week postgraduate lecture course. Physicians also began to attend 4 month graduate fellowship courses sponsored by the Commonwealth Fund.

EXPANSION OF BASIC SERVICES TO MOTHERS AND CHILDREN

By 1933, some 13,000 mothers and 26,000 infants and preschool children were receiving medical and nursing services through the 28 organized county health departments each biennium. The Division of County Health Work reported at the end of that year, "greater impetus has been given to the prenatal program and many counties have started or expanded their medical prenatal conferences . . . more infant and

preschool conferences are being held and greater emphasis is being placed on the protection of this age group from preventable diseases."

There was, by 1935, an increasing awareness of the need for anti-syphilitic treatment among the maternity admissions. One county health department pointed out that "of 240 patients coming for antepartum medical care, 90 showed a positive serology; and only 41 had some anti-syphilitic treatment." The maternity services had by now shown such a rapid development that "in a number of counties at the present time the problem is to find some method of limiting the service so that other important activities may receive attention."

INTEREST IN POSTGRADUATE EDUCATION

Through the interest of the Commonwealth Fund, a full-time obstetrician was now available to carry on lectures and clinical demonstrations. In the first 6 month period, 15 towns in Mississippi were offered his services, with an enrollment of 90 per cent of the physicians in each area. Now health departments were finding that most of the maternity cases were admitted to service as early as the 5th month, making it possible to render a more nearly adequate service of supervision and instruction.

One of the original aims of the maternity program had been to secure more deliveries of mothers by physicians. The past twenty years, however, had seen a decrease in the number of physicians in Mississippi from 2,048 in 1916 to 1,515 in 1936, a number actually less than that in 1886. The percentage of midwife deliveries, with the establishment of the Bureau of Child Welfare, had been approximately 50 per cent, and was by 1934 50 per cent. The importance of the long years of planning and of carrying out the midwife supervisory program was thus emphasized. Single counties had as many as 91 midwives enrolled in clubs.

Many unnecessary maternal deaths, however, were still occurring. One health department's report pointed out that in the one county "there were 13 maternal deaths in two years, of which at least one-half might have been prevented if adequate care had been available."

The postgraduate instruction courses in obstetrics were included, the course in obstetrics having reached 820 physicians in 45 towns in Mississippi, or about one-half of the physicians in the state. A similar course in pediatrics was begun and made available to 500 physicians in 18 Mississippi towns. Through the coöperation of the Children's Bureau, a new program of obstetric and pediatric instruction for colored physicians was also carried out, reaching practically all the colored physicians in the state.

Child Health Day activities had been carried on annually each May since 1931 with increasing emphasis. As many as 12,000 child health buttons were made available in one county health department at Child Health Day celebrations. Six years later a special state Child Health Day Committee headed by the Governor was appointed with the slogan "Health Protection for Every Child."

In 1938, the maternal and child health program had been placed under the Division of County Health Work. A full-time obstetrician was employed to offer consultation service to health departments in the examination of prenatal patients. Still, "almost daily," at this time, it was pointed out, "some mother in the state dies of a preventable condition associated with pregnancy." Fully 80 per cent of the deliveries were being carried out in the home of patients, and hospital deliveries were reserved for obstetrical emergencies.

ESTABLISHMENT OF THE FIRST HOME DELIVERY SERVICE

A new demonstration program in Pike

County offered to physicians maternity nursing service at the time of home delivery. During the first 8 months, the services of the public health nurses were used in 67 per cent of all home deliveries. In addition, sterile ready-packed home delivery kits were made available to physicians in many Mississippi counties where predominantly home deliveries were made. This was an effort directed toward reducing further the 28 per cent of the maternal deaths which were due to infection.

In the biennium 1939-1941, the Division of Maternal and Child Health was established under a full-time medical director. Maternal death rates were now 6.2 per 1,000 and infant death rates were 54.5 per 1,000. The number of midwives had dropped to 2,997. The colored maternal mortality rate which had been 12.8 in 1930 was now 7.5 in 1940. Under the stimulus of the new division, along with the increasing number of organized full-time county health departments, the number of mothers admitted to antepartum medical service numbered 15,578 in the biennium, an increase of 34.2 per cent. Toxemias of pregnancy were, in 1939, responsible for 30 per cent of all maternal deaths, in fact the leading cause of maternal deaths; and in a great measure preventable. Infections were responsible again for another 28 per cent of the deaths and in a great measure preventable also.

The number of infants receiving nursing service increased to 30,286. There were now 245 maternity centers offering antepartum medical and nursing services and 435 child health conferences. By the addition of a pediatric consultant, recognition was given to the emergency needs of the premature infants, which make up some 20 per cent of the infant deaths each year in Mississippi. Approximately 2,500 premature babies were being born yearly. Public health nurses were instructed in the care of the premature infant, incubators were pur-

chased, and emergency supplies made available to each organized county in the state.

Nutrition, with all of its manifold important public health aspects, was reestablished as an additional service of the Mississippi State Board of Health in 1942. A study of the dental hygiene program at about this time showed that Mississippi children had a lower rate of dental decay than in most eastern states. Public health nursing services had grown until there were now more than 200 public health nurses on duty in the 65 full-time county health departments. The anti-syphilitic program, so important a factor in maternal and child health work in Mississippi, was now extending 1,018,000 treatments a year to Mississippi citizens.

INITIATION OF THE MISSISSIPPI EMERGENCY MATERNITY AND INFANT CARE PROGRAM

In April, 1943, the Mississippi Emergency Maternity and Infant Care Program was initiated to offer through family physicians maternity and pediatric care for the wives and infants of enlisted men serving in the armed forces. In the next 3 months, some 1,400 applications were received. Eventually, during the 4½ years of its operation 25,667 applications have been made to the program. A statistical study of the program's 5,259 deliveries in 1944 showed that the per cent of hospital deliveries was doubled, the stillbirth rate was halved, and the maternal death rate was reduced to one-third of the corresponding figure for all the births in the state that year.

The number of hospital deliveries in Mississippi increased sharply from a total of 9,000 to 17,000 within a 4 year period—1941 to 1944—in large part due to the stimulus of the EMIC program. Seventeen thousand mothers were now receiving antepartum medical services and 26,000 antepartum nursing services

through their county health department during a biennial period. Some 56,000 maternity visits were contributing much to continued reduction in maternal mortality figures—from 6.2 to 4 per 1,000 in the 5 year period—1940–1944. Infant mortality rates were showing a decrease like that of the maternal rates, dropping from 54.5 in 1940 to 43.6 in 1944. The total loss of life from stillbirths and infant deaths was still, however, appallingly high. For example, the total known loss of life in this group in Mississippi for the 5 years 1939 through 1943 was 26,720.

Planned parenthood services were also made a part of the maternity program, the state receiving the Albert and Mary Lasker Award for its outstanding work in this field. Postgraduate programs in obstetrics and pediatrics during the war-time years reached one-fifth of the physicians in active practice. Some 305,000 copies of infant and child health literature, either from the Children's Bureau or prepared by our own Division of Maternal and Child Health, were distributed in the biennium. Sixty-six hundred maternity or infant and pre-school conferences were held during the biennium—1943–1944, or an average of 10 a day throughout the state. In the nutrition program, 76,000 pieces of nutrition literature were distributed.

NEW PROGRAMS IN THE MATERNAL AND CHILD HEALTH FIELD

A new program in child health was added, that of child guidance in 1943, and 9 branch centers for child guidance activities were established under the direction of a child psychiatrist and her staff.

The rapid growth of the child guidance program suggests that it may develop into a whole mental hygiene program of its own. Referrals increased rapidly. There was also an increasing awareness of the importance of tuberculosis to the mater-

nity program. It was estimated that approximately 1,200 women with active tuberculosis were giving birth to infants yearly. Deaths from puerperal causes in Mississippi numbered 233 in 1943, while deaths in women from tuberculosis in the same age group numbered 298.

Wartime shortages in medical and nursing personnel interrupted to some extent the steady progress in maternal and child health in Mississippi. Consultants in pediatrics and obstetrics were no longer available, and shortages of faculty members in medical schools interrupted the postgraduate courses. Now, however, again the postgraduate program is being expanded. Consultants in pediatrics and obstetrics are again available through a unique arrangement with the school of medicine of the University of Tennessee and of Tulane in the fields of obstetrics and pediatrics.

The hospital construction program under the Hill-Burton Act promises to construct the 1,600 hospital beds for maternity purposes, so long an unmet need in Mississippi. With them, better hospital facilities for the care of the premature infant and other pediatric conditions are being added. The Blue Cross program promises surgical and hospital care on a voluntary prepayment plan basis to many groups in Mississippi.

Midwife deliveries in 1946 dropped to 37 per cent, the lowest in the history of the state. About 40 per cent of all deliveries are now occurring in hospitals. The maternal death rate in 1946 was 3.2, the lowest in the state's history and a figure representing a decrease of 20 per cent in one year. Infant death rates had shown a further decrease of 8 per cent to reach another all-time low of 36.8 per 1,000 live births. Forty thousand children a year are being immunized against diphtheria through county health departments, and deaths from diphtheria in the state numbered 31.

In 1946 similar decreases in the incidence of syphilis and of tuberculosis among expectant mothers were taking place. Malaria, typhoid fever, and pellagra can now be considered as of the past.

Hookworm, however, is still crippling thousands of children. Dental decay is still a major public health problem in Mississippi and elsewhere. Malnutrition, in a lesser degree of severity, is still widely present in the population. Its great importance in the control of eclampsia and in the prevention of premature births and stillbirths is beginning to be realized. The mental hygiene aspects of pregnancy are being studied in a demonstration program. The planned

parenthood program is being extended and the possible advantage of x-ray pelvimetry in the maternity program are being explored.

Seventy years ago the infant mortality rate in Mississippi was estimated by an early physician as being approximately 250 infant deaths for each 1,000 live births. We, in the South, are looking forward within the next 10 years to an infant mortality rate of 25 per 1,000 live births, or exactly one-tenth the figures of three-quarters of a century ago.

NOTE: Gratitude is hereby expressed to Dr. Virginia Howard, Director of the Division of Maternal and Child Health, Mississippi State Board of Health, for collaborating in the preparation of this article.

"Our challenge in this generation is to discover the common interests, the terrain of possible collaboration, the overlapping areas of curiosity and sympathy, of aspiration and mutual advantage, that bind the human race together regardless of ideologies or boundary lines. The search for these rallying points of unity, the development of new techniques and areas of coöperative action where ideas and experience can be pooled and combined—this is the immediate task; this comes first; this is the foundation of the ultimate structure of a united society.

"The activities of the World Health Organization of the United Nations furnish a pertinent illustration; for health is something that all men desire and there is no limited supply for which nations must compete. Public health

work carries no threat to anybody, anywhere. Cancer and scarlet fever have no political ideology. There is no Marxian method of eliminating gambiae mosquitoes as distinguished from a Western democratic method. The principles of sanitary engineering do not bear a Russian or an American label. No difference exists between tuberculosis in the Soviet Union and tuberculosis in the United States. Infantile paralysis is the same thing in Moscow and in Washington, and human sorrow is no less poignant in one city than in the other. The world of disease and misery is not divided; it is a common world. In terms of human suffering the world is truly and tragically one world." — Raymond B. Fosdick, *Rockefeller Foundation—A Review for 1947*.

Cave Sickness

A New Disease Entity?

A. M. WASHBURN, M.D., M.P.H., JOHN H. TUOHY, M.D., AND
ELMER L. DAVIS, M.D.

Director, Division of Communicable Disease Control, Arkansas State Board of Health, Little Rock, Ark.; Senior Assistant Surgeon, U. S. Public Health Service, Epidemiology Division, Communicable Disease Center, Little Rock, Ark.; and Foreman, Ark.

DURING the past year we had the opportunity to investigate in Arkansas an outbreak of a peculiar pulmonary disease, mention of which appears only once to our knowledge in medical literature. Cain¹ and his co-workers published a report on just such an episode which occurred in the neighboring state of Oklahoma in 1943. Later a personal communication noted another similar instance happening in Mexico.²

In none of the investigations including our own, was an etiologic diagnosis established. We have dubbed the condition "cave sickness" because of the feature common to all three outbreaks and have concluded that this is a new or at least inadequately described disease entity.

Our study was conducted on 21 white male patients who represented the greater part of the 25 persons engaged in a treasure hunt in an old abandoned chalk mine in southwestern Arkansas. Excavation was started September 12, 1947. At intervals beginning with the 4th and ending with the 13th day of operations, all of those who had spent any time in the cave became ill in varying degrees of severity. Data in Table 1 give the ages, incubation periods, calculated from patient's first visit to the cave to date of onset, length of exposure, which could not be defined in terms of hours and minutes, and type of disease.

Only individuals who had entered the diggings were involved in the outbreak. Among them the disease took the form of a febrile illness with pulmonary manifestations. Onset was sudden after a short prodrome of coryza and malaise followed by chills and fever.

The rest of the symptom complex was composed of headache, in some cases with retro-orbital pain, nuchal tension, nervous irritability, slight cough, chest pain, weight loss, and certain general complaints.

There was a dearth of physical findings. Aside from increase in temperature and pulse, all signs were confined to the chest where sonorous inspiratory and expiratory rales were heard early in the illness. These later became moist and sticky and disappeared after coughing.

Clinical laboratory studies were not revealing. Chest radiographs were spectacular and in keeping with the prostration of the patients. The report on these is as follows³:

"The striking features of all the films evincing marked pulmonary involvement are the uniform distribution of the lesions from top to bottom, their consistent size and shape, the lack of any tendency to confluence, the absence of any pleural reaction, and the freedom from involvement of both the bronchopulmonary and tracheobronchial lymph nodes. It is my opinion that this process was pro-

TABLE 1

*Patients According to Age, Incubation Period in Days,
Type of Exposure, and Severity of Disease*

<i>Patient</i>	<i>Age</i>	<i>Incubation period</i>	<i>Length of exposure</i>	<i>Type of disease</i>
H. M.	11	8	short	mild
L. A.	16	7	short	mild
R. F.	16	6	short	mild
J. W. G.	15	6	moderate	mild
J. H.	19	9	short	moderate
H. H.	13	5	short	moderate
C. D.	15	7	short	moderate
H. G.	13	7	short	moderate
R. M.	16	6	short	moderate
R. B.	16	6	prolonged	moderate
R. C.	16	7	moderate	moderate
D. N.	16	7	moderate	moderate
K. C.	13	7	short	moderate
E. H.	18	8	moderate	moderate
O. B.	55	10	moderate	moderate
W. M.	32	13	prolonged	severe
C. B.	36	7	prolonged	severe
M. M.	23	4	prolonged	severe
D. G.	16	11	moderate	severe
K. M.	17	8	prolonged	severe
M. B.	18	7	moderate	severe

duced by a particulate entity which was spread almost entirely by hematogenous dissemination and which occurred in a single shower."

All patients received sulfamerazine and penicillin in therapeutic amounts without noticeable response. The disease was apparently self-limited to 6 or 7 days at which time the men were able to leave their beds although they complained of weakness and a residual dyspnea. These last persist to this writing (February 26, 1948).

The patients suffered in three degrees of severity. We present the record of a patient with the severe type of affection. The moderate and mild cases had lower temperatures and less marked prostration. Length of morbidity and extent of disability in convalescence did not vary in the three classifications.

M. M., 23 year old white planter. This patient worked prolonged periods in the cave. On the 4th day after beginning work there he noted a mild coryza with "stuffed-up" head, dry throat, and feeling of slight malaise. Late in the evening he had a shaking chill during which time his temperature reached 105° F. This was followed by profuse sweating. His temperature remained between

103° F. and 105° F. for 72 hours, despite treatment with oral penicillin, 100,000 units every 3 hours, and a sulfamerazine mixture containing 1 gm. of sulfamerazine and 1 gm. of potassium citrate per teaspoon. Resolution of his fever was by crisis, but for 4 days thereafter the patient had a daily afternoon elevation up to 103° F., accompanied by a shaking chill and followed by sweating.

At the onset the patient complained of severe headaches, retro-orbital pains, and a definite nuchal tension, and exhibited a marked nervous irritability characterized by dramatic response to stimuli. However, on the 4th day of his illness he became lethargic and lapsed into what was described as a semicomatose state lasting about 48 hours, from which he recovered spontaneously.

He also complained of anorexia and slight nausea, and lost 24 pounds during his illness. His illness was self-limited to 7 days, after which time he was able to leave his bed. His appetite improved and his general feeling of malaise disappeared, but during convalescence he was bothered by a definite fatigability and shortness of breath. Also among his

residuals were numbness and paresthesia along the course of the ulnar nerves in both hands. His past history had been entirely negative except that he had contracted dengue fever while serving on Tinian Island during World War II.

Physical examination revealed a temperature of 103° F., rapid pulse and respirations and very few other positive findings. These were entirely confined to his chest with wheezing inspiratory and expiratory rales early in his illness, which later changed to moist, fine inspiratory rales disappearing after coughing. Laboratory studies revealed 4,190,000 RBC, 8,400 WBC with a normal differential. Widal was positive in 1:80 dilution (patient had typhoid vaccine while in military service). Negative agglutinations for tularemia and Q fever were obtained. His sera failed to protect against the viruses of the psittacosis-lymphopathia group, Saint Louis and western equine encephalitis, and were negative for cold hemagglutinins.⁴ Complement-fixation for *Histoplasma capsulata* was four plus in dilution of 1:2 and one plus in dilution of 1:4 on two successive examinations at a 6 week interval. Coccidioides studies revealed the same results.⁵ Peripheral blood examinations for the spirochetes of relapsing fever and the parasites of malaria and toxoplasmosis were negative.⁶

His urine was normal. Respiratory capacity was 3.8 liters. Sputum and throat cultures on blood agar and Sabouraud's media revealed a normal flora. Direct smears of this material for tubercle bacilli, eosinophiles or other cellular elements were negative.⁶ Spinal fluid was not obtained.

Skin tests with coccidioidin in dilutions of 1:1,000 and 1:100 were negative as were those with histoplasmin at 1:100 and 1:10. Intradermal O. T. in a dilution of 1:1,000 was positive. The report of the radiologist³ on this patient is as follows:

"Three serial postero-anterior films on this

individual have been reviewed. The first is not dated but is presumed to have been taken the latter part of September. The second film was made October 8, 1947, and the third was made November 29, 1947. The first film presents a picture almost identical with an acute miliary tuberculosis. The lung fields are uniformly studded from apex to base with minute, discrete infiltrations measuring 2 mm. in diameter. These shadows suggest that the process is of an exudative nature. There appears to be no tendency for confluence of the lesions, and special attention is called to their individual nature. The lesions appear to occur at the bifurcations of the linear chest markings. There is no apparent pleural reaction and there is no involvement of the bronchopulmonary or tracheobronchial lymph nodes. There is a Ghon tubercle in the left costophrenic angle but this is thought to be unrelated to the present pathological process. The diaphragmatic shadows are regular in contour and sharp in outline. The heart is of apparent normal size and contour, and no bony abnormalities are noted.

"Diagnosis: An acute miliary pneumonitis, apparently of hematogenous dissemination but of unknown etiology.

"The subsequent films show an even clearing of the lung fields by absorption, so that the film of November 29, 1947, is practically normal. There is certainly, however, no evidence of replacement fibrosis in the sites of the individual lesions, nor is there any apparent attempt at calcium deposition. There is insufficient evidence on the film of November 29, 1947, to explain the residual dyspnea complained of by the patient."

The chief symptoms of which the patients complained are tabulated (Table 2).

TABLE 2

Symptoms, with Number and Percentage of Patients Exhibiting Each

Symptom	Number of patients	Per cent of patients
Fever	20	95
Headache	20	95
Coryza	19	94.7
Cough	17	81
Chill	14	67
Sputum	13	62
Nausea	13	62
Sweating	10	47
Vomiting	9	43
Chest pain	8	38
Nuchal tension	8	38
Nervous irritability	6	30
Retro-orbital pain	3	14
Coma	1	5
Neurological disturbance	1	5

In the severe cases the initial temperature reached 103° F. to 105° F. It persisted at a relatively high level for 48 to 72 hours, and dropped by crisis to normal or nearly normal. Subsequent daily afternoon elevations to 101° F. to 103° F. for 3 or 4 days occurred. In the moderate to mild cases the fever was of a lower degree and less typical in its course.

Headache was the presenting complaint in nearly all patients seen. This headache was severe, generalized, and persistent. Temporary relief was obtained from patent remedies and codeine. Several patients developed a post-orbital pain in association.

Coryza with a "stuffed-up" head, dry throat, and occasional rhinorrhea was a very common prodromal sign. Two patients complained that their palates felt "corrugated." None admitted or mentioned sore throats.

The cough was of a hacking type, productive of very little sputum. At the time they were seen only 2 patients were producing enough sputum for examination.

About half the patients had a definite rigor, the others merely a chilly sensation. In those who had the true shaking chills, sweating followed, soaking bed clothing and linens. In all cases the first chill followed within 12 hours of onset of their malaise.

In 7 patients the chest pain was of a sharp constricting type noticeable on deep inspiration at a point under the lower part of the sternum. Another patient stated that his was a sharp, stabbing, pleuritic pain over the left lower anterior ribs which forced him to breathe shallowly for the 3 to 4 days it lasted.

The complaint referable to the patients' necks was not definite pain or rigidity, but what they described as a tense feeling which did not prevent but rather discouraged movement of the neck and turning of the head.

The nervous irritability was characterized by striking response to the stimulation of noise, touch, and shaking of the bed by involuntary movements of their extremities. One patient became irrational and lethargic and remained semicomatose for about 48 hours. This same patient complained of numbness and paresthesia of both hands along the distribution of the ulnar nerve. This numbness was not confirmed neurologically.

Malaise was complained of generally as was anorexia. Nausea and vomiting followed medication with sulfa and oral penicillin in some patients. No urinary or bowel disturbances occurred.

DIFFERENTIAL DIAGNOSIS

Our differential diagnosis in this outbreak was an extensive one. It ran the gamut of disease entities from the usually suspected to the more exotic and bizarre (Table 3).

TABLE 3

Differential Diagnoses Considered

- I. Inhalation of Irritants
 - A. Gases
 - B. Dusts—Pneumoconioses
- II. Pulmonary Infections
 - A. Bacterial
 1. Lobar pneumonia, pneumococcal
 2. Tularemia pneumonia
 3. Bronchopneumonia
 4. Interstitial pneumonia, acute
 5. Bronchiolitis, acute
 6. Acute disseminated hematogenous tuberculosis
 - B. Viral
 1. Primary atypical pneumonia
 2. Influenza
 3. Psittacosis (ornithosis)
 - C. Rickettsial—Q fever
 - D. Fungal
 1. Coccidiomycosis
 2. Histoplasmosis
 3. Bronchopulmonary moniliasis
 - E. Protozoal—toxoplasmosis
- III. Malaria
- IV. Dengue fever
- V. Relapsing fever

It was the belief of the people of the town that gas inhalation was the basis of the victims' difficulties. Some of the radiologists who viewed the plates felt that the picture could conceivably fit such a diagnosis. Analysis of samples of air from the cave, which consisted of a series of small rooms connected by small apertures, failed to reveal any noxious gases or organic irritants.⁷ Two guinea pigs left in the cave for a prolonged period remained perfectly well. We also scouted the possibility of the condition arising from the inhalation of an irritant dust of the material from the cave substance. The rock in the cave analyzed as typical limestone⁷ (Table 4).

TABLE 4

Analysis of Rock from Cave

<i>Component</i>	<i>Per cent</i>
Magnesium	0.23
Loss on Ignition	38.46
Calcium	60.40
Aluminum and Iron Oxide	0.04
Total Silicates	0.09
	<hr/> 99.22

The content of silicates was less than 0.1 per cent. No arsenic, zinc, beryllium, or other heavy metals were present. We did not examine for the presence of radioactivity.

Among the bacterial infections, lobar pneumonia of the pneumococcal type and tularemic pneumonia were fairly well eliminated by negative bacteriology, agglutination tests, and x-ray picture.

The radiographic picture was regarded by some as consistent with a diagnosis of a bronchopneumonia, an interstitial pneumonia, or an acute bronchiolitis. We were not able to establish a bacterial agent as a cause of any of these. It was suggested that an organism which we do not usually consider pathogenic was at fault. We found a distinct inconsistency in the flora of the sputa and throats of the patients so that it was not possible to

implicate any inhabitants. The blood cultures done were negative.

The diagnosis of acute lymphohematogenous tuberculosis has been readily dismissed in spite of the roentgenograms by the conduct of the disease. No acid-fast organisms were obtained from the sputa by direct smear or culture. Only 3 patients had positive tuberculin tests.

Primary atypical pneumonia, influenza, and psittacosis (ornithosis) were considered. The first did not fulfil the x-ray picture of our cases. Studies for cold hemagglutinins were negative. The absence of cross-infection seemed to militate against the diagnosis of influenza as did the peculiar restriction of the disease to the cave workers. No psittacine or columbian birds were found in or about the cave to indicate the possibility of ornithosis. Protection tests against ornithosis-lymphopathia virus were negative.

Q fever was likewise considered. None of the patients had skin lesions and they all denied having ticks on their clothes or bodies. No ticks were found in or around the cave although undoubtedly there were some on the cattle in the vicinity. Agglutinations were negative.

With the coöperation of many persons and agencies, we were able to do fungus studies. Sputum and throat swabs grown on Sabouraud's medium were negative. Repeated skin tests with histoplasmin and coccidioidin down to dilutions of 1:10 and 1:100 respectively were also negative. No material was available for skin testing against *Candida albicans*.

Complement-fixation for coccidioidomycosis and histoplasmosis was no more revealing than the above case.

Peripheral blood studies for malaria and toxoplasma parasites were negative. No spirochetes of relapsing fever were found in blood or urine. We were unable to obtain complement-fixation for this disease.

No rash was present and other clinical features of this outbreak did not fit the pattern of dengue fever. We were unable to obtain serum protection tests. No *Aedes aegypti* mosquitoes were found although culicines and anophelines were present.

It is evident from the foregoing that we were unable to establish an etiological diagnosis in this outbreak. Our work-up was extensive and we have persisted in following these patients with serial x-ray films. Radiographs have gradually cleared. As previously stated, in all instances the patients still complain of dyspnea on exertion and marked fatiguability. All have, however, returned to their work and studies.

SUMMARY AND CONCLUSIONS

We present here a report of 21 cases of a febrile illness with pulmonary manifestations and a peculiar x-ray film.

An extensive differential diagnosis was considered without a definite etiology being established after extremely careful comprehensive study. Reference is made to the only other known outbreak of a similar nature which is recorded in the literature. We conclude from this that we have investigated a new or, at least, a previously inadequately described disease entity.

REFERENCES

1. Cain, James C., Col. M.C., A.U.S., Bevins, Ed. J., Maj. M.C., A.U.S., Downing, John E., Lt. Col. M.C., A.U.S. An Unusual Pulmonary Disease. *Arch. Int. Med.*, 79:626 (June), 1947.
2. Amberson, J. Burns, M.D., Chief of Chest Service, Bellevue Hospital, New York City, A Personal Communication.
3. Curtis, A. C., M.D., Director, Division of Tuberculosis Control, Arkansas State Board of Health.
4. Virus Branch, Laboratory Division, Communicable Disease Center, U. S. Public Health Service.
5. Smith, C. E., M.D., Consultant, Epidemiological Survey, Army Epidemiological Board, Stanford University School of Medicine.
6. State Hygienic Laboratory, Arkansas State Board of Health.
7. Division of Industrial Hygiene, Arkansas State Board of Health.

Schick Testing and Diphtheria Immunization of United States Troops in Europe

LT. COLONEL HARTWIN A. SCHULZE, MEDICAL CORPS
Chief, Preventive Medicine Branch, European Command

DURING the winter of 1946-1947, United States troops in Europe who were under 35 years of age were immunized against diphtheria. This report deals with certain features of this large diphtheria immunization experience with adults.

The program was undertaken because of the high diphtheria rates prevailing in the command during the first half of 1946. During this six month period the diphtheria rate averaged 6 per 1,000 per year.

Diphtheria immunization had not been carried out prior to that time, presumably because it was feared that a considerable disability would result from toxoid reaction.

In determining how the program was to be carried out, the following factors were considered paramount:

1. Fluid toxoid leads to many less reactions in adults than alum-precipitated toxoid.
2. Schick-positive persons have a much lower proportion of toxoid reactions than Schick-negative persons.
3. Less than half of the military population was thought to be Schick-positive.

The conclusion was that the number of reactions could be kept at a minimum without sacrifice to the efficacy of the program by immunizing only the Schick-positive persons using fluid toxoid.

This course of action also precluded the poor public reaction which might have followed the "immunization"

of over 100,000 Schick-negative persons in whom the procedure was not indicated.

Army regulations in force at that time, but since rescinded, stated that because of "the meticulous care necessary to obtain reliable results," and because of "other inherent difficulties, mass Schick testing will seldom be feasible." This objection to Schick testing was not considered tenable since it could be overcome by a brief course of instruction. A detailed directive was accordingly issued on the "Methods and Principles of the Schick Test and Diphtheria Immunization Using Plain Toxoid." Conferences were held in which the directive was discussed, the mechanics of the Schick test demonstrated, and subjects were exhibited showing reactions to the Schick test and Schick test control in their various stages of development and regression. It is believed that, because of this preparation, the program was subsequently carried out in a reasonably satisfactory manner.

The results of the Schick testing and the occurrence of toxoid reactions were compiled in table form by the doctors doing the work. More information was not solicited because it was realized that the more details asked for, the less reliable the information would be.

SCHICK TEST SURVEY
The Schick test and Schick test

control were carried out using 0.1 ml. (1/50 m.l.d.) of Schick test toxin in one forearm and an equal quantity of heated toxin provided by the same manufacturer in the other forearm.

Because of administrative considerations, only one reading was made. That was done after 96 hours. A skin reaction was considered positive when the area of redness and induration measured 1.0 cm. or more in its greatest diameter.

Because of the fact that the tests were done and results interpreted by a great number of physicians, the strict reliability of the compiled results would be questionable. The results were, therefore, tabulated in two groups. The one group included two large stations at which the program was in reliable hands. The results of this tabulation are given in Table 1. All other returns on hand on an arbitrarily chosen deadline, were included in the other group. They are presented in Table 2.

Referring to Table 1, it will be noted that 29.7 per cent of all persons tested were either Schick-positive or Schick-positive combined.

It had been expected that the percentage of susceptibles would be about 40 per cent. In a Schick test study conducted by the Office of the Surgeon General in 1944 using 1,500 recently inducted soldiers at Camp Ellis, Illinois, and a similar number at Camp Tyson, Tennessee, it was found that 43.7 and 45 per cent respectively gave Schick-positive or combined reactions. (A reaction was considered positive if it was 5 mm. or more in diameter.)

The discrepancy was primarily due to the fact that, in spite of directives to the contrary, most units sent all personnel to the medical installation for Schick testing instead of compiling a list of those whose immunization registers showed no diphtheria immunization within the previous five years. It was estimated that about 30 per cent

TABLE 1

*Results of Schick Tests Performed on 4,697 Soldiers in the European Theater, December, 1946, to February, 1947, Incl.**

Age Groups	Persons Tested	Negative		Pseudo		Positive		Combined		Positive and Combined %
		No.	%	No.	%	No.	%	No.	%	
18-19	1,824	1,286	(70.5)	51	(2.8)	464	(25.5)	23	(1.2)	26.7
20-24	1,400	927	(66.2)	56	(4.9)	399	(28.5)	18	(1.3)	29.8
25-29	829	507	(61.2)	47	(5.7)	250	(30.0)	25	(3.0)	33.0
30-34	448	260	(58.1)	41	(9.1)	138	(30.8)	9	(2.0)	32.8
Over 34	196	114	(58.2)	12	(6.1)	61	(31.1)	9	(4.6)	35.7
Total	4,697	3,094	(65.8)	207	(4.4)	1,312	(27.9)	84	(1.8)	29.7

* Tests and interpretations were made at two large dispensaries by persons considered reliable.

TABLE 2

*Results of Schick Testing 37,474 Soldiers in the European Theater December, 1946, to February, 1947, Incl.**

Age Groups	Persons Tested	Negative		Pseudo		Positive		Combined		Positive and Combined %
		No.	%	No.	%	No.	%	No.	%	
18-19	16,400	12,352	(75.4)	432	(2.6)	3,355	(20.5)	261	(1.6)	22.1
20-24	11,616	8,458	(72.7)	414	(3.6)	2,535	(21.8)	209	(1.8)	23.6
25-29	5,581	3,869	(69.3)	243	(4.3)	1,352	(24.2)	117	(2.1)	26.3
30-34	2,732	1,869	(68.3)	139	(5.1)	667	(24.4)	57	(2.1)	26.5
Over 34	1,145	798	(69.7)	54	(4.6)	275	(24.0)	18	(1.6)	25.6
Total	37,474	27,346		1,282		8,184		662		

* Tests and interpretations were done by a large number of medical officers and the results are accordingly not strictly reliable.

of the command had undergone some active immunization during the previous year. This included hospital personnel, persons in units in which diphtheria occurred, and replacements arriving from the United States since May, 1946. Since Schick testing was not done during this time, the immunizations were carried out on Schick-positive and Schick-negative persons in the proportion in which they were present in the command. If an adjustment is made for these previous immunizations the results of the Schick survey would more closely approach those obtained at Camps Ellis and Tyson.

A more interesting feature than the overall Schick status is the Schick status in the various age groups. Still referring to Table 1, it will be seen that there is a steady increase in the proportion of Schick-positives from the lower to the higher age groups. In the 18-19 year old group 26.7 per cent were Schick-positive or combined reactors whereas in the 30-34 year old group the percentage was 32.8. In persons over 34 years of age the percentage was still higher, viz. 35.7 per cent, but because of the small number of persons in this age group the increase in the percentage of Schick-positives is no longer significant. In a Schick survey of naval recruits Cheever found a similar though more marked rise in Schick-positivity with increasing age.¹

This result was entirely unexpected. Analyses of case histories had shown that age-specific morbidity rates were higher for the younger age groups. Since this cannot be accounted for on the basis of immunity, exposure suggests itself as a possible explanation.

Since reactions to the Schick test control material depend on a sensitivity acquired as a result of prior experience with the *Corynebacterium diphtheriae* it would seem reasonable that the majority of such reactors would be found among those who are Schick-negative.

In the present survey 6.1 per cent of those tested reacted to the control material. Of these, 4.4 per cent were Schick-negative and 1.7 per cent were Schick-positive. When the calculations are based on the number of Schick-positives and Schick-negatives separately, rather than on the total number tested, it is found that the percentage of control reactors is not statistically different from the distribution of reactors to the Schick test itself. The control reactors constituted 6.2 per cent of the Schick-negatives and 5.8 per cent of the Schick-positives. These percentages should probably be greater. The reactions were observed only once and some reactions which disappeared before the 4th day were probably not recorded. This error would, however, operate the same for both Schick-positive and Schick-negative groups. The percentage of subjects sensitive to the control material was only about one-half or one-third of that expected. A possible explanation is that the materials used were very low in their content of reaction-producing substances.

There is a rather steady rise in the percentage of reactors to the control materials both in the pseudo and in the combined reactors with increasing age. In the 18-19 year age group 4.0 per cent of those tested reacted to the control material, whereas in the over 34 year age group the percentage was 10.7. This is in accordance with the frequently made observation that older persons are especially apt to exhibit toxoid sensitivity. Although the Schick-negative status and sensitivity both depend on previous experience with the diphtheria organism (or its products), these two factors seem to have a reciprocal rather than a direct relationships to each other throughout the age groups.

Table 2 is similar to Table 1, except that it is based on reports of varying degrees of reliability. Although the

percentage of Schick-positives is 5 to 10 per cent lower in the various age groups, the other results in general have the same characteristics found in Table 1.

IMMUNIZATION PROGRAM

Diphtheria immunization was carried out on the Schick-positive and Schick-positive combined reactors according to the following schedule:

0.1 ml. as test dose, subcutaneously
0.5 ml. 48 hours after test dose
1.0 ml. 3 weeks after previous dose
1.0 ml. 3 weeks after previous dose

Instructions required the discontinuance of injections when a severe reaction occurred. A severe reaction was defined as "local edema or induration more than 6 cm. in diameter or a marked constitutional reaction with fever over 101° Fahrenheit."

A tabulation of the reactions occurring during the immunization of Schick-positive and Schick-positive combined reactors is given in Table 3.

After the 0.1 ml. dose 3.1 per cent were excused from further doses. Of these who took the 0.5 ml. dose those excused constituted 2.4 per cent. Reactions to the third and fourth doses (1.0 ml.) were substantially less frequent.

In the Schick-positive combined group, the proportion excused was two

to three times as high for each injection as in the Schick-positive group.

Because of the absence of strict administrative control over those being immunized, it may be that not all the toxoid reactors were recorded. The men were not required to report for observation after injection, and it is likely that at least some of those who had severe reactions did not report the fact but merely avoided subsequent injections.

In order to determine what proportion had reactions severe enough to be admitted to the hospital, a check was made of the admission records of two hospitals serving about 40,000 men. In that group, there should have been at least 10,000 undergoing immunization. Only two admissions for diphtheria toxoid reaction were found. Since admission to quarters was not extensively practised, it is doubtful that many more serious disabilities occurred.

Following the immunization program, diphtheria rates were strikingly lower than before. During the 12 month period April, 1947, to March, 1948, following the program, the rate was 0.7 per 1,000 as compared with a rate of 4.8 for the 12 month period immediately preceding the program. Practically all cases that have occurred since the completion of the program were in those who had not been im-

TABLE 3

Reactions to Fluid Diphtheria Toxoid During the Immunization of Schick-positive and Schick-positive Combined Soldiers in the European Theater
December, 1946, to February, 1947*

Dose in ml.	Schick-Positives				Schick-Positives Combined			
	No. persons receiving dose	Those having a reaction			No. persons received dose	Those having a reaction		
		No.	%			No.	%	
0.1	11,024 †	338	3.1		647	62	9.6	
0.5	9,562	230	2.4		474	30	6.3	
1.0	7,688	109	1.4		359	12	3.3	
1.0	5,672	6	0.1		235	0	0	

* Reaction defined as "local edema or induration more than 6cm. in diameter or a marked constitutional reaction with fever over 101° Fahrenheit."

† The number of persons receiving each dose varied considerably because of redeployment, transfer to other units, incompletion of series when the data were collected, and other administrative reasons.

munized at all or had not completed the immunization series because of administrative neglect. None whose series was incomplete because of toxoid sensitivity contracted the disease. At least two who were reported as Schick-negative contracted the disease.

The reduction in the diphtheria incidence in troops was undoubtedly also influenced by the decreasing incidence among the German civilian population. The German civilian rate for periods corresponding to those mentioned above was 2.6 and 1.6 per 1,000 respectively. This was a drop of 39 per cent as compared with a drop of 85 per cent for troops.

SUMMARY AND CONCLUSIONS

There was a very high diphtheria morbidity in United States troops in Europe during 1946. Schick testing showed that about 30 per cent of the persons under 35 years of age were Schick-positive or combined reactors.

The proportion of Schick-positives had been reduced by active immunization carried out during the previous year.

There was a definite rise in the percentage of Schick-positives from the lower to the higher age groups. This was perhaps due to a smaller proportion of persons in the higher age groups who were immunized in childhood, due to the existence of a longer interval in the older age groups during which immunity acquired in childhood could have worn off, or due to a reduction of the frequency of anamnestic booster action because of the more sedentary habits of older age groups.

Reactions to the control material occurred with the same frequency in the Schick-negative and Schick-positive groups. There was an increase in the proportion of pseudo and combined reactors from the lower to the higher age groups.

Schick-positive and Schick-positive combined reactors were immunized using fluid, formol, toxoid according to the following schedule: 0.1 ml., 0.5 ml., 1.0 ml., and 1.0 ml. The 0.5 ml. dose was given 2 days after the 0.1 ml. test dose. The other doses were given at 3 week intervals.

In Schick-positive-control negative persons severe reactions consisting of "local edema and induration more than 6.0 cm. in diameter or a marked constitutional reaction with fever over 101° Fahrenheit" occurred in 3.1 per cent of those taking the first dose and less frequently thereafter. Reactions in the Schick-positive-control positive group were about three times as frequent.

The percentage of persons having reactions sufficiently severe to require hospitalization was extremely small—less than 0.1 per cent.

Diphtheria immunization of Schick-positive and Schick-positive combined adults using fluid toxoid according to the schedule given above is a practical and safe procedure.

ACKNOWLEDGEMENT: Claude M. Eberhart, Major, M.C., and Edward F. Rabe, M.D., were of great assistance in carrying out this program.

REFERENCE

1. Cheever, F. S. A Schick Test Survey of 18,000 Naval Recruits. *A.J.P.H.*, 38, 3:374-377, (Mar.), 1948.

Sanitary Significance of Cocci in Swimming Pools

CASSANDRA RITTER, F.A.P.H.A. AND E. LEE
TREECE, Ph.D., F.A.P.H.A.

*Division of Sanitation, Kansas State Board of Health, Lawrence; and
Department of Bacteriology, University of Kansas, Lawrence, Kan.*

THERE has long been a feeling among sanitarians and laboratory workers that the test for the coliform group of organisms is not an adequate index of the safety of swimming pool water, since this index does not take into consideration the possibility of contamination from the skin and upper respiratory tract of the bather.

The streptococci have been suggested and investigated as indicators of pollution. Mallmann and associates¹⁻⁴ proposed a method of isolation, and they and others⁵ gave evidence to show that these organisms fluctuate with the bathing load and are resistant to chlorine. *Standard Methods for the Examination of Water and Sewage*⁶ in the 8th and earlier editions gave tentative and optional directions for the determination of streptococci by making microscopic examinations of the sediment from lactose-broth fermentation tubes. In the 9th edition, no reference is made to streptococci in the section on bacteriological control of swimming pools.

The use of *Neisseria catarrhalis* as an index of pollution has been proposed by Tapley and Jennison.⁷ The isolation of *Staphylococcus albus* from swimming pools was reported by Stokes,⁸ but it has not been considered as an indicator organism.

Methods for classifying the streptococci have been outlined by Sherman.⁹ The normal fecal streptococci were studied by many workers,¹⁰⁻¹⁵ and classed as

a central *Streptococcus fecalis* type and variants, some undoubtedly salivary types; and some strains similar to *Streptococcus pyogenes*. The low invasive powers of the enterococcus and its wide distribution have been noted.¹⁶⁻¹⁸ The incidence of various types of streptococci in the nose and throat has been determined under diverse conditions.¹⁹⁻²¹

Better methods for the isolation of the streptococci have become available recently through the use of sodium azide²²⁻²⁵ as an inhibitory agent for Gram-negative rods. It was used in a 1-5,000 concentration by Mallmann²² for the detection of streptococci in sewage, and by other workers^{26, 27} for the isolation of enterococci from various waters. The present authors devised a new liquid medium containing sodium azide for use in this survey.

The study here reported was made to determine the incidence of streptococci in swimming pools in Kansas during the summer seasons; to correlate this information with incidence of coliform organisms and the sanitary data; and to classify the streptococci isolated, and determine their resistance to chlorine.

Tests were made during the summers of 1942 and 1943. At those times the junior author was engaged in the inspection of all pools in Kansas while employed by the State Board of Health, thus affording an opportunity for the collection of samples under actual operating conditions. The data collected

can be compared as to type of pool, equipment and operation, chlorine residual and pH at the time the sample was collected, and bacteriological quality.

In the course of the routine inspection of the pools, samples of water were collected and shipped to the State Water and Sewage Laboratory where colony counts and the determination of coliform organisms were made according to Standard Methods.⁶ At the pool-side, samples to determine the presence of streptococci were taken by adding 10 ml. of the water to a bottle containing 10 ml. of double strength sodium azide medium. It immediately neutralized the free or combined available chlorine that might be present.

The medium has the formula:

	Per cent
Proteose peptone No. 3	2.0
Dextrose	0.1
NaCl	0.5
Sodium azide	0.02
pH 6.8-7.0 Sterilize in the autoclave	

It supported a luxuriant growth of all the strains of streptococci and staphylococci tested. They included the hemolytic strains Lancefield's Groups A, B, C, D, E, F, G; *Streptococcus viridans*; *S. salivarius*, *S. fecalis*, *Staphylococcus aureus*, and *S. Albus*. With samples of swimming pool water and of similar mixed flora, coliform organisms and other rod forms did not develop. The medium has been found useful for the isolation of streptococci and staphylococci from a variety of sources, such as from waters both heavily polluted and of good quality, and from skin, nasal, and throat swabs.

For use in the survey here reported, the medium was prepared in double strength. Bottles inoculated in the field were shipped or carried to the laboratory where they were incubated at 37° C. Growth was indicated by turbidity and appeared in 1 to 3 days in 80 per cent

of the cases, rarely as late as 7 days. Negative samples remained clear and were incubated from 10 to 14 days before being discarded.

Samples showing growth in the sodium azide medium were streaked on plates of proteose No. 3 hemoglobin agar, from which colonies were picked for further study. Only Gram-positive cocci developed in the sodium azide medium. In the majority of cases, there was one strain of streptococcus alone; occasionally there were two strains, and in 33 cases out of 107 examinations of turbid samples a staphylococcus was present either alone or with a streptococcus. Contaminations, which were from spore-formers, were rare and were observed only after prolonged incubation of the primary sample.

Ninety-two different pools were inspected and 179 samples collected during two summers. Forty-nine pools were the fill-and-draw type, which is generally unsatisfactory from a sanitation standpoint as it is difficult to maintain the water in good physical condition and with a constant chlorine residual. Forty-three were recirculating pools, which give better opportunity for control of water quality.

The difference in pool type was clearly reflected in the bacteriological analyses. Of 88 samples from fill-and-draw pools, 28, or 31.8 per cent, showed the presence of coliform organisms; of 91 samples from recirculating pools, only 4, or 4.4 per cent, showed coliforms. For streptococci, of the 88 samples from fill-and-draw pools, 55, or 62.5 per cent, were positive as contrasted with 22, or 24.2 per cent, of the samples from recirculating pools. For staphylococci the corresponding figures were 6.8 and 29.7 per cent respectively.

Coliform organisms were present 36.4 per cent of the time when streptococci were recovered, and only 3.9 per cent of the time when they were not found. Staphylococci were isolated 27 times

from pools negative for streptococci and 6 times from streptococcus-positive samples. They might have been present and overgrown or overlooked in other streptococcus-positive samples.

No chlorine was present at the time of collection of the sample in 67.5 per cent of those showing streptococci and in only 23.5 per cent of the samples negative for these organisms. In the cases with chlorine present, orthotolidine readings showed that free available chlorine was present in amounts varying from 0.05 p.p.m. to 0.8 p.p.m., or combined available chlorine in amounts from 0.4 p.p.m. to 0.8 p.p.m.

Certain of the pools are outstanding for excellence of equipment and operation and are eligible for special certification by the rules of the State Board of Health. The results of 26 analyses from 11 certified pools showed that the pool water was in acceptable condition, as coliform organisms were not found; residual chlorine was present each time, although only 10 times did it reach the required 0.4 p.p.m.; and the pH was in the correct range. Yet streptococci were found 3 times and staphylococci 8 times in the 26 tests.

In studying the streptococci recovered, use was made of the tests outlined by Sherman⁹ as determining the primary divisions of the genus. They include determinations of hemolytic type by Brown's²⁸ method; growth at 45° C. and 10° C.; in broth containing 6.5 per cent sodium chloride; in broth adjusted to pH 9.6; in milk containing 0.1 per cent methylene blue; and in milk to observe strong reduction of dye. The serological grouping by the Lancefield²⁹ precipitin test was determined for a part of the cultures, as was colony type on agar containing 5 per cent sucrose.³⁰ As a basis of comparison for the study, five known cultures were included: *Streptococcus pyogenes* and *S. zymogenes* which were Lancefield Group A and Group D respectively; *S. fecalis* from

a stool culture; *S. salivarius* from saliva and another organism of the viridans division isolated from a normal throat. The results of these tests are shown in Table 1, in which strains showing similar characteristics are grouped together.

Morphologically the organisms isolated in the survey were Gram-positive cocci grouped as pairs and in short chains. The biological characteristics class them as enterococci. Of the 79 strains studied, 52 showed biological reactions typical of *S. zymogenes* and *S. fecalis*. Twenty-six strains showed variations from the control enterococcus cultures as follows: 3 strains did not grow at 10° C. and 6 at 45° C.; 6 did not develop in alkaline medium; 9 would not tolerate 6.5 NaCl; 16 failed to grow in 0.1 per cent methylene blue, and 23 were negative for strong reduction.

Studies of hemolytic type were interesting but of no great value in classification. In poured plates of horse blood agar, no colonies showing the beta type of hemolysis were observed among the cultures isolated. Seventy-two of the 79 strains produced the alpha prime type of hemolysis. They exhibited considerable variation as to width and completeness of the hemolytic zone produced, width and darkness of the zone of red blood cells around the colony, time of appearance of the characteristics, and amount of change during the succeeding periods of incubation and refrigeration. Seven cultures showed alpha hemolysis; the 6 of them classed as enterococci were in the groups atypical for biological characteristics.

All of the cultures grew abundantly on proteose No. 3 hemoglobin agar. Strains typical of *S. fecalis* formed opaque colonies 1 mm. in diameter. A smaller number of strains from the atypical group produced a distinct green coloration, differing in amount and in time of appearance.

The precipitin reaction by the

TABLE 1

Characteristics of Streptococci Isolated from Swimming Pools

			Growth at		Growth in Presence of					
		Hemolysis	10°C.	45°C.	6.5% NaCl	pH 9.6	0.1% methylene blue	Strong reduction	Mucoid colonies on 5% sucrose agar	Lancefield Group
Control Cultures										
<i>Strep. pyogenes</i>		beta	-	-	-	-	-	-	-	A
<i>Strep. salivarius</i>		alpha	-	-	-	-	-	-	-	
Viridans Division		alpha	-	+	-	+	-	+	-	D
<i>Strep. zymogenes</i>		beta	+	+	+	+	+	+	-	D
<i>Strep. fecalis</i>		alpha prime	+	+	+	+	+	+	-	
Cultures from pools										
No. of Strains										
Enterococcus Div.										
I	17	alpha prime	+	+	+	+	+	+	-	D
	7	"	+	+	+	+	+	+	-	D & K
	1	"	+	+	+	+	+	+	-	D & G
	1	"	+	+	+	+	+	+	-	G & K
	1	"	+	+	+	+	+	+	-	None
	25	"	+	+	+	+	+	+	-	
II	2	"	+	+	+	-	+	+	-	
III	4	"	+	+	+	+	+	-	-	
IV	4	"	+	+	+	+	-	-	-	
	1	"	+	+	+	+	-	-	-	None
V	5	alpha	+	+	+	+	-	+	-	None
VI	1	alpha prime	+	+	-	-	+	+	-	
	1.	"	+	+	-	+	+	-	-	
	1	"	+	-	-	+	+	-	-	
	1	"	+	-	+	+	-	-	-	
	1	"	+	-	-	+	-	-	-	
	1	"	-	+	-	+	+	-	-	None
	1	"	-	+	-	-	-	-	-	None
	1	"	-	-	-	+	-	-	-	None
	1	"	-	-	-	-	-	-	-	None
	1	alpha	+	-	-	-	-	-	-	None
Viridans Division										
	1	alpha	-	+	-	-	-	-	-	

Lancefield technique was determined for 33 of the cultures. Of these, 27 were typical enterococci and read as follows: 17 Group D; 7 cross-reactions for Groups D and K; 1 for Groups D and G; 1 for Groups G and K; and 1 gave no precipitate. Six of the atypical strains were tested and gave no precipitate.

Only 1 strain showed the reactions of a streptococcus of the viridans division. It produced the alpha type of hemolysis, grew at 45° but not at 10° C., reduced methylene blue slowly, was negative in the tolerance tests, and did not produce mucoid colonies on 5 per cent sucrose agar.

No strains of *S. salivarius* were found

in the group studied. That this organism was recovered from three pools is suggested by preliminary tests of cultures that did not survive storage long enough to be classified. Later studies of 17 samples from a single recirculating indoor pool yielded *S. salivarius* twice and atypical enterococcus strains three times.

In many of the 179 analyses, chlorine residuals were adequate. Streptococci were isolated once from water having 0.5 p.p.m. free chlorine and a pH under 6.8; once with 0.4 p.p.m. residual and pH 7.6; and once with 0.8 p.p.m. combined residual chlorine and pH 7.6. Staphylococci were found in the presence

TABLE 2

Minutes Required to Produce 100 Per cent Kill of Various Bacteria by Different Amounts of Free Available Chlorine at Room Temperature and pH 7.0 to 7.2

Control Cultures	Free available chlorine in p.p.m.				
	0.1-0.2	0.2-0.4	0.4-0.6	0.6-0.8	0.8-1.0
Beta hemolytic					
Streptococci:					
Group A	2.5	<2.5	<2.5	<2.5	<2.5
Group D	<5	<5	<5	<5	<5
<i>Strep. fecalis</i>	>120	120	90	120	60
<i>Strep. salivarius</i>	>30	>30	10	5	
Viridans Division	120	60	60	10	10
<i>Staph. 209</i>	>120	60	60	60	10
<i>Esch. coli</i>	<5	<5	<5	<5	<5
<i>A. aerogenes</i>	30	10	5	<5	<5
Cultures from Pools					
Typical Enterococci					
I					
1.	>120	120	60	60	10
2.	>180	>180	60	45	10
3.	30	60	<5	<5	<5
4.	>120	120	60	30	30
5.	120	90	30	60	30
6.	90	90	90	30	60
7.	90	30	30	10	5
Atypical Enterococci					
II					
1.	120	120	60	30	30
2.	>120	120	20	30	
IV					
1.	60	90	30	5	5
VI					
1.	30	20	10	5	

of 0.5 p.p.m. and 0.1 p.p.m. free chlorine, and 0.8 p.p.m. combined chlorine.

The resistance of various organisms to free available chlorine is important in swimming pool control. Therefore, chlorine tolerance tests were made for 11 of the strains of streptococcus isolated from pools in this study, 5 control strains of streptococcus and 1 strain each of *Escherichia coli* and *Aerobacter aerogenes*, isolated from untreated surface water, and of *Staphylococcus* 209, the F.D.A. strain used for testing disinfectants. Tests were made in chlorine-free, chlorine-demand-free water after the method of Butterfield and coworkers,³¹ and the free available chlorine was checked by the orthotolidine-arsenite method of Hallinan.³²

In Table 2 are presented the results of tests made at room temperature in distilled water buffered to a pH of 7.0 to 7.2. Comparing a series in which the chlorine content was 0.6 p.p.m. at the beginning of the experiment and not less than 0.4 p.p.m. at the end, it is

shown that under those conditions the control strains of beta hemolytic streptococci, Group A and Group D, were killed almost immediately. The control strain of *S. fecalis* survived 1 hour but not 1½ hours. Of 7 similar strains isolated from pools, 3 survived an hour or more and only 1 was killed in less than 5 minutes. The 4 atypical enterococcus strains survived from 5 to 30 minutes. *S. salivarius* survived 5 minutes but not 10 minutes; another control strain of the viridans group survived 30 minutes. *Staphylococcus* 209 survived 30 minutes. *E. coli* and *A. aerogenes* were killed almost immediately, none surviving 5 minutes' exposure.

A more limited experiment of the survival of these organisms in chlorine-free sterilized tap water showed that a Group A streptococcus survived 1¼ but not 4 hours. *S. salivarius* survived for 4 but not 7 hours. The enterococci, both typical and atypical strains, survived 12 hours or longer, 1 strain being present after 4 days. Three strains of

staphylococci survived for 7 but not 12 hours.

A later study on a recirculating pool demonstrated the fact that proper chlorination will control the organisms present. From a sample collected one morning containing no chlorine, coliforms, staphylococcus, and 1 strain each of *S. salivarius*, and an atypical enterococcus were isolated. Chlorination was started and by the time the free residual chlorine had reached 0.4 p.p.m., the streptococci and coliforms had disappeared. The pool was in use during the day; staphylococci were isolated at intervals, but disappeared after a longer period of chlorination.

The presence of coccus forms on the skin of the potential bathers was also investigated. Thirty-one cultures from 18 persons were made by rubbing small areas in the cubital, axillary, perineal, and inguinal regions and the abdominal area with moist sterile swabs which were then incubated in tubes of sodium azide broth, from which isolations were subsequently made. Staphylococci were recovered from every swab (37 strains). Streptococci were recovered every time from the perineal region and 3 times, with 5 strains, from 10 swabs from the inguinal region. Of the 22 streptococcus strains thus isolated, 10 could be classified as *S. fecalis*, 10 as atypical enterococci, and 2 as *S. salivarius*. None of the strains of staphylococci isolated showed the characteristics of pathogenic strains.

SUMMARY AND CONCLUSIONS

It is noteworthy that no streptococci of the beta hemolytic type were isolated in this study. That they will grow readily in the primary medium used was demonstrated in the laboratory. Their low resistance to free available chlorine indicates that they would survive but a short time after being introduced into a properly chlorinated pool.

Of 79 strains of streptococci isolated

from swimming pools, 52, or 65.8 per cent, can be classified as *Streptococcus fecalis*. Their ability to grow under adverse conditions—provided by high and low temperatures, alkaline medium and high salt content—seem consistent with their high rate of survival. This is also shown by their resistance to chlorine, as strains picked at random were resistant to 0.4 to 0.6 p.p.m. free available chlorine from 30 minutes to 1 hour, under the conditions of the test.

Twenty-six strains were similar to *S. fecalis* in only part of their characteristics. They may be considered as more closely related to the enterococci than to any other division of the streptococci. Tests for the temperature limits of growth and for growth in alkaline medium were found to be the most reliable in classifying the enterococci.

Typical *S. fecalis* strains were classified as Type D by the Lancefield technique; atypical strains could not be typed.

That *Streptococcus salivarius* may be present in swimming pool water would be expected. No strains were recovered in this survey, although their presence was suggested by the preliminary tests from three pools. This organism was shown to be killed by 0.4 to 0.6 p.p.m. free available chlorine in 10 minutes or less.

In 179 analyses from 92 swimming pools, streptococci were recovered 83 times, and coliform organisms 32 times.

Pools equipped for recirculation and continuous chlorination of the water were shown to be superior to pools of the fill-and-draw type from the viewpoint of water quality.

From the results of this work, it can be concluded that a standard requiring the absence of streptococci from swimming pool water is more stringent than that requiring the absence of coliform organisms. And it is our opinion, based on public health experience, that this additional requirement is not necessary.

REFERENCES

1. Mallmann, W. L. Streptococcus as an Indicator of Swimming Pool Pollution. *A.J.P.H.*, 18:771, 1928.
2. Mallmann, W. L., and Gelpi, A. G., Jr. Chlorine Resistance of Colon Bacilli and Streptococci in a Swimming Pool. *Michigan Eng. Exper. Sta. Bull.*, No. 27, 1930.
3. Mallmann, W. L., and Cary, William, Jr. Study of Bacteriological Methods of Testing and Means of Disinfecting Water with Chlorine. *A.J.P.H.*, 23:35, 1933.
4. Mallmann, W. L., and Sypien, Adolph. Pollution Indices of Natural Bathing Places. *A.J.P.H.*, 24:681, 1934.
5. France, R. L., and Fuller, J. E. Coliform Bacteria and Streptococci in Swimming Pool Water. *A.J.P.H.*, 30:1059, 1940.
6. *Standard Methods for the Examination of Water and Sewage*. American Public Health Association. Eighth Edition, 1936. Ninth Edition, 1946.
7. Tapley, G. O., and Jennison, M. W. Swimming Pool Sanitation: *Neisseria catarrhalis* as an Index of Pollution. *A Symposium on Hydrobiology*. Univ. of Wisconsin Press, 1941, p. 355.
8. Stokes, W. R. A Search for Pathogenic Bacteria in Swimming Pools. *A.J.P.H.*, 17:334-335, 1927.
9. Sherman, James M. The Streptococci. *Bact. Rev.*, 1:3, 1937.
10. Oppenheim, C. J. The Human Fecal Streptococci. *J. Infect. Dis.*, 26:117, 1920.
11. Davis, D. J. The Fate of Strep. Hemolyticus in the Gastro-intestinal Canal. *J. Infect. Dis.*, 26:171, 1920.
12. Alston, J. M. An Investigation of Streptococci Isolated from the Alimentary Tract of Man and Certain Animals. *J. Bact.*, 16:397, 1928.
13. Welch, Henry. Classification of the Streptococci of Human Feces. *J. Bact.*, 17:413, 1929.
14. Dible, J. H. The Enterococcus and the Faecal Streptococci: Their Properties and Relations. *J. Path. & Bact.*, 24:3, 1921.
15. Smith, F. R., and Sherman, J. M. The Hemolytic Streptococci of Human Feces. *J. Infect. Dis.*, 62:186, 1938.
16. Rantz, L. A., and Kirby, W. M. Enterococcic Infections. *Arch. Int. Med.*, 71:516, 1943.
17. Evans, A. C., and Chinn, A. L. The Enterococci with Special Reference to their Association with Human Disease. *J. Bact.*, 54:495, 1947.
18. Ostrolenk, M., and Hunter, A. C. The Distribution of Enteric Streptococci. *J. Bact.*, 51:735, 1946.
19. Hare, R. J. The Classification of Haemolytic Streptococci from the Nose and Throat of Normal Human Beings by Means of Precipitin and Biochemical Tests. *J. Path. & Bact.*, 41:449, 1935.
20. Buchbinder, L., Solowey, M., and Solotorovsky, M. Alpha Hemolytic Streptococci of Air. *A.J.P.H.*, 28:61, 1938.
21. Hamburger, Morton, Jr. Studies on the Transmission of Hemolytic Streptococcus Infections. II Beta Hemolytic Streptococci in the Saliva of Persons with Positive Throat Cultures. *J. Infect. Dis.*, 75:71, 1944.
22. Mallmann, W. L. A New Yardstick for Measuring Sewage Pollution. *Sewage Works J.*, 12:875, 1940.
23. Mallmann, W. L., Botwright, W. E., and Churchill, E. S. The Selective Bacteriostatic Effect of Slow Oxidizing Agents. *J. Infect. Dis.*, 69:215, 1941.
24. Snyder, M. L., and Lichstein, H. C. Sodium Azide as an Inhibiting Substance for Gram-negative Bacteria. *J. Infect. Dis.*, 67:113, 1940.
25. Lichstein, H. C., and Snyder, M. L. The Inhibition of the Spreading Growth of Proteus and other Bacteria to Permit the Isolation of Associated Streptococci. *J. Bact.*, 42:653, 1941.
26. Hajna, A. A., and Perry, C. A. Comparative Study of Presumptive and Confirmative Media for Bacteria of the Coliform Group and for Fecal Streptococci. *A.J.P.H.*, 33:550, 1943.
27. Winter, C. E., and Sandholzer, L. A. Studies of the Fecal Streptococci. I. The Isolation of Enterococci from Natural Sources. *Fishery Leaflet* 201. Fish and Wildlife Service, U. S. Dept. of the Interior, 1946.
28. Brown, J. H. The Use of Blood Agar for the Study of Streptococci. *Monographs of the Rockefeller Inst. Med. Res.* No. 9, 1919.
29. Lancefield, R. C. A Serological Differentiation of Human and other Groups of Hemolytic Streptococci. *J. Exper. Med.*, 57:571, 1933.
30. Niven, C. F., Jr., Smiley, K. L., and Sherman, J. M. The Production of Large Amounts of a Polysaccharide by *Strep. salivarius*. *J. Bact.*, 41:479, 1941.
31. Butterfield, C. T., Wattie, E., Megregian, S., and Chambers, C. W. Influence of pH and Temperature on the Survival of Coliforms and Enteric Pathogens when Exposed to Free Chlorine. *Pub. Health Rep.*, 58:1837, 1943.
32. Hallinan, F. J. Tests for Active Residual Chlorine and Chloramine in Water. *J. Am. Water Works A.*, 36:296, 1944.

The Origins of Public Health in the United States

JOHN B. BLAKE
Cambridge, Mass.

DURING the second half of the 19th century the United States changed from a predominantly agricultural and rural to an industrial and urban civilization. The rise of the city forced upon the attention of the American people many problems which previously they had largely neglected; among these was public health. Spurred by social necessity and motivated by humanitarian idealism, economic and life-saving benefits, and increased popular faith in the value of science, public health officials and public spirited laymen advanced municipal public health practices from almost nothing to a vigorous and useful function of local government.

Prior to the Civil War sporadic attempts were made to protect the public against infectious diseases by governmental action. Massachusetts Bay Colony, for example, set up quarantine regulations as early as 1647 when news arrived of a "great mortality" in the West Indies.¹ Petersburg, Va., set up what was probably the first board of health in 1780, and New York, Baltimore, and Boston took similar action in the 1790's.² The outstanding *Report* of the Massachusetts Sanitary Commission in 1850, resulting from a survey undertaken by Lemuel Shattuck, reviewed the past history of sanitation and envisaged a remarkably comprehensive system of state public health administration far in advance of its time.³ In 1857 Wilson Jewell of the Philadelphia Board of Health arranged the first of four annual meetings of the National Quarantine and

Sanitary Convention,⁴ but this promising organization was discontinued when the Civil War broke out. In the field of infectious diseases, effective methods of smallpox prevention, though not widely applied, had slowly been developed: inoculation and, later, vaccination had long been striving for recognition, and in addition laws requiring quarantine, notification, isolation in "pesthouses," and disinfection had found their way into the statute books and city ordinances. But despite these glimmerings of future light, little had in fact been actually accomplished prior to the Civil War. Typical was the board of health organized in New Haven, Conn., in 1806: it confined itself largely to matters of quarantine and nuisance removal; in some years when the town was generally healthy, it did not bother to meet.⁵

Meanwhile, in England where the advent of the Industrial Revolution in the 18th century was already posing problems of urban health, steps were being taken which were to have a great influence on the United States. In London, effective legislation to end the gin drinking menace in 1751, improved care of parish children, extension of medical practice among the poor, together with street paving, better drainage and scavenging, and increased water supplies helped to lower the death rate markedly.⁶ More significant were the investigations initiated in 1838 by Edwin Chadwick, a member of the British Poor Law Commission, on the relations of poverty and disease, culminating in the famous *Gen-*

eral Report on the Sanitary Condition of the Labouring Population of Great Britain in 1842. Presenting a picture of the filth and degradation of the city poor, Chadwick blamed their high mortality rate directly on "atmospheric impurities produced by decomposing animal and vegetable substances, by damp and filth, and close and overcrowded dwellings." He further declared that, when such conditions were removed "by drainage, proper cleansing, better ventilation, and other means of diminishing atmospheric impurity," epidemic and endemic diseases were abated or disappeared.⁷ Pointing out the economic and moral value of good health, Chadwick recommended sewerage, refuse removal from houses and streets, and better water supplies. Placed before Parliament, this report led to a series of investigations and acts which gave England by 1848 a public health administration superior to anything the United States was to achieve for many years.⁸

In the United States, 1865 marks the date of an epochal step. In that year the Citizens' Association of New York investigated sanitary conditions in the city, and blamed the high death rate from preventable disease in large part on the lack of any satisfactory health organization. Primarily as a result of this group's report, the New York Metropolitan Health Law in 1866 established a board with wide powers, and its success in dealing with a cholera threat in its first year of existence greatly helped to consolidate public support.⁹ Other cities, too, were founding or reorganizing their boards, and by 1890 it was exceptional for any city to lack one.¹⁰

Until the 1880's action taken by these boards was based largely on the etiological theory implicit in Chadwick's report of 1842. Despite the pioneer research of a few men such as Peter Ludwig Panum and John Snow, the majority of doctors in 1865 held to the

filth or "pythogenic" theory of epidemic disease causation. Although the contagious character of smallpox was generally acknowledged, such "zymotic" diseases as cholera, typhoid fever, yellow fever, and diphtheria were attributed to "miasms" or minute particles of morbid matter entering the body through the lungs. Decaying and decomposing organic matter was thought to be their chief source, and the belief was backed up by epidemiological evidence. On the basis of these assumptions, public health groups recommended certain procedures whose chief feature was environmental sanitation. Against diseases like cholera, typhus, and typhoid the methods were helpful and the theory was reinforced. Since the supposed miasms entered the body with the breath, the first requisite for healthful living was thought to be pure air. The obvious solution was to equip houses with good ventilation, to clean up streets and alleys, to remove refuse, to construct sewerage, and to provide a pure and plentiful water supply, essential to cleanliness. Proper drainage was considered of vital importance to prevent the production of miasms in moist soil, and the advocates of street paving received support from health officials anxious to prevent contamination of the soil.

In line with this theory, American cities developed their water supplies extensively. In Boston the first "Water-Works Company" was set up in 1652, the first important one in 1848. The first Croton water entered New York in 1842. In 1825 a total of 32 water works were in operation; in 1865, 162; in 1880, 598; in 1890, 1,878.¹¹ But while the quantitative aspect of the water-supply problem was being solved during the period from 1860 to 1890, the etiological criterion of decaying organic matter fostered by the pythogenic theory of disease led to a widespread and unfortunate belief in the self-purification of running water. Except for taste, color, odor, and

clarity, chemical analysis to determine the amount of organic matter present was ordinarily the sole test of the purity of water, while filtration, except to make the water more palatable, was neglected. The technique in vogue had some value, of course, since a large amount of sewage increased the amount of organic matter and the danger of water-borne diseases, yet the two were not necessarily interrelated. Extensive dilution and oxidization of organic material meant that a comparatively short distance below a sewer outlet there might be, so far as chemical tests could indicate, nothing to fear from a river which actually contained infectious bacteria, while the danger from an isolated case of typhoid on a thinly inhabited watershed was completely passed over. Thus it was that in 1873 the president of the New York Board of Health, a chemistry professor at Columbia, advocated lakes or rivers for city water supplies, declaring that, "although rivers are the great natural sewers, and receive the drainage of towns and cities, the natural process of purification, in most cases, destroys the offensive bodies derived from sewage, and renders them harmless."¹² There was, in fact, an increased use of rivers and lakes in preference to wells for water supplies, though convenience rather than medical theory was probably the chief reason, and some attempts were made to decrease pollution. In Massachusetts, for example, an act of 1878 forbade pollution within twenty miles of any water intake.¹³ While Chicago continued to use Lake Michigan for both water supply and sewage disposal, in 1867 it began drawing some of its water through the first of several tunnels extending out under the lake.¹⁴ These steps were exceptional, however, and the use of sewage-polluted rivers was common, while several cities besides Chicago—Milwaukee, Duluth, Buffalo, Cleveland, and others—drained their sewage into the same lake from which

they drew their water.¹⁵ In 1883 a group of Philadelphia citizens complained that the city water, mostly drawn from the Schuylkill River without any purification, was at times so bad that it was "not only distasteful and unwholesome for drinking, but offensive for bathing purposes."¹⁶

According to the pythogenic theory, adequate sewerage was no less important to good health than a pure and abundant water supply. Fearing the emanations from decomposing organic matter as progenitors of zymotic disease, the misanthropists advocated drainage to get rid of human filth and household and industrial wastes. They emphasized good engineering, since leaky sewers by polluting the soil caused noxious exhalations of ground air and excessive dampness, both considered dangerous to health. Proper drainage would also get rid of the sewage quickly before putrefaction could set in. Of special concern were the much discussed effluvia released by decomposition, the so-called "sewer gas." The list of diseases which it was supposed to cause reads like an account of the therapeutic claims of the most extravagant nostrum monger. Consequently sanitary experts also deemed well designed and carefully installed plumbing essential to prevent the gas from escaping into houses. Along with disinterested publicists, plumbers and plumbing companies did their bit to make their product a panacea.¹⁷ Sewerage development, while it advanced during the 1860's and 1870's, lagged behind the increase in water supplies, since it lacked the latter's added value for fire protection and industrial use. Nevertheless, the number of urban communities with sewerage rose from only about 10 in 1860 to approximately 200 in 1880.¹⁸ Even in these cities, however, privy vaults continued in widespread use, especially in the poorer sections, and only a small proportion of the streets were sewered. In 1877 Massachusetts enacted the first

state law for plumbing inspection, but not until 1881 did Lawrence, Mass., become the first city to adopt a complete plumbing code.¹⁹ Meanwhile, beyond occasional relocation of outlets—little help to cities downstream—almost nothing was done toward proper sewage disposal.

The demand for housing reform, in so far as it was connected with the public health movement, was also inspired during the 1860's and 1870's by the filth theory of disease. All the factors which worried the sanitarians—polluted soil, bad air, and contaminated water—were multiplied by the crowded and filthy conditions of many of the dwellings of the urban poor. Overcrowding, defective drainage, malodorous privy vaults, improper refuse disposal, damp walls and wet cellars, evil working conditions, darkness, insufficient water supply, dirty and unpaved streets, and lack of bathing facilities all contributed to make the American slums prolific sources of disease. In New York, where the conditions were the worst in the nation, public spirited individuals and organizations concerned with the sanitary condition of the city and the welfare of the poor frequently agitated for reform. The Association for Improving the Condition of the Poor, a charitable society formed in 1843, took up the question in 1846. The first tenement house bill, product of two legislative commissions in 1856 and 1857, contained some able provisions but failed to pass. An investigation by the Citizens' Association in 1865 brought on the first tenement house law two years later. Under its authority the board of health in 1869 ordered 46,000 windows cut in dark rooms, but it soon became apparent that the law was inadequate. Further agitation and investigation brought a new law in 1879 which made matters worse, if anything, by establishing the "dumb-bell" tenement with its narrow, noisome airshaft. The discretionary power given the board of

health to dispense with certain good features combined with an insufficient inspection force to give powerful landlords the opportunity virtually to nullify the law.²⁰

In relation to water supplies, sewerage, and housing, the pythogenic theory, when applied, proved helpful, but its inadequacy was effectively demonstrated during the frequent yellow fever epidemics which swept the South. As late as 1877, Henry M. Lyman, a professor at Rush Medical College, declared that while yellow fever could be imported and spread by contagion, it originated from a miasm formed by the decomposition of warm, moist human filth and thus could arise spontaneously wherever such conditions prevailed.²¹ In the epidemic year of 1878 the American Public Health Association devoted almost its entire meeting to this problem. The majority had by then come to believe that the disease was in some manner contagious, though of course the method of transmission was as yet unknown.²² Courageously if somewhat naively, in view of the commercial implications, Samuel Chopin, president of the Louisiana Board of Health, recommended absolute non-intercourse from April to November with ports where yellow fever was indigenous.²³ The following year, however, the merchants of New Orleans founded a voluntary sanitary organization whose activity was concerned almost entirely with environmental sanitation,²⁴ and the epidemic prompted Memphis to organize an efficient board of health and to build a sewerage system and water works.²⁵

Although the filth theory of disease remained the most prevalent basis for public health activity during the 1870's, it was already undergoing modification by the influence of new theories developed by European medical research. The theory of contagion had, in fact, never been completely discarded. Quarantine and to a lesser extent isolation continued to be used for many diseases

besides smallpox. Moreover, certain epidemiologists were laying a firm basis for the development of the contagion theory. Peter Ludwig Panum's study of measles in the Faroe Islands in 1847, John Snow's publications on cholera in the 1850's, and William Budd's work on typhoid fever beginning in 1856 indicated clearly the communicable nature of those diseases. To put the control of epidemic disease on a firm basis, however, the contagion theory had to be conclusively established by the germ theory of disease. In the 1850's Louis Pasteur began his studies of fermentation. Further milestones came in 1870, with the publication of Pasteur's *Etudes sur les maladies des vers à soie*, and in 1876, when Robert Koch showed conclusively that a specific bacillus could cause anthrax. In the following decade, greatly aided by Koch's development of the solid culture method in 1881, new discoveries followed one another in rapid succession, definitely establishing the germ theory.

As is so often the case, the implications of the new science of bacteriology were not at first fully perceived. Nursed in the filth theory, many public health advocates began to look on decaying organic matter as a breeding ground for germs instead of miasms. Studies showing the high bacterial content of dust arising from municipal highways were used to bolster arguments for street cleaning. In 1891 a committee of the American Public Health Association reported that the lax collection of garbage was a great danger to the health of the nation, that "Heaps of garbage continue to be disease-breeders, furnishing the proper conditions for the rapid growth and development of any disease germs which may lodge therein." Man, the committee complained, goes on piling up excrementitious matter "until the earth, water, and the very air are charged with death-producing elements. . . ." ²⁶ While no one would deny that

efficient garbage collection is beneficial, the recommendations thus made were still, in effect, based on a modified filth theory of disease.

Gradually, however, the new etiological theory was more firmly grasped, and its effects became noticeable in board of health activities. For many years epidemiologists in both Europe and the United States had been publishing studies indicating that typhoid fever, for example, was often transmitted by water supplies contaminated with the excreta of infected persons. With the growth of the germ theory and the discovery of the typhoid bacillus in 1881, these past studies took on new meaning, and future investigators could direct their attention to the specific causative agent of America's most prevalent water-borne disease. A penetrating analysis by the State Board of Health of a typhoid epidemic in Plymouth, Pa., in 1885 ²⁷ helped to spur an interest already reviving among the members of the American Public Health Association and a small part of the general public in sewage-polluted water. Realization of its danger, reinforced by high typhoid mortality rates in cities using such water, provoked a discussion of new remedies and new testing methods to fit the new theory. Chemical analysis was called inadequate and use of any sewage-polluted river as a water supply condemned. ²⁸ Increasingly, American cities attempted to diminish pollution of their sources of water. In Chicago, for example, the previous policy of building tunnels continued, but it was not until 1892 that the last of the shore intakes was shut off, dropping the typhoid death rate from a high of 174 per 100,000 in 1891 to 54 per 100,000 in 1893. In addition, interception sewers were built during the 1890's to empty into the Chicago River while, despite the opposition of St. Louis, and of certain commercial interests, concerned over the level of the lake, con-

struction of a drainage canal 28 miles long served to reverse the river's flow, sending all Chicago waste down the Illinois. In 1900 the typhoid death rate reached a new low of 20 per 100,000.²⁹ In addition, new experiments were undertaken in filtration. The first important studies were at the Lawrence Experiment Station, set up by the Massachusetts Board of Health in 1887, where the slow sand method was developed. Although progress in applying this knowledge came largely after 1900, its value had already been proved in Lawrence. When an investigation showed that the city water supply, taken from the sewage-polluted Merrimac, was to blame for a severe typhoid epidemic in 1890 and 1891, a slow sand filtration plant was introduced in 1893, and the death rate from all causes fell from 24.0 per 1,000 in that year to 18.8 in 1894.³⁰

Meanwhile, the advent of bacteriology also made possible the development of greater purity in milk supplies. Although medical and scientific writers showed comparatively little interest in milk before 1880,³¹ Boston had appointed a milk inspector in 1859 to prevent the use of distillery slops as feed. It was not until the 1870's and 1880's, however, that inspection became significant, and then it was primarily directed, with more or less success, to the problem of adulteration. In the 1890's an increasing scientific interest in the problems of milk supply brought new emphasis on bacteriological purity. Koch's discovery of tuberculin in 1890 made possible accurate detection of tuberculosis in cattle, long known to exist and considered dangerous, and by 1900 several cities were requiring tuberculin tests. The first experimental bacterial counts in the United States came in Boston in 1892, and other cities followed; but it was not until 1900 that Montclair, N. J., instituted the first regular system of bacteriological examination. The movement for certified milk, inaugurated in 1892

by Henry L. Coit of Newark, N. J., greatly aided in improving production conditions in many dairies. While Pasteur and other Europeans had been working on means of sterilization since the 1860's, pasteurization was largely in the discussion stage in the United States until after 1900. At the same time certain charitable organizations and philanthropic individuals, realizing that the children of the poor who needed this food most were least able to get it, began developing infant milk depots. The first, founded in Germany in 1889, was followed the same year in the United States at the Good Samaritan Hospital in New York. Especially important was the station set up by Nathan Straus in 1893, first of many supported by his contributions. Rochester, N. Y., in 1897 was the first city to undertake municipal distribution.³²

While constant advances were being made in nearly all fields of environmental sanitation during the 1880's and 1890's, the developments in medical theory also prompted the extension and improvement of old techniques of infectious disease control long used for smallpox. In 1873 Brooklyn first required notification of scarlet fever and typhoid, and though this development was slow to spread, by 1900 32 states and many communities in others required notification of communicable diseases.³³ In 1894 Boston introduced the first regular system of medical examination of school children, followed by Chicago in 1895, by New York in 1897, and by Philadelphia in 1898.³⁴ Placarding of houses for infectious diseases became nearly universal by 1900.³⁵ Except for smallpox facilities, in 1873 New York had only two small wards on Blackwell's Island to serve as an isolation hospital, mostly for typhus, but by 1899 at least 15 of the nation's largest cities had isolation hospitals for scarlet fever, diphtheria, and other infectious diseases.³⁶ Disinfection became

so prevalent that by 1906 Charles V. Chapin termed it a "fetich."³⁷

In addition to the extension and improvement in notification, isolation, and disinfection, certain innovations were made possible by the advent of bacteriology. The most important, prior to 1900, was the introduction of bacteriological laboratories as an essential adjunct of boards of health. The first, established in Providence in 1888, proved its value that year by tracing an epidemic of typhoid fever to the city water supply. While the emphasis in this and similar early establishments was on the sanitary aspects of public health, New York in 1893 instituted the first diagnostic laboratory. The development of culture methods as the most valuable means of recognizing diphtheria caused many cities as well as states to follow this lead, and by 1900, 31 of the 40 largest cities and many smaller ones were so equipped. Although the original and principle purpose of most of these laboratories was to perform routine work in diagnosis and control of communicable diseases, some also produced antitoxins, vaccine, and tuberculin. Generously established facilities in such places as Boston, New York, Philadelphia, and Pittsburgh, provided an opportunity for original investigations and attracted able men who would otherwise have gone into state or university positions. According to the *Review of Reviews* the New York Health Department commanded "scientific talent of a high order,"³⁸ and this praise was well earned by its work in establishing the carrier principle for diphtheria. In the years that followed the laboratory, through work in controlling water, milk, and food supplies, diagnosis, and preparation of sera and vaccine, became the foundation of the public health movement in the United States.³⁹

The science of immunology, introduced by Pasteur, paved the way for another major development in the

1890's, the use of diphtheria antitoxin. Although foreshadowed by smallpox vaccination, immunology had to await the germ theory before extension to other diseases was possible. When the news of the development of diphtheria antitoxin by Emil von Behring and Shibasaburo Kitasato reached the United States, one popular news magazine commented that, "nothing else in the world's recent progress of which these pages could make note has an equal degree of interest or importance."⁴⁰ Convinced by its own investigations of the value of the new discovery, the New York Health Department, under Hermann M. Biggs, started manufacturing the antitoxin, partially supported by the *New York Herald*. Inaugurated by New York, free distribution of the cure was quickly taken up by other cities from Boston to San Francisco, from Chicago to New Orleans.⁴¹ The value of these measures was reflected immediately in the saving of life. In New York the death rate for diphtheria and croup had increased steadily from 118 per 100,000 in 1890 to 168 in 1894; the following year it dropped to 112, and in 1898 reached a low of 48 for the decade. In Boston the rate was over 100 every year but one from 1890 through 1896; in 1898 it reached a low of 35.⁴²

In the fight against the nation's greatest killer, tuberculosis, significant advances also occurred in the closing decade of the century. Development of effective means of treating tuberculosis came during the 1880's and 1890's. Deciding to test the rest and fresh air theory, Edward L. Trudeau in 1873 went to the Adirondacks where meditations on his own improvement led to the establishment of the Adirondack Cottage Sanatorium at Saranac Lake in 1884. By 1900, there were many successful private sanatoria and at least three supported by state and local governments. Meanwhile, Koch's discovery of the tubercle bacillus in 1882 demonstrated the

contagious nature of the disease. Discovery of the germ in the sputum of patients led to the belief that dried expectoration was a particularly common means of spreading infection, whether found on linen, bedclothes, handkerchiefs, floors, or street pavements. In 1890 New York City began issuing the first pamphlets giving information on the contagious character of the white plague and on means to prevent its spread, and by 1894 was conducting an intensive campaign of prevention, emphasizing education. Soon the Department of Health was distributing 20,000 to 30,000 circulars a year to physicians and tenement house residents where the malady thrived on crowded conditions. By 1899, 22 state boards of health and many other cities had adopted this practice. New York also introduced enforced disinfection and renovation of infected premises. In 1896 the city passed the first anti-spitting regulation in the United States. The following year New York became the first to require notification of tuberculosis.⁴³ The results of this fight against the white plague were markedly reflected in the death rates. In New York it dropped from 362 per 100,000 in 1890 to 257 in 1900; in Boston from 333 to 222; in Philadelphia from 264 to 210; in Chicago from 179 to 153.⁴⁴

The campaign against tuberculosis also marked the first extensive use of another valuable weapon in the hands of health officers, education in personal hygiene. They had long recognized the importance of popular support, and the American Public Health Association had worked valiantly to spread knowledge. Most of this, however, was propaganda to convince the public of the general need for sanitary measures in order to gain support for boards of health and to promote cleanliness. Since the 1870's, there had been pleas in lay as well as scientific periodicals for instruction in physiology, hygiene, and sanitary science in public schools. Early efforts, as

far back as 1850 in Massachusetts, to introduce such subjects into the curriculum were largely abortive, but renewed attempts in the 1880's proved more successful. Unfortunately, however, most of the resulting legislation came from the pressure of temperance and similar organizations, and the teaching was specifically directed at the effects of alcohol and tobacco. According to one member of the American Public Health Association, most of the textbooks were "unfair, unscientific, and untruthful."⁴⁵ While some of the other publicity given to the public health movement was invaluable, it was in the field of tuberculosis prevention and cure that there occurred the first significant dissemination of information on specific methods of controlling communicable diseases. This technique was to become of increasing importance during the 20th century.

One of the valuable aids to the development of education, public health nursing also saw its first beginnings during this period. The first modern district nursing association was founded in 1859 by a Liverpool philanthropist, William Rathbone, with the coöperation of Florence Nightingale. The movement reached this country with the formation of a similar organization in 1877 by the Women's Board of the New York City Mission. In 1886 the Instructive District Nursing Association was established in Boston, the first to include education in personal hygiene as a definite objective. By 1900 there were 58 organizations engaged in public health nursing employing 130 nurses. Again, the impetus had been given for a far greater development in the present century.⁴⁶

In contrast to the movement for environmental sanitation, the development of bacteriological laboratories and of new methods of treating diphtheria, tuberculosis, and other communicable diseases owed comparatively little to

non-professional humanitarian organizations. Especially in New York where the far-sighted administration of Hermann M. Biggs set an example for the world it was the big city health officials and their professional colleagues that led the way. Several reasons combined to bring about this change. The health officers were in a better position to realize the importance of new developments in medical science. Writing in 1900, Chapin declared that "public sanitation in the popular mind consists chiefly in the removal of nuisances,"⁴⁷ and even among many sanitarians the filth theory of disease still seemed, for all practical purposes, to hold first place. While the New York department was making its epochal researches in the control of diphtheria, a writer in *Scribner's Magazine* charged it with "pottering" with tenement house reform.⁴⁸ Another factor was that these new activities were less likely to raise specific opposition. While a bacteriological laboratory could be set up fairly cheaply, and rarely injured important private interests, a new water works was expensive and changes frequently represented the virtual loss of a considerable investment, often of private capital. Tenement reform especially was opposed by vested interests. A third reason was the increased faith in the value of science arising in part from its more widespread teaching in the colleges and high schools but still more from its many successes in medicine and other fields. In addition, the idea of a social service state, though still in its infancy compared to today, was gaining in popularity. Not only were some men attacking the predominant belief in *laissez faire*, but tax supported schools, libraries, and fire departments—all of which developed extensively in the years following the Civil War—were akin to tax supported public health. Though the activities of the federal government in public health were slight, it was supporting scientific research in other fields with

the establishment of the U. S. Geological Survey and the Bureau of Ethnology in 1879. Humanitarians had accustomed many to the idea of using government to effect their reforms. By the 1890's the boards of health had proved their value and were securely established as part of American municipal administration. No longer under the compulsion of trying to get the authority to make rules for health, they were able to use their power, and, together with their professional colleagues, to lead the way in the public health movement. Nothing else shows more clearly the advance which New York had made since 1865, when a group of private citizens had to give the impetus to the formation of the health department.

In the 1860's and 1870's the need for environmental sanitation and adequate administrative powers had been emphasized. During the 1880's and 1890's these became generally recognized, received widespread support, and developed rapidly. By 1900, there was much room for improvement left: many wells were still used for water supply; sewerage was often inadequate; housing of the urban poor was execrable; refuse removal was often neglected. Yet great strides had been made and the need for remedial action was firmly established in the public consciousness. Civic-minded organizations were demanding cleanliness, and in 1901 New York passed the first effective tenement house law. In many cities the administrative details had already passed out of the purview of boards of health into the hands of various departments especially organized to cope with them. In the 1880's the implications of new medical theory were beginning to reach public health experts, and during the 1890's were producing significant results. In the developments deriving from bacteriology a sound start had been made toward pure water and milk supplies and toward the control of infectious diseases

through increasing application of the techniques of notification, isolation, and disinfection, and by development of laboratories, diphtheria antitoxin, and education in personal hygiene. Much lay ahead in all these fields.

Problems of rural health, mobilization of the physicians of the community to aid in public health, care of chronic and constitutional diseases, and industrial hygiene had as yet received little attention. But by 1900 the public health movement, virtually nonexistent in 1860, was firmly established, and had proved its value in lowering the death rate of the nation.

SELECTED BIBLIOGRAPHY

Primary Sources

- Abbott, Samuel W. *The Past and Present Condition of Public Hygiene and State Medicine in the United States* (H. B. Adams, ed., *Monographs on American Social Economics*, XIX). Boston, 1900.
- American Public Health Association. *Public Health; Papers and Reports*. I-XXVI, 1873-1900.
- Bowditch, Henry Ingersoll. *Public Hygiene in America*. Boston, 1877.
- Chapin, Charles Value. *Municipal Sanitation in the United States*. Providence, 1900.
- Citizens' Association of New York, Council of Hygiene and Public Health. *Report of the Council of Hygiene and Public Health of the Citizens' Association of New York upon the Sanitary Condition of the City*. New York, 1865.
- DeForest, Robert Week, and Veiller, Lawrence, eds. *The Tenement House Problem*. 2 vol. New York, 1903.
- National Quarantine and Sanitary Convention. *Proceedings and Debates*. III-IV, 1859-1860.
- Sedgwick, William Thompson. *Principles of Sanitary Science and the Public Health with Special Reference to the Causation and Prevention of Infectious Diseases*. New York, 1902.

Secondary Works

- Castiglioni, Arturo. *A History of Medicine*. Krumbhaar, E. B., tr. and ed. New York, 1941.
- Garrison, Fielding Hudson. *An Introduction to the History of Medicine, with Medical Chronology, Suggestions for Study and Bibliographical Data*. 4th ed. Philadelphia, 1929.
- Ravenel, Mazyck P., ed. *A Half Century of Public Health*. New York: A.P.H.A., 1921.
- Shryock, Richard Harrison. *The Development of Modern Medicine; an Interpretation of the Social and Scientific Factors Involved*. Philadelphia, 1936.
- Simon, John. *English Sanitary Institutions*. 2nd ed. London, 1897.
- Welch, William Henry. *Public Health in Theory and Practice; an Historical Review*. New Haven, 1925.
- Winslow, Charles-Edward Amory. *The Conquest of Epidemic Disease; a Chapter in the History of Ideas*. Princeton, 1943.
- Winslow, Charles-Edward Amory. *The Evolution and Significance of the Modern Public Health Campaign*. New Haven, 1923.

REFERENCES

1. Winthrop, John. *Winthrop's Journal "History of New England," 1630-1649*; Hosmer, J. K., Ed. *Original Narratives of Early American History*. New York, 1908, II, p. 329.
2. Mustard, Harry S. *Government in Public Health*. New York, 1945, p. 119.
3. Massachusetts Sanitary Commission (Lemuel Shattuck and others). *Report of a General Plan for the Promotion of Public and Personal Health*. Boston, 1850, *passim*. It has been abstracted in George C. Whipple. *State Sanitation; a Review of the Work of the Massachusetts State Board of Health*. Cambridge, 1917, I, pp. 241-367.
4. National Quarantine and Sanitary Convention. *Proceedings and Debates*, III, 1859, pp. 3-5.
5. New Haven Board of Health, Minutes, 1806-1869, *passim*. At the Board of Health, New Haven, Conn.
6. George, M. Dorothy. *London Life in the XVIIIth Century*. London, 1925, chap. I.
7. Quoted in Simon, John. *English Sanitary Institutions*. 2nd ed., London, 1897, p. 192.
8. *Ibid.*, pp. 178-207.
9. Citizens' Association of New York, Council of Hygiene and Public Health. *Report of the Council of Hygiene and Public Health of the Citizens' Association of New York upon the Sanitary Condition of the City*. New York, 1865, pp. cxxv-cxxvii; Bowditch Henry I., *Public Hygiene in America*. Boston, 1877, pp. 397-400; Smith, Stephen, "The History of Public Health, 1871-1921," Ravenel, Mazyck P., ed. *A Half Century of Public Health*. New York, 1921, pp. 4-10; Welch, William H. *Public Health in Theory and Practice; an Historical Review*. New Haven, 1925, p. 25.
10. Of the 345 cities of 10,000 or more population in 1890, 292 reported to the census office on their boards of health. In 14 cities there was no board; in 2 the functions were performed by the county medical society; in 276 there were regular boards, with a total membership of 1,403, including 348 (24.8%) physicians. U. S. Census Office. *Report on the Social Statistics of Cities, Eleventh Census*, 1890, p. 14.
11. Baker, M. N., ed. *The Manual of American Water-Works Compiled from Special Returns*. I, 1888, pp. 28, 118; III, 1891, p. xxxv.
12. Chandler, C. F. "Report upon the Sanitary Chemistry of Waters, and Suggestions with Regard to the Selection of the Water Supply of Towns and Cities," American Public Health Association, *Public Health*, I, 1873, p. 563. See also Shedd, J. H. "Water Supplies for Large Institutions and Small Communities," *ibid.*, III, 1875-1876, pp. 109-119; Nichols, W. R. "On Drinking Water and Public Water-Supplies," Buck, A. H., ed. *A Treatise on Hygiene and Public Health*. New York, 1879, I, pp. 218-221, 292-310; Ford, W. H. "Soil and Water," *ibid.*, I, pp. 399-597, *passim*; Whipple, George C. *The Microscopy of Drinking Water*. New York, 1899, pp. 1-2.
13. Abbott, S. W. "Water Pollution in Massachusetts," American Public Health Association, *Public Health*, XIII, 1887, pp. 260-261.
14. Chicago Bureau of Public Efficiency. *The Water Works System of the City of Chicago*. Chicago, 1917, pp. 37-55; Reynolds, Arthur R. and Hazen, Allen. "The Water-Supply of Chicago: Its Source and Sanitary Aspects," American Public Health Association, *Public Health*, XIX, 1893, pp. 146-147.
15. Sedgwick, William T. *Principles of Sanitary Science and the Public Health with Special Reference to the Causation and Prevention of Infectious Diseases*. New York, 1902, p. 234.
16. Memorial presented to the Pennsylvania legislature, 1883, quoted in Bryce, James, *The American Commonwealth*. 2d ed. London, 1889, I, p. 606.

17. Bell, John. "Report on the Importance and Economy of Sanitary Measures to Cities," National Quarantine and Sanitary Convention, *Proceedings and Debates*, III, 1859, pp. 481-519; Toner, John M. "Boards of Health in the United States," American Public Health Association, *Public Health*, I, 1873, p. 501; Brewster, William H. "The Gases of Decay and the Harm They Cause in Dwellings and Populous Places," *ibid.*, III, 1875-1876, pp. 199-204; Plunkett, J. D. "Disinfection of Sewers by Ozone," *ibid.*, IV, 1877-1878, pp. 297-298; Ford, "Soil and Water," Buck. *Treatise on Hygiene*, I, pp. 445-595, *passim*; Waring, George E. *The Sanitary Drainage of Houses and Towns*. New York, 1876, pp. 15-70; Waring. "Village Sanitary Work," *Scribner's Monthly*, XIV, 1877, pp. 176-187; Hamilton, F. H. "Sewer-Gas," *Popular Science Monthly*, XXII, 1882, pp. 1-20; Waring. "Sanitary Drainage," *North American Review*, CXXXVII, 1883, pp. 57-67; Wingate, C. F. "Unsanitary Homes of the Rich," *ibid.*, CXXXVII, 1883, pp. 172-184; Trowbridge, W. P. "Modern Sanitary Engineering," *Harper's New Monthly Magazine*, LXVIII, 1884, pp. 756-762.
18. Hyde, Charles G. "A Review of Progress in Sewage Treatment during the Past Fifty Years in the United States," Pearce, Langdon, ed. *Modern Sewage Disposal*. New York, 1938, p. 13.
19. Chapin, Charles V. "History of State and Municipal Control of Disease," Ravenel. *Half Century of Public Health*, p. 141.
20. Veiller, Lawrence. *Tenement House Reform in New York, 1834-1900. Prepared for the Tenement House Commission of 1900*. New York, 1900, pp. 6-28; Baldwin, Foy S. *The Housing Problem; a Study of Tenement Reform in Cities*. Boston, 1900, p. 13; Reynolds, Marcus T. *The Housing of the Poor in American Cities*. American Economic Association, *Publications*, VIII, Nos. 2-3, Baltimore, 1893, pp. 13-14.
21. Lyman, H. M. "A Review of the Present State of, Exact Knowledge Regarding the Causation of Epidemic Infectious Diseases." American Public Health Association, *Public Health*, IV, 1877-1878, pp. 98-99.
22. *ibid.*, IV, 1877-1878, pp. 190-296.
23. Choppin, Samuel. "History of the Importation of Yellow Fever into the United States from 1693 to 1878," *ibid.*, IV, 1877-1878, p. 206.
24. Fenner, Edward. "History of the New Orleans Auxiliary Sanitary Association," *ibid.*, VII, 1881, pp. 91-95.
25. Thornton, G. B. "Six Years' Sanitary Work in Memphis," *ibid.*, XII, 1886, pp. 109-118.
26. Ford, Delos, and others. "Report of Committee on Disposal of Waste and Garbage," *ibid.*, XVII, 1891, p. 91.
27. Sedgwick. *Principles of Sanitary Science*, pp. 200-206.
28. Smart, Charles. "On the Present and Future of Sanitary Water Analysis." American Public Health Association, *Public Health*, X, 1884, pp. 79-85; Stevens, T. M. "The True Value of Chemical Analysis in Determining the Hygienic Purity of Potable Water," *ibid.*, X, 1884, pp. 96-99; Playter, E. "Our Inland Lakes and Rivers, the Disposal of Sewage, and the Spread of Infectious Diseases," *ibid.*, XII, 1886, pp. 123-132; Smart, C., and others. "Report of the Committee on the Pollution of Water Supplies," *ibid.*, XIV, 1888, pp. 62-78; Hazen, A. "Water-Supply and Public Health," *ibid.*, XVII, 1891, pp. 74-79.
29. Reynolds and Hazen. "Water-Supply of Chicago," *ibid.*, XIX, 1893, pp. 146-151; *Engineering Facts Concerning the Sanitary District of Chicago*. Chicago, 1923, pp. 3-5; Jordan, Edwin O. "The Chicago Drainage Canal," *Review of Reviews*, XXI, 1900, pp. 56-58; *Report on Chicago Drainage Canal by the Commission Appointed by the Mayor of St. Louis* (n. p., 1877), *passim*; U. S. Bureau of the Census, *Supplementary Analysis and Derivative Tables, Twelfth Census, Special Reports*. 1900, p. 506.
30. Sedgwick. *Principles of Sanitary Science*, pp. 207-213; U. S. Bureau of the Census. *Supplementary Analysis and Derivative Tables, Twelfth Census, Special Reports*, 1900, p. 501.
31. One investigator was able to discover only thirteen authors of medical or scientific articles specifically on milk from 1839 until 1879. North, Charles E. "Milk and Its Relation to Public Health." Ravenel. *Half Century of Public Health*, p. 237.
32. *ibid.*, pp. 267-286, *passim*; Battershall, Jesse P. *Food Adulteration and Its Detection*. New York, 1887, p. 49; U. S. Department of Agriculture, Division of Chemistry. *A Popular Treatise on the Extent and Character of Food Adulterations*. Bulletin, no. 25, 1890, p. 59; Bryce, Peter H. "The Present Position of the Milk Supply Problem from the Public Health Stand-Point, and Some Practical Methods for Securing Safe Public Supplies," American Public Health Association, *Public Health*, XVII, 1891, pp. 144-161; Sedgwick. *Principles of Sanitary Science*, pp. 263-292; Chapin, Charles V. *Municipal Sanitation in the United States*. Providence, 1900, pp. 406, 420-421.
33. Chapin. "History of Control of Disease," Ravenel. *Half Century of Public Health*, p. 143; Chapin. *Municipal Sanitation*, p. 430.
34. Durgin, S. H. "Medical Inspection of Schools," American Public Health Association, *Public Health*, XXI, 1895, pp. 149-151; Van Ingen, Philip. "The History of Child Welfare in the United States," Ravenel. *Half Century of Public Health*, pp. 296-297; Chapin. "History of Control of Disease," *ibid.*, pp. 151-152.
35. Chapin. *Municipal Sanitation*, p. 442.
36. *ibid.*, pp. 607-613, *passim*; Chapin. "History of Control of Disease," Ravenel. *Half Century of Public Health*, p. 145; Abbott, Samuel W. *The Past and Present Condition of Public Hygiene and State Medicine in the United States*. H. B. Adams, ed. *Monographs on American Social Economics*, XIX, Boston, 1900, p. 24.
37. Chapin, C. V. "The Fetish of Disinfection," 1906. Chapin. *Papers of Charles V. Chapin*. Gorham, F. P. and Scammon, C. L. eds. New York, 1934, pp. 65-75.
38. *Review of Reviews*, XI, 1895, p. 3.
39. Chapin. *Municipal Sanitation*, pp. 556-559; Chapin. "History of Control of Disease." Ravenel. *Half Century of Public Health*, p. 143; Winslow, C. E. A. *The Evolution and Significance of the Modern Public Health Campaign*. New Haven, 1923, pp. 35-36; Winslow, C. E. A. *The Conquest of Epidemic Disease; a Chapter in the History of Ideas*. Princeton, 1943, pp. 339-342.
40. *Review of Reviews*, XI, 1895, p. 3.
41. Biggs, H. M. "The New Treatment of Diphtheria," *McClure's Magazine*, IV, 1895, pp. 360-364; Park, W. H. "Diphtheria Anti-Toxine—Its Production," *ibid.*, IV, 1895, pp. 365-369; Chapin. *Municipal Sanitation*, pp. 598-601.
42. U. S. Bureau of the Census. *Supplementary Analysis and Derivative Tables, Twelfth Census, Special Reports*, 1900, p. 507.
43. Biggs, H. M. "Tuberculosis and the Tenement House Problems," DeForest, R. W., and Veiller, Lawrence, eds. *The Tenement House Problem*. New York, 1903, I, pp. 447-458; Guerard, A. R. "The Relation of Tuberculosis to the Tenement House Problem," *ibid.*, I, pp. 461-470; Montizambert, F. "The President's Address," American Public Health Association, *Public Health*, XVII, 1891, pp. 8-9; Chapin. *Municipal Sanitation*, pp. 153-159, 520-525; Winslow. *Evolution of Modern Public Health Campaign*, pp. 51-52; Abbott. *Public Hygiene*, p. 21.

44. U. S. Bureau of the Census. *Supplementary Analysis and Derivative Tables, Twelfth Census, Special Reports*, 1900, p. 504.

45. Groff, George G. "On Teaching the Principles of Hygiene to the Young," *American Public Health Association, Public Health*, XX, 1894, p. 266; see also Claypole, E. W. "The Popularization of Sanitary Science in Schools," *ibid.*, III, 1875-1876, pp. 208-215; Hewitt, C. N. "The Work of Hygiene in the Education of Children in the Common Schools, and in the Families and Society in Which They Live," *ibid.*, IV, 1877-1878, pp. 81-87; Formento, F. "School Hygiene," *ibid.*, X, 1884, pp. 45-46; Probst, C. O. "Instruction in Hygiene in Schools and Colleges," *ibid.*, XX, 1894, pp. 251-256; White, A. D. "Sani-

tary Science and Popular Instruction," *Popular Science Monthly*, IV, 1874, pp. 421-429; Fall, D. "A Plea for the Teaching of Sanitary Science in Our Schools," *Education*, XVII, 1897, pp. 266-272; Fall, D. "The Teaching of Hygiene and Sanitary Science in the Secondary Schools," *The School Review*, VI, 1898, pp. 65-75.

46. Dock, Lavinia L. "The History of Public Health Nursing," Ravenel. *Half Century of Public Health*, pp. 439-447, *passim*; Winslow. *Evolution of Modern Public Health Campaign*, p. 56.

47. Chapin. *Municipal Sanitation*, p. 110.

48. Flagg, Ernest. "The New York Tenement-House Evil and Its Cure," *Scribner's Magazine*, XVI, 1894, p. 117.

Appraising a Medical Care Program*

SEYMOUR ETKIN

Economist, U. S. Bureau of the Census, Washington, D. C.

PREPAID medical service is a subject about which there is much misconception and bias. This article is based on a study of the operations of the Group Health Association of Washington which recently celebrated its 10th birthday. In this article certain standard approaches as well as some novel approaches are used in appraising the adequacy of a medical care program.

THE MEDICAL STAFF

As of September 1, 1947, the number of full-time medical staff members was distributed as follows:

Department of Adult Medicine	5
Department of Obstetrics and Gynecology	3
Department of Pediatrics	4
Department of Otolaryngology	1
Total	13

In addition, there were a general surgeon on a retainer basis and 9 specialists on part-time or referral basis in the fields of internal medicine, allergy, dermatology (2), neurology, orthopedic surgery, roentgenology, urological surgery, and ophthalmology. These 9 specialists together contributed services equivalent to the full time of 3 physicians.

The full-time medical staff or equivalent is, therefore, 17 (13 plus 1 plus 3).

The auxiliary medical and administrative staff, as of September 1, 1947, consisted of the following:

1	Optometrist
3	Pharmacists
15	Registered Nurses
3	Practical Nurses
7	Laboratory, x-rays, and optical technicians
39	Business and administrative employees

For each physician operating in Group Health Association's prepaid medical care plan, there were approximately 4 staff members lending direct or indirect assistance.

As stated above, the number of physicians on G.H.A.'s medical staff on September 1, 1947, was the equivalent of 17 full-time physicians. The membership on that date was 12,806 participants. The ratio of physicians to member-participants was, therefore, 1.33 for each 1,000 member-participants. This ratio can also be expressed as follows: there was 1 physician for each 752 member-participants.

A ratio of 1.29 physicians per 1,000 population is generally considered adequate to provide medical care. G.H.A.'s ratio of 1.33 per 1,000 participants, therefore, compares favorably to the ratio deemed necessary for adequate medical care.

A survey of the number of physicians in relation to population in the District of Columbia showed that on June 1, 1947, there were 637 persons per physician, or a ratio of 1.59 per 1,000 persons. However, the whole metropolitan area constitutes one medical trade region with Washington, D. C., as its center. When data for the counties of Montgomery and Prince Georges, Maryland, and Arlington County and the City of Alexandria are added to those for the

* Adapted by the writer from his thesis, "A Study of Group Health Association: A Survey of the Operation of a Prepared Medical Care Program in the District of Columbia," written as a partial requirement for an M.A. degree in economics at the American University, Washington, D. C.

District of Columbia, the number of persons per physician is 762, or 1.31 per 1,000 population.¹

G.H.A.'s physician-participant ratio is slightly lower than the physician-population ratio for the District of Columbia and about the same as that for the whole metropolitan area.

The full-time and part-time medical staff members receive a monthly "salary," though the Business Manager of G.H.A. made it clear in conversation with the writer that G.H.A.'s doctors are not "employed" by the Association but are on a "contract basis" with the Association. (This distinction is made to show that G.H.A. is not engaged in the practice of medicine but merely to provide the arrangements under which doctors may practise medicine.) The general surgeon is paid a yearly stipend, in return for which he* performs all the major surgery required for G.H.A. members. Two physicians, the urological surgeon, and the ophthalmologist, are paid for each case referred to them by the Medical Director.

All members of the medical staff are fully licensed in the District of Columbia. Many have also been licensed in other states, and a few have been trained in foreign countries.

Six of the physicians are certified in their specialties, i. e., they are either diplomates in their specialty or are Fellows of the American College of Surgeons.

For all physicians on G.H.A.'s staff, the average number of years in which they had been engaged in medical practice as of September 1, 1947, was 12. If service in the armed forces is omitted, the average is computed as 11. (In both cases service as an interne was not counted toward medical practice, but service as a resident physician was so credited.)

* Actually the general surgeon and his associate both perform the surgical operations. G.H.A.'s contract, however, is with the senior surgeon only.

The average age of the physicians in adult medicine (general practitioners) was 34. (Age was computed to nearest birthday as of September 1, 1947.) The average age of all physicians on the staff was 40.

G.H.A.'s specialists are older, on the average, than its general practitioners. In the District of Columbia on the whole, however, general practitioners are older, on the average than the specialists.

Physicians for the staff are partially recruited through advertisements in the *Journal of the American Medical Association*. In addition, recommendations for appointment are made to the acting Medical Director (Chief of Pediatrics) by persons who have knowledge of the interest of doctors wishing to become connected with a prepayment medical care organization. After screening by the acting Medical Director, the candidate for appointment to the staff is interviewed by the Medical Executive Committee and approved or disapproved by that committee.

G.H.A.'s promotion and publicity manager states that the inducements to work on G.H.A.'s medical staff are as follows:

Attractive salaries (\$4,300 to \$12,500 per year depending on experience and specialty)

Freedom to practise medicine (i. e., no worry about hiring nurses, bookkeepers, etc.)

Liberal conditions:

Annual leave, 30 days per year

Study leave, 30 days per year

Sabbatical leave, 1 year in 7

Availability of up-to-date equipment

Group practice and consultation

No need to consider pocketbook of patient when recommending referral to specialist or x-ray or laboratory tests.

PATIENT LOADS

During 1946, each G.H.A. doctor had, on the average, about 17 consultations per day while he was at G.H.A.'s offices. A clinic day was slightly longer than 7 hours in length. Like most averages, 17 consultations per clinic day per doctor do not tell the whole story. There were

TABLE 1
Patient Loads by Department Group Health Association 1946

Department	Total Number of Clinic Visits	Doctor Days on Clinic Duty	Visits per Doctor per Day on Clinic Duty
General Medicine	13,422	994	13.5
Obstetrics	5,466	250	21.9
Pediatrics	10,131	548	18.5
Allergy	870	57.4	15.0
Neurology	353	52	6.8
Dermatology	2,151	46	47.0
Roentgenology	(3,933)*	..	..
Orthopedics	403	28.4	14.0
Eye Department	2,463	193.5	12.8
Ear-Nose-Throat Dept.	2,789	97.9	28.0
Major Surgery	(1,553)*	..	..
All Departments	38,053	2,287.2	18.6

* Not included in totals.

variations from department to department, from doctor to doctor, depending on the nature of the treatment or consultation, and the extent to which nurses, x-ray technicians, and other auxiliary medical personnel could be utilized. By departments, the number of visits per day per doctor on clinic duty is shown in Table 1.

The patient-load level in the General Medicine Department, where the largest number of clinical appointments are handled, was recognized as being relatively low and, upon recommendation of the Executive Council in the spring of 1947, the Board of Trustees accepted a change in the procedure in the handling of appointments for this department. Under this change, the "members of the medical staff in general medicine, in order to provide for a peak level of 21 patients per day . . . [modified] their

appointment schedule so that a 30 minute appointment [would be] scheduled for the initial visit in an illness, and a 15 minute appointment for succeeding visits in that illness.*

How do G.H.A.'s patient loads compare to those of physicians engaged in private practice in the District of Columbia? It is necessary to compute G.H.A.'s patient loads on a weekly basis because comparable figures for the District of Columbia are available on this basis. To determine weekly patient loads, G.H.A.'s daily patient loads were multiplied by 4, the approximate number of days per week doctors devoted to clinical consultations. A comparison of G.H.A.'s patient loads for selected departments with those of the District of Columbia is shown below, in Table 2.

* Minutes of the Board of Trustees, April 29, 1947.

TABLE 2
Comparison of G.H.A.'s Patient Loads with Those of Physicians in D. C.,
for Selected Departments

Department	Visits per G.H.A. Doctor per Day on Clinic Duty (From column 3, Table 1)	Estimated Visits per G.H.A. Doctor per Week (Column 1 x 4) †	Average Weekly Office Patient Load for D. C. Physicians *
General Medicine	13.5	54.0	64.0
Obstetrics	21.9	87.6	99.0
Pediatrics	18.5	74.0	77.0

* Source: Ciocco, Antonio and Altman, Isidore. A Postwar Survey of Physicians Practicing in Washington, *Medical Annals of the District of Columbia*, XVI, 10; 578 (Oct.), 1947. This survey was made in the summer of 1947.

† Physicians in general medicine, obstetrics, and pediatrics, spent an average of 4 days per week in clinical consultations at G.H.A.'s offices. This is based on a study made by the writer of time devoted to clinical consultations by full-time physicians in the above mentioned departments for September, 1947.

As seen from Table 2, G.H.A.'s weekly patient load is lower than that of physicians in general in the District of Columbia for selected departments.

The average weekly office patient load for general practitioners in the District of Columbia is also available according to age groups. This is shown in Table 3.

The average age of G.H.A.'s general practitioners was shown to be 34. Hence a more valid comparison for G.H.A.'s general medicine department would be between G.H.A.'s estimated visits per doctor per week (general medicine department) shown as 54 in Table 2, and the average weekly office patient load

for general practitioners in Washington under the age of 35, shown above as 51.

TABLE 3

*Average Weekly Office Patient Load for General Practitioners in the District of Columbia 1947 **

Age Group (In Years)	Average Weekly Office Patient Load
All ages	64
Under 35	51
35-44	78
45-64	65
65 and over	34

* Source. Ciocco, Antonio, and Altman, Isidore, *ibid.*, p. 577.

REFERENCE

1. Ciocco, Antonio, and Altman, Isidore. A Postwar Survey of Physicians Practicing in Washington. *Medical Annals of the District of Columbia*, XVI, 10:576, (Oct.), 1947.

Interim Board on Preventive Medicine and Public Health

It will be recalled that an Interim Board on Preventive Medicine and Public Health was created by the Surgeons General of the U. S. Public Health Service, U. S. Air Corps, U. S. Army, and U. S. Navy, under the Chairmanship of Ernest L. Stebbins, M.D., of Baltimore for the purpose of certification of medical specialists in public health and preventive medicine from the Government Services.

At a meeting of the Interim Board on October 15 it was voted to withhold certification of specialists pending action by the Council on Medical Education and Hospitals of the American

Medical Association and of the Council on Specialty Boards in February, 1949, with the hope that the American Board of Preventive Medicine and Public Health, Inc., would be prepared to accept applications immediately thereafter. It was announced that the Interim Board had received 315 applications for certification in the Services which are now suspended for the time being with the possibility that they may be transferred to the American Board of Preventive Medicine and Public Health, Inc., when it is ready to take action. (See page 1619, this issue.)

The Use of Medical-Social Service by a County Health Department

An Account of a Demonstration in Anne Arundel County, Maryland

WILLIAM J. FRENCH, M.D., F.A.P.H.A., AND
GENEVA WISER, M.A.

*Health Officer; and Medical Social Consultant, Anne Arundel County Health
Department, Annapolis, Md.*

IDEAS regarding public health are changing. A new philosophy of health has arisen and is being rapidly expanded as new ideas are advanced and are incorporated into the structure of modern health department practices. The time when a health officer felt that he had fulfilled his duty when he had supervised the milk and water supplies and the disposal of sewage, established quarantine, and abated current nuisances, has practically disappeared, to be replaced by the much broader and more constructive concept that public health is one of the important social and educational forces in the community for the promotion of a better way of living. Sanitation and the abatement of health hazards must and do continue, but health programs are now enriched and vitalized by such services as maternal and child health, nutrition, medical-social service, mental hygiene, housing, and others. The progressive health officer is no longer satisfied that his public blindly follow the instructions he gives them; he wants them to have an intelligent understanding of the processes employed and a realization of the relationship which exists between good health and good standards of living.

No agency working for the public good is self-sufficient. This applies to the health department as well as all others. What progress can a health pro-

gram make if it ignores the relief and welfare agencies, the juvenile court, and the numerous other public and private agencies and groups interested in the welfare of the people? If the health department is to be a real force in promoting better health and better living, it must have the active coöperation of these and all agencies, and must in turn coöperate with them.

The Health Department staff in Anne Arundel County consists of a health officer and an assistant; three nurse supervisors, two nurse-midwives, and a staff of twenty public health nurses; a medical-social worker; a laboratory technician and two assistants; an x-ray technician; one dentist; four sanitarians; a secretary, and nine clerks.

The following clinic and conference services are offered:

- Maternal and Child Health
- Rheumatic Fever—Heart
- Hearing
- Speech Defect
- Mental Health
- Pediatric Consultation
- Dental
- Orthopedic
- Chest
- Venereal Disease
- Cancer Detection and Control

The Maternal and Child Health Conferences are fourfold conferences attended by prenatals, postnatals, infants, and preschool children. Primarily for well

children, mothers are included because we believe in the family unit method of approach, and because in a rural community this arrangement is the most economical from the point of view of time.

Laboratory service is furnished through a branch of the State Laboratory.

The Health Department is responsible for the School Health Program (a modification of the Astoria Plan), and for the administration of the Maryland Medical Care Program as it applies in this county. The Health Department has, in addition, a delivery service which consists in furnishing nurses to assist the physician at home deliveries, and nurse-midwives to supervise and teach and who deliver certain cases. There is an arrangement with The Johns Hopkins Hospital for the care of premature infants and hospitalization of abnormal obstetrical cases not safe for home delivery.

All of these services are tied together through nine health centers and the central office in Annapolis. Each nurse is a generalized public health nurse and carries the entire program in her district. She serves approximately 5,000 people. Through her, ill children seen in maternal and child health conferences, or discovered in the course of school work, are referred back to the family physician, to a special clinic, or to a hospital, as indicated by the doctor in charge of the conference. The home visiting is done by the same nurse who works in the conference or clinic. Some health centers have special clinics, as well as maternal and child health conferences. The health center nurse works in all of these. She receives reports of work done on her cases in clinics or hospitals located outside of her area, uses this material in her visiting or conference work, and assembles all information and records in a folder specially set up for each family unit. Thus, it is possible to open

up an extensive and attractive vista of possibilities for correction of defects. In this picture, the central office in Annapolis looms large. It is the nerve center and clearinghouse, through which local health activities are correlated and controlled. This results in much corrective work being done.

In order to enable the Health Department in Anne Arundel County better to carry out its broad philosophy of public health work, a medical-social worker was employed to serve as a consultant to any member of the staff faced with a social problem connected with his work and with which he would like some help. Through her training and experience, the social worker brings to the staff her special knowledge of people and their problems, and of skills and techniques in working with people. She also brings a knowledge and understanding of other social agencies in the community, of the services they offer and how these services can be used by the Health Department, as well as how the services of the Health Department can be integrated into other community services.

Social work is no longer concerned primarily with "the poor"; but, like public health, has widened its field and now includes a knowledge of and a concern for people's total needs, both emotional and environmental, and ways of meeting those needs. Providing the necessities of life, such as food and clothing, is important; but equally important is the manner in which a person lives emotionally in his environment. It is necessary for the child with rheumatic fever to be well housed and fed; but it is equally necessary that consideration be given to his mental and emotional well-being. Love, understanding, and security are as vital to an individual as food and clothing.

The close relationship which exists between medical and social factors in any health field is no longer questioned. To work toward bodily health alone,

without considering mental and social health, is an unbalanced and unprofitable task. For instance, the causes of malnutrition often lie in the environment. The treatment, therefore, lies not alone in giving medication to the patient but also in an educational and social approach to him and his environment. The patient with pulmonary tuberculosis who has been advised to go to a sanatorium does not go willingly unless his family life and responsibilities have been settled to his satisfaction before he leaves home. Worries about his family after he has been hospitalized may cause him to leave the institution. In dealing with any person, adult or child, suffering from a chronic illness, it is necessary not only to think of medical care but also of the patient's adjustment to his home and his environment, of his educational, recreational, and vocational needs.

The medical-social consultation service in the Anne Arundel County Health Department is not limited to any particular phase of the total service given, such as crippled children, tuberculosis, etc., but covers the entire program. Since social problems occur in all areas of health service, to limit the medical-social consultation service to only one or two phases would be confusing and limiting to the entire staff. The chief contribution of the medical-social worker is in the area of emotional and environmental factors as they relate to a health service, rather than in the area of the health service itself. The personality of the patient and his environment remain the same whether the patient has a venereal disease or a hearing defect; thus, the social approach to him is the same. We believe it is valid to give medical social consultation service on a generalized basis.

It is recognized that on any health department staff, practically everyone is working directly with people. People in general seem to expect persons con-

nected with health to be understanding and helpful; therefore, they rather freely bring a variety of social problems to the staff members. This happens in clinics where patients discuss social problems with doctors. Public health nurses going into homes would need to be blind and deaf if they did not see poor social conditions and hear about family problems. The nurse-midwives are expected to be understanding of the social problems which confront pregnant women, both married and unmarried. The physical therapist is sometimes faced not only with a twisted leg but sometimes with a twisted personality resulting from the leg. A father managing a restaurant may consult the sanitarian, when he calls to inspect, about what to do with his child who has lately been helping himself to the cash register. Even the clerks in the health department office are sometimes asked for advice on social problems!

In order to meet the requests for assistance with social problems which the members of the staff are receiving, it is helpful for them to have some knowledge of how best to do this. Any person working closely with people can do better work if he has a body of basic knowledge about people and their reactions, ways in which he can help them meet their problems, and what resources the community can offer to give additional help. This body of knowledge is, at present, particularly emphasized in the training and experience of the social worker. She has organized this knowledge, developed it, and can use it in a purposeful manner. It is in this area, then, that the medical-social worker contributes to the work of the health department.

The medical-social consultation service in the Anne Arundel County Health Department is in no way an attempt to make social workers out of the Health Department staff members. The service was established to help the staff to meet

more adequately social problems that are either intrinsically a part of the medical situation or are brought as such to the Health Department personnel. It is recognized that concern for individuals with social problems is rightfully shared by everyone in the department. In giving consultation service, careful consideration is given to the ability, training, and experience of each individual member of the staff. Careful consideration is also given to the individual case situation in order to determine if it is within the function of the staff member to handle or if it should be referred to another agency. In cases where the social situation is complicated, and where there is no resource for social help outside of the staff member, an attempt is made to arrive at some means of help in the situation. It is recognized that the medical-social consultation service is not meeting the need for long-time medical-social case work service to patients.

The medical-social consultation service is carried out by having the medical-social worker act as a consultant to any member of the staff who wishes to use the service. The staff member discusses a specific social problem with the social worker, and together they decide what seems to be the best course of action in the particular situation. This joint decision may result in various forms of action to be taken by the staff member: frequently the staff member will proceed to handle the problem himself; sometimes it is decided to refer the situation to another agency for complete service or to be carried coöperatively with the Health Department; and sometimes other decisions may be reached depending on the individual problem. The responsibility for the family, in almost all instances, remains with the member of the staff who is handling the problem, and he is free to pursue his activities, returning when he wishes further help, or according to plan.

While emphasis is placed on the consultation aspects of the service and most of the help is given through conference, home visiting by the medical-social consultant is not excluded. Occasionally, the staff member seeking consultation, or the medical-social worker, suggests that a home visit be paid in order to understand and handle the social problem better. These visits are made by the staff member and the medical-social worker together and usually occur only once, or at the most twice, on a given case. Occasionally it is decided that the medical-social consultant will interview the patient in clinic. These visits and interviews are always followed by a conference with the staff member, during which the visit or interview is discussed and a plan for future action agreed upon.

Our effort is to make this service readily accessible to all members of the staff. In order to do this, the medical-social consultant is in the central office in Annapolis every morning at a specified hour. She can be reached either personally or by telephone by anyone who has a social problem to handle with which he wishes help. Emergencies are thus handled as such. Besides this, the medical-social consultant visits each health center at least once a month for a conference with the public health nurses in the particular health center. These visits are planned according to a schedule approved by the supervising nurse who attends the conferences whenever possible. This gives the nurses an opportunity to discuss any cases which involve social problems. At the request of a nurse, with the approval of the supervising nurse, the medical-social consultant may visit a health center at times other than the occasion of the regular monthly visit.

These conferences with the public health nurses at the health centers have proved to be an important part of the program of the medical-social consult-

ant. The nurses recognize their patients as individuals and have used the medical-social consultation service freely. Without the coöperation and interest of the public health nurses, along with the rest of the staff, the service could not be effective.

Participation in the orientation of new staff members and in the educational program carried on by the Anne Arundel County Health Department is another function of the medical-social worker. When a new member joins the staff, an early conference is planned with the medical-social worker so that from the beginning of his experience, the staff member is helped to integrate the medical and social factors which will confront him in his work. Anne Arundel County is a demonstration unit for the Maryland State Department of Health and a center for field experience in public health for several universities training both doctors and nurses. It is also used for observation purposes by several national and international organizations interested in public health. Visitors and students from our own and foreign countries are frequently present. The medical-social worker contributes her specialized knowledge in social work to the education and training of these visitors and students.

It is sometimes difficult for a person not specially trained in social work to understand the policies of a social agency, and how that agency applies its policies in carrying on its work. It is true, too, that social workers sometimes do not understand the medical approach and the policies of the Health Department. This lack of understanding on the part of two agencies which should be working closely together for the benefit of individuals and the community frequently prevents these resources from complementing each other's services with a resulting loss to individuals and the community.

While for many years the staff of the Anne Arundel County Health Depart-

ment has recognized the need to work closely with other agencies and excellent relations have been maintained with them, the medical-social worker, because of her background, focuses part of her attention directly in this area. Besides being familiar with the functions and policies of the Health Department, she is familiar with the functions and policies of other agencies in the community. Because of this, she is able to suggest to members of the Health Department staff how the services of these other agencies can best be used for the benefit of individuals, and to interpret to other agencies how they can use the health services offered by the community for the benefit of their clients. Thus, she serves as a liaison person between the Health Department and other community agencies. Her position as liaison officer enables the medical-social worker to recognize better the areas where services in the community could be more closely integrated and initiate meetings between the Health Department and other agencies for the purpose of discussing and planning for better service to the people of the community.

The medical-social consultant participates in program planning and policy making of the Health Department. She is included in staff conferences and group meetings both within the agency and outside it. Since the Health Department is a social force in the community, its program must be planned so that it is acceptable to and meets the needs of the people. The medical-social worker contributes her knowledge of the community and its needs to the thinking of the group and her understanding of the social approach needed in working with people.

The medical-social consultation service, as it is being carried out in the Anne Arundel County Health Department is still in an experimental stage. It is recognized that it is not meeting the total need for medical-social case

work in the County Health Department. It is, however, meeting many of the social needs of the patients; it is bringing to the staff a knowledge of the social approach and a greater facility in using this knowledge in working with

people; it is bringing a closer and stronger relationship between the Health Department and community agencies. The Health Department staff is using the service on every program and seems to like it!

National Health Council Appoints Executive Director

The appointment of Thomas D. Dublin, M.D., Dr.P.H., as Executive Director of the National Health Council, New York City, was announced on October 11 by Philip R. Mather, Boston, President of the Council. Dr. Dublin comes to the Council from the Long Island College of Medicine, Brooklyn, where he has served for the last six years as Professor of Preventive Medicine and Community Health. He assumed his new duties on October 15 in the building occupied by the National Health Council and many associated agencies, 1790 Broadway, New York.

Mr. Mather stated that Dr. Dublin's appointment climaxed an extensive search for a qualified executive to guide the Council's expanding activities. With its membership of 23 leading national health agencies, both voluntary and governmental, the Council holds a place of leadership in the public health field. For more than 25 years it has brought together a steadily increasing number of specialized organizations working to improve individual and public health.

The National Health Council, Mr. Mather says, has adopted a broad program which seeks to stimulate the provision of adequate public health services of high quality for all the population of the United States. Currently the Council's program emphasizes the enlistment of more active participation by the public in partnership with professional workers in the field of public

health. At present it is engaged in helping local professional and citizen groups in their attempts to bring about full-time professionally staffed health departments where they do not exist and to strengthen the health services of existing departments. Another interest is the development of community health councils to bring together all interested organizations to plan for community health.

Dr. Dublin, who is a graduate of Dartmouth College and of the Harvard Medical School, received clinical training at the Boston City Hospital and at the Hospital of the Rockefeller Institute for Medical Research. He received his doctorate in public health from The Johns Hopkins School of Hygiene and Public Health, Baltimore, and served on the staff of the New York State Department of Health in administrative and research capacities. During the last several years of his residence in Greater New York he has participated extensively in the affairs of voluntary health agencies both local and national.

At the same time, Mr. Mather announced that the Rockefeller Foundation has made a grant to the National Health Council of \$225,000 to be used over a 3 year period in its program of strengthening the public health movement throughout the United States.

The American Public Health Association has been an active member of the National Health Council since the Council's establishment in 1921.

New Approach to Food Handler Training*

J. L. ROWLAND, M.S.P.H., AND JOHN H. FRITZ
*Division of Health of Missouri, Jefferson City, Mo.; and Kansas
City Health Department, Kansas City, Mo.*

WE have come a long way in the field of education; however, we have a great deal more territory to cover. In this paper we are limiting our comments and suggestions to a new approach in food handling training. Permit me to cite just one example of why we need more education in this field. I choose this example because it is one that we all come face to face with every day, and that is the little butter patty. The next time you are eating out, pick up that little butter patty, whether it is margarine or butter it does not matter, hold it up to a light so that you get the sheen on the butter, and then start counting the fingerprints that you see. The presence of fingerprints on the butter produces the same result as if the waitress or food handler who handled that butter deliberately walked up to you and stuck his or her finger in your mouth.

In education as well as other fields, there are a number of ways of approaching a problem and its solutions. I like to think of this whole thing as a wagon wheel; the hub of the wheel is the solution to the problem and the spokes of the wheel are the various ways or avenues of reaching it. Where one approach may not produce results in an instance, another type of approach may

succeed. In education, we know that people learn by repetition. That does not mean that we repeat the same thing in the same words over and over: "Mary had a little lamb, Mary had a little lamb," etc. By repetition we mean that you say the same thing but you say it in a different way. That is, you *tell them what you are going to tell them, then you tell them, and then you tell them what you told them*. You say the same things but you approach from a different angle.

Planning of the program determines the success of a food handling school. You can make the course anywhere from 2 to 8 hours long. The average runs from 4 to 6 hours. In the past, in these schools, we have tried everything, from giving door prizes to closing all the establishments in the town and bringing everyone in at once. These approaches seemed promising at the time and the thing to do. But in the follow-up we found that they were not as successful as we had previously hoped. Something was wrong, definitely wrong. We feel that our new approach to food handling training may solve many of these problems, but we do not contend for a moment that it will solve them all.

The National Sanitation Foundation recently completed a study on the I.Q. of food handlers, and their report indicates that the I.Q. of the average food handler is between the 5th and 8th grades. Not only have we had, in the

* This program has been worked out coöperatively with the Kansas City Health Department and the Missouri Division of Health. Acknowledgment is given to the Kansas City Health Department for their interest and initial art work.

past, a bombardment of too many ideas in too short a time in moving pictures and films, but they have been aimed at a higher level than that of most of the food handlers over the country.

We recommend the use of demonstrations using fluorescent material and "Blacklight" and we recommend slides. We believe in the versatility that the slides offer any teacher. With a set of good slides, preferably in color, you can rearrange the order in any way you desire, you can present them and change the patter or dialogue that goes with each slide to suit the particular group that you are addressing. You can dwell for just as long, or short a period of time on each slide as you wish. With slides and what we call "live patter" you can achieve a personal relationship between you as a teacher or speaker and the audience. We further recommend that the groups be broken down; heretofore, we have herded everyone together—cooks, bartenders, managers, soda fountain personnel, and what have you. We aim at the same objective for them all. Furthermore, each should know a little about the other fellow's job. But the waitress is not interested in the cook other than the fact that he gives her good food to serve to her customers. Nor is she interested in the dishwasher's problems or what he is doing, other than the fact that he delivers to her a clean, sanitized dish. And perhaps she is only interested in this because her customer complains, and her tips fall off. We propose that the course be called our Professional Food Handler Training Program.

We plan to train the managers, to teach them the managerial things. In addition to this we propose that the manager be given a sample of what his employees will be taught. Until we have sold the manager on accepting these ideas, we are wasting our time. It is impossible for our local sanitarians to be in each establishment 24 hours a day

or during all of their operation period. Therefore, if we train the manager on these things, we have an inspector or sanitarian on the premises during all the working time. If the manager is sold on doing the things correctly, he will see to it that his employees carry out the necessary procedures. After we have had a meeting with the managers, which incidentally will only be 2 hours for one meeting, we next meet with his waitresses for one meeting for 2 hours. Then we will take the dishwashers and the cooks, or we will take the bartenders and soda fountain personnel, teaching each group just the things that each is interested in, dealing with just their main problems. We seek to insure retention of the facts, and a vital eager interest in the subjects presented.

This new approach to Professional Food Handler Training may be divided into five main sections or groupings. They are as follows: (1) providing material which can be controlled for speed of presentation according to the need of the particular group; (2) going into bacteriology only far enough to give a working knowledge but not so far as to confuse the hearers; (3) breaking the groups up according to specific duties within the establishments; that is, operators, waitresses, bartenders, soda fountain employees, cooks, etc.; (4) stressing only those items that are most commonly found in violation and thereby getting a greater retention; (5) creating a course which is easily adapted to the group by a selection of material from a master file. The master file consists of slides in full color and this file is divided into various groupings, with a section designed just for operators and managers, another for waitresses, etc. You can choose any one group that you wish and pull that particular section out of the master file, or perhaps if you are talking to a P.T.A. group or any civic organization, you can select not only one group but any combination

of groups contained in the master file to make up your talk. You can present the material to them from the angle of what they as patrons should expect to receive—a short course or a brief review of the things that you are trying to teach the food industry. Or you can give an overall picture to the industry itself, by selecting various slides from all of the groups, in any combinations you may wish to use. This master file will give you an opportunity to establish close personal contact with the audience, as well as give you a great amount of latitude.

In addition to this material, we have a series which consists of approximately 25 slides, called the "Hands Habit" (series)—they are actual photographs of hands. These slides bring out the little habits of the hands and stress the importance of changing such habits. We have a set of actual photographs of bacteria which will be in our master file, consisting of approximately 20 or 25 slides. In addition, we are going to have separate sections in our master file of slides designed just for managers, just for cooks, dishwashers, bartenders, soda fountain personnel, and so on. The master file is not complete. At the present time we have slides for waitresses, we have the "Hands Habit" series, and we have the series on bacteriology. We have two artists working on the bartenders and the soda fountain personnel series. We have material

ready to go to work on the manager or operator series, so in due time we will have the master file complete. It is our intention to duplicate these and they will be for sale. There will be no royalty attached to them, therefore, the price should be kept at a minimum. We hope to have them available for federal, state, city, county, industry, or other use.

In Missouri we shall supply each of our districts and larger cities with copies of the master file. Suggested "patter" for each section in the file will also be provided. The district and city personnel will be called together to "brief" them on this new material and its possible uses. Following this, a state representative will visit each area having a master file to assist in working out local problems. The Professional Food Handler Training Program will be carried out on the local, county, and district levels. The state will offer training and assistance in presenting these training programs and will keep the master file alive and up to date. It will be the responsibility of the city, county, or district to carry out the "follow-up" which is just as important as the training program.

In addition to the training program and follow-up, the state advocates that a portion of this program be used for the general public and in the public schools. We must teach the public the things they should expect to receive and encourage them to demand such "sanitary courtesies."

Value of Routine Fluorograms as a Measure for Detecting Cardiac Abnormalities

Report of Findings on 14,235 Routine (35mm) Photofluorograms

GERALD BERENSON, LT.* (J.G.) (MCR) USNR

Main Dispensary, Camp Le Jeune, N. C.

A RELATIVELY new phase of preventive medicine was introduced less than ten years ago, with suitable techniques for taking routine inexpensive x-rays of large groups of the population. By photofluorography, early detection of otherwise unsuspected or asymptomatic cases of tuberculosis was made possible in mass surveys—an incalculable boon to public health. Since the report by de Abreu,¹ generally credited with the first large-scale application of photofluorography, numerous reports have appeared describing results of routine studies on thousands of people.

Although originally intended for discovery of pulmonary tuberculosis, fluorography has been mentioned as a means of finding other diseases of the chest. Several authors have listed the discovery of cardiovascular diseases with various thoracic abnormalities among the results of mass examinations taken primarily to uncover hidden pulmonary disease.²⁻⁸ The advantage of detecting heart disease on routine inexpensive film of large numbers of people is obvious. In one of the first reports on fluorograms, Beck² noted a considerable number of cardiovascular conditions, including hypertensive heart disease with widening of the aortic shadow and fusiform dilatation of the aorta, aneurisms, etc. A relative increase in size of

the chambers of the heart and abnormalities in the several cardiac chambers were found. He stated that the miniatures were extremely enlightening, particularly when made at a 7 ft. distance, the distance at which the rays are nearly parallel and the outline of the heart can be accurately related to the transverse diameter of the chest. In addition to pulmonary and cardiovascular conditions, information has also been obtained concerning skeletal disorders (dorsal spine, ribs, and clavicles), tumors, and diaphragmatic abnormalities.

Heart disease demonstrable by x-ray is rather common. If properly looked for by the interpreter during mass investigations with these small films, a more frequent detection of persons with cardiovascular disease will be the result. Some of these cases will have been completely unsuspected heretofore. In this group one would expect the maximum of benefit, socially as well as to the patient. The ability to detect cardiac abnormalities is a possibility not usually realized in the ordinary interpretation of these films. Valvular disease of the heart, hypertension, and congenital abnormalities usually result in dilatation or hypertrophy of one or more cardiac chambers; characteristic enlargement of certain portions and resultant change in cardiac contour enable one to diagnose cardiac disease by x-ray. The miniature fluorograms differ essentially from large

* Department of Medicine, Tulane Medical School, New Orleans, La.

chest plates only in size. Thus, photofluorography constitutes a valuable additional technique for discovering certain cases of heart disease. With the development of photofluorography, the inadequacy of physical examinations to detect asymptomatic pulmonary tuberculosis became apparent, particularly in induction and separation centers; the ability to discover other chest diseases such as cardiac abnormalities greatly increases the value as a supplement to mass examinations.

The cost of taking care of a case of tuberculosis in a veteran of the armed services of the United States and Canada approaches \$10,000.^{8,9} The necessary expenditure for a case of heart disease may or may not reach this amount, but because of the frequency of cardiac disease revealed in routine chest x-ray examinations, an investigation to discover cardiovascular aberrations, as well as pulmonary diseases, is certainly warranted. During the studies for tuberculosis further investigation for cardiac difficulties would well compensate for any effort put forth. The usual incidence of active tuberculosis found on several surveys approximated 1 per cent.^{4, 10-13} The prevalence of heart disease demonstrable by x-ray in this group was of a percentage significantly higher alone to have warranted the use of mass fluorography.^{12, 14} It is common knowledge that heart disease is found in a larger proportion of any given population than is tuberculosis. The early detection of tuberculosis has resulted in decreased expenses to the government. Necessarily, therefore, such early discovery of heart disease would not only be of great economic advantage but would be of inestimable value to the patient and all concerned.

REPORT OF SURVEY

Material—This survey covers 14,235 miniature films (35 mm) taken as routine fluorograms of Marine and Naval

personnel stationed at Camp Le Jeune, North Carolina, over a 10 month period from January to November, 1947; 817 were civilians applying for positions as civil service workers. The ages of the subjects ranged from 17 to 60 years; the majority were young Marines just entering military life. The younger men, by far the largest group, had been investigated previously in a similar manner. Another group was of men being released from or reenlisting with the Marine Corps, men who had not been x-rayed since their enlistment, four or five years prior thereto, and a small remainder of older men with longer service histories. (As one would expect, this latter group offered a larger amount of pathology, than of hypertensive cardiac enlargement.) A few military subjects had not been x-rayed previously. This is explained by the fact that the Navy began using fluorograms routinely on a large scale only six years ago, when equipment became available.^{10, 13} For the most part, the men were examined by x-ray since their entry into the Marine Corps. The civilian group varied markedly from the Marine personnel in that they were of an older age, men released from service, and many not considered acceptable for military life; a minority were women.

Because of the complexity of the group, no statistical inference will be made. It is not feasible to compare this group with a cross-section of civilian population, nor with the groups to be x-rayed at the next annual survey, when there may be greater stabilization of military personnel. Further, it is not a group similar to that of an induction or separation center. These subjects were of a select group, considered far above the physical status of the average population.

Method—The examinations were performed with miniature (35 mm) fluorograms. For those cases suspected of having any abnormality of the chest

CARDIOVASCULAR ABNORMALITIES

<i>Conditions</i>	<i>No. of Cases</i>	<i>Total No. of Fluorograms</i>
Cardiac enlargement		
Hypertensive basis		
(3 civilians)	18	14,235
Aortic and Mitral insufficiency	1	
Abnormal cardiac contour without definite enlargement		
Aortic insufficiency	1	
Mitral stenosis and insufficiency	1	
Recovered rheumatic heart disease *	1	
Coarctation of aorta (civilian)†	1	
Dextrocardia without situs Inversus viscera	3	
Funnel chest—causing picture resembling cardiac enlargement	2	
Epicardial fat pads resembling enlargement	2	
Dextro-position of aorta	1	

suggesting active disease, 14"x17" film was used to confirm or rule out the impression gained from the smaller film. When indicated, the men were examined and questioned and if necessary were admitted to the ward of the dispensary for establishment of a diagnosis when possible. Certain inherent obstacles were met with just as would be the case in any study of this sort. Technical difficulties, inability to reach cases requiring further examinations, particularly civilians, and lack of facilities for carrying out

complete diagnostic or follow-up studies precluded a thorough investigation. Therefore, a few suspected cases of heart disease are not included in the results. By and large, the survey was complete. The following tables summarize the more important abnormalities diagnosed after the initial detection on fluorograms.

Numerous other conditions not listed in the above tables were found and investigated when deemed necessary. Obliterated costophrenic angles, azygos lobes, elevated diaphragmatic leaves, peripheral lung calcifications, resected ribs, cervical ribs, scolioses of dorsal spine were among the findings. Evidence of old healed empyemas, many with surgical drainage, composed a fair group of men reinvestigated. The majority of the personnel of this series was considered "healthy Marines"; studies of unexplored groups by public health departments, hospitals, and communities should reveal more productive results.

DISEASES OF THE CHEST OF A NON-CARDIOVASCULAR NATURE IN THE SERIES

<i>Conditions</i>	<i>No. of Cases</i>
Pulmonary Tuberculous lesion‡	
a. Far advanced tuberculosis	1
b. Moderately advanced tuberculosis	4
c. Minimal tuberculosis	5
Mediastinal tumors	2
Bronchiectasis	1
Bronchogram (lipiodol instillation previously).	1
Fractured first rib	2
(one resembled a tuberculous lesion requiring lordotic views for differentiation from an intrapulmonic defect).	
Enlarged mediastinal shadows	
Mediastinal lymphadenopathy	2
Sarcoid (?) (civilian)	1
Miliary calcifications—	3
(Histoplasmin (+) and tuberculin (—))	

* This patient gave a history of having rheumatic fever associated with "murmurs and heart enlargement," being ill for a period of 4 months about 1 year before his fluorogram was taken. Physical examination was negative and further x-rays revealed no definite cardiac enlargement but did show a rounding of the left ventricular border, suggestive of left ventricular enlargement.

† Operated on recently, and following operation has been doing well.

‡ Three of these cases were civil service applicants.

DISCUSSION

The purpose of this paper is not to discuss the arguments for or against 35 mm size fluorograms. Any one of the several smaller sizes of film meets the criteria for mass procedures of this sort—practicability, economy, and general suitability, with slight advantages for each. They have already proved their value in mass radiography.¹⁵⁻¹⁹ Further experimentation will undoubtedly continue to improve present methods until some of the remaining technical difficulties are solved. Perhaps a larger standard-sized film than used in this survey will come into general use, but increased resolution of film, fluorescent screens of greater brilliance, decreased aberration of lenses, and improvement of the viewers, are the prime needs at the moment to increase the standard of quality to approach conventional technique.^{13, 20-22}

It was stated in reports by Hirsch that fluorography sufficiently delineated the position and shape of the heart and that with suitable correction factors the diameter of heart shadows could be determined according to the methods used in teleo-roentgenography.²³ Although the value of mensuration is realized, true measurements can be obtained only when the projection error of the rays is minimal. Usually the films are taken at a 6 ft. distance and some distortion occurs, with the heart appearing proportionally larger, though only slightly; the contour is not altered. Actually the appearance in fluorograms has its advantages in suggesting enlargement earlier. Nevertheless, when one has become accustomed to interpreting fluorograms he can quickly gain an *impression* from the cardiac size and contour whether any radiographic evidence of heart disease will be present. The most difficult evaluation is to differentiate true cardiac enlargement in a hypertensive from a heart transversely placed in a hypersthenic and obese individual; similar puzzling views are not uncommon on

14"x17" film, despite attempts to eliminate the difficulty with thick-set persons by views taken in full inspiration and adequately exposed. Another difficulty which may lead to a misinterpretation is the prominent pulmonary conus frequently found in hyposthenic habitus. It must be stressed that the identification of heart disease from a chest film, regardless of size, is difficult; and a specific diagnosis without clinical investigation is to be condemned.

The number of cases of heart disease in this survey was larger than the incidence of pulmonary tuberculosis. This suggests that surveys of the general population, on older group, would reveal a further increase in the incidence and proportion of cardiovascular disease.

CONCLUSIONS AND SUMMARY

1. It is possible to detect cardiac abnormalities on routine fluorograms. Accurate diagnosis requires confirmation by further clinical investigation.

2. It is suggested by this series that the number of persons with demonstrable cardiac abnormalities on routine fluorograms is greater than the number of persons with tuberculosis in a given population.

3. Invaluable gains can be made when unsuspected heart disease as well as other thoracic diseases are diagnosed.

4. In any fluorographic survey cardiac disease should be looked for.

This report has been presented with the hope that roentgenologists interpreting miniature fluorograms will make an attempt to detect cardiac abnormalities routinely as well as those of a tuberculous nature. Accurate diagnoses must be made by clinical studies. The discovery of heart disease by mass fluorography is important, socially as well as economically, and it is submitted that this importance is comparable socially and economically to that of fluorographic tuberculous case finding.

The above report is not to be con-

strued as official or reflecting the views of the Naval Medical Department.

REFERENCES

1. de Abreu, M. Process and Apparatus for Roentgen Photography. *Am. J. Roentgenol.* 41:662-666, (Apr.), 1939; Collective Fluorography, *Radiology*, 33:363-371 (Sept.), 1939.
2. Beck, R. J. Miniature (35 mm) Radiographs in the Examination of Psychotic Patients. *M. Bull., Vet. Admin.*, 18:129-135 (Oct.), 1941.
3. Sutherland, C. G. Fluorography. *Am. J. M. Sc.*, 199:737-745 (May), 1940.
4. O'Loughlin, B. J. A Study of 24,615 Separation Chest Roentgenograms. *Radiology*, 48:389-391 (Apr.), 1947.
5. Kinzer, R. E. The Chest X-ray Examination: Analysis of Disqualifying Conditions Among 105,141 Selectees. *J.A.M.A.*, 128:499-502 (June 16), 1945.
6. Bew, D. F., Tilney, R. W., and Maher, W. E. J. A Review of 283,225 Chest Photofluorograms at the United States Naval Personnel Separation Center, Lido Beach, Long Island, New York. *U. S. Nav. M. Bull.*, 47:749-753 (July-Aug.), 1947.
7. Cooper, E. L. Pulmonary Tuberculosis in Recruits: Experience in Survey by Microdiographic Methods. *Brit. M. J.*, 2:245-248 (Aug.), 1940.
8. Spillman, R. The Value of Radiography in Detecting Tuberculosis in Recruits. *J.A.M.A.*, 115:1371-1378 (Oct. 19), 1940.
9. Richards, G. E. A Discussion on Surveys of the Chest with Comments on the 14 x 17 inch Film as Used by the Canadian Army. *Am. J. Roentgenol.*, 47:66-70 (Jan.), 1942.
10. Britten, S. A., and Charter, W. V. Routine Photofluorographic Examinations of Naval and Marine Corps Personnel: End result. *U. S. Nav. M. Bull.*, 47:733-738 (July-Aug.), 1947.
11. Tice, F. Miniature X-ray Film in the "Total Survey." *J.A.M.A.*, 115:1254-1257 (Oct. 12), 1940.
12. Hillbroe, H. E., and Morgan, R. H. *Mass Radiography of the Chest*. The Year Book Publishers Inc., 1945.
13. Behrens, C. F., and Britten, S. A. Five Years of Photofluorography in the Navy, *U. S. Nav. M. Bull.*, 45:1203-1207 (Dec.), 1945.
14. Robbins, A. B., and Ehrlich, D. G. Group X-ray Surveys in Apparently Healthy Individuals, *Radiology*, 34:595-606 (May), 1940.
15. Birkelo, C. C., Chamberlain, W. E., Phelps, P. S., Schools, P. E. Zacks, D., and Yerushalmy, J. A. A Comparison of the Effectiveness of Various Roentgenographic and Photofluorographic Methods. *J.A.M.A.*, 133:359-365 (Feb. 8), 1947.
16. Plunkett, R. E., Weber, G. W., and Katz, J. Comparative Value of Roentgenphotographic Methods, *A.J.P.H.*, 31:772-776 (Aug.), 1941.
17. Christie, A. C. Evaluation of Methods for Mass Survey of the Chest. *Am. J. Roentgenol.*, 47:76-82 (Jan.), 1942.
18. Block, R. G., and Tucker, W. B. Indispensability of Routine X-ray Examinations of the Chest in General Clinics. *Am. Rev. Tuberc.*, 50:405-417, 1944.
19. Potter, H. E., Douglas, B. H., and Birkelo, C. C. The miniature X-ray, *Radiology*, 34:283-291 (Mar.), 1941.
20. Lindberg, D. O. N. Suggested Modifications of Technique for Roentgen Photography. *Am. J. Roentgenol.*, 41:867-869 (May), 1939.
21. Potter, H. E. Technical Factors Underlying Miniature Roentgenography of the Chest. *Am. J. Roentgenol.*, 47:51-75 (Jan.), 1942.
22. Lewis, I. Photofluorographic Roll-Film Reviewers. *Pub. Health Rep.*, 61:294-297 (Mar.), 1946.
23. Hirsch, I. S. Fluorography; Photography of Fluorescent Image. *Am. J. Roentgenol.*, 43:45-52 (Jan.), 1940; Fluorography: Its Technique and Application. *New York State J. Med.*, 40:1579-1585 (Nov. 1), 1940.

Even with the Law on Our Side

R. P. FOWLER

Bacteriologist, Loraine District Department of Health, Oberlin, Ohio

FOR many years public health workers have been writing articles for scientific journals. Some have recounted the incidents connected with outbreaks of epidemics which could have been prevented with the help of the "law." In this article we shall relate a series of incidents which ought to have caused an epidemic and only through the Grace of God did not—even though the "law" was on our side.

It is probable that no human food has had the benefit of so many millions of dollars of advertising as milk. If the eating propensities of Americans ever transmute us into a food-worshipping people, there is little doubt that the colossal image which will symbolize our God, or Goddess, will be a cow or a milk bottle. It is possible that all of this salesmanship accounts for the childish trust placed in the sanitary quality of any white liquid in a milk bottle of common or peculiar shape, though public health officials have fought long and sometimes bitter battles to guard the public from its misplaced faith.

Small wonder then that the saga of Typhoid Mary is one of the classics of United States folklore. It has been repeated, with variations, in many, many small communities, and some large ones. There is just cause for the harsh laws which have been passed to keep potential polluters of our abundant stream of life at a safe distance from the source of supply.

Our own health district took a sip—even more than a sip—of milk containing typhoid organisms, in 1926. In the

summer and fall of that year, 154 cases of milk-borne typhoid occurred in Wellington, a village of about 2,500. The source was found to be a typhoid carrier who worked on a farm which supplied milk to a local dairy. During the preceding summer he had worked in a dairy in a neighboring county. An outbreak of 60 cases of typhoid fever among the patrons of that dairy was the accompaniment of his employment there, but he was not apprehended during the investigation. The next year he made his way to a farm supplying the Wellington Dairy. Ohio law forbids a typhoid carrier to engage in the food or dairy business. This carrier, when apprehended, was, therefore, legally separated from his calling—that of a herdsman. Fortunately, the State Department of Health found him a job, about its offices, where he worked until his death some years later. That was an easy victory for the law, but in the saga we are now to recount, the law trod a rougher path.

Our story begins late in August, 1931, when the Lorain County Health Department was notified by a physician that a young woman patient had typhoid fever. The patient was the daughter of a dairy farmer living in the county. The girl's father, a man of about 50, had had typhoid fever in 1895. The typhoid bacillus was isolated in a stool specimen secured from this man while conducting the routine epidemiology on his daughter. Here was a typhoid carrier.

Good sense and accepted sanitary procedure demanded that the carrier (whom we shall call W.) should at once be

prohibited from handling milk. Such orders were immediately issued by the Health Commissioner and were approved by officials of the State Board of Health. Everyone understood that it would not be easy for W. to comply with the order, but the dangers involved in any other arrangement were so great that he would have to. Besides, it was the LAW.

In May of the following year (1932) a representative of the Health Department found W. handling milk. He was arrested and charged with operating without a license and selling raw milk at retail without bottling. The case was nolledd upon W.'s agreement to sign a statement saying he would personally quit milking and handling milk.

On March 17, 1934, W. was found milking a cow. He said he intended to continue. The law was resorted to again, and after numerous delays and postponement of the trial, a jury found W. "not guilty" because it was not convinced "beyond a reasonable doubt" that he was a typhoid carrier. The doubt grew out of the fact that W. had not been seen to void the stool in which the original finding of the typhoid bacillus was made. In fact, he said he had taken it from the privy which was at the far end of his barn.

The problem of establishing W.'s carrier status was turned over to the State Board of Health at this point. This body wrote several letters but never secured W.'s cooperation. On November 10, 1934, the case was returned to the local board of health.

The local board next undertook the drafting and passage of new milk regulations, since it was the opinion of counsel that those in force did not supply adequate coverage of the case. These regulations were passed July 13, 1935, and forbade a typhoid carrier to live on a dairy farm without the written permission of the Health Commissioner.

W. was, of course, refused permission

to reside on his farm while milk was being sold. Although he had been notified the preceding March that new regulations were being drawn and that such a clause would be included, he continued his residence there. During this period the following sign was found posted in the milk dispensing room, where all customers could see—"This Milk Not for Human Consumption." The Milk Ordinance was then amended June 12, 1936, so as to deal with this new move. Two places in this ordinance containing the phrase "for human consumption," 4 "for consumption," and 8 "to consumer," were removed from the ordinance. This legal refurbishing never had to be put to the test, as subsequent events took the case in other directions.

On July 20, 1936, a purchase of milk was made at the W. Dairy, and legal action again started. After one postponement of the case by the court, the prosecution was informed by counsel that a demurrer to the affidavit had been filed and granted and that "the case cannot be heard until the demurrer is decided upon." This was on September 4, 1936. During the ensuing 6 months a number of attempts were made by the Health Commissioner to make contact with counsel, to learn what was holding up the action. All attempts being unsuccessful, the Board authorized the Commissioner to see whether the County Prosecutor would handle the case.

The County Prosecutor visited W. promptly, and after some correspondence with W. and his attorney advised the Health Commissioner that the gentleman in question was ready now to comply with all regulations, and that he was "having a typhoid test by his personal physician."

There being no word subsequently from W. or his counsel, the County Prosecutor took the case before a Common Pleas Judge, who ordered W. to comply or go out of business by August 1, 1937. Later in August, 1937,

the State Director of Health advised that a stool specimen from W. had been found negative by an unaccredited private laboratory. The State Director's suggestion that further specimens be sent to the State Board of Health Laboratory was passed on to W. and his physician. This advice was followed and a positive finding was made by the State Laboratory.

One would think that this confirmation of W. as a carrier would have cleared the legal air, but such did not prove to be the case. W. continued to press the Board of Health for a permit, and finally on August 11, 1937, one was approved with the stipulation that a letter accompany the permit setting forth the requirements which W. must meet. This step was scarcely taken when on August 14 the County Prosecutor notified the Board that the Common Pleas Court had enjoined W. from handling milk and milk utensils.

These developments were followed by a communication from the State Director of Health to W., stating that W. was a proven carrier and that he, as Director, forbade him to engage in any occupation connected with food or milk supplies.

On August 23, 1937, W. was arraigned in Common Pleas Court, on the complaint of the Health Commissioner that the court order of about June 1, 1937, "to comply with the regulations of the Health Department by August 1, 1937" had not been fulfilled. (It was noted at this time that there had never been a hearing on W.'s arrest in July, 1936. The Health Department had been represented in that case by the police prosecutor of the city near W.'s residence.) After the usual delays, the Health Commissioner was able to report to his Board on October 19, 1937, that the Common Pleas Court had found W. "guilty of being a typhoid carrier" and had ordered him to have no personal contact with the milk business; but to see that the quality of the milk con-

formed to the standards of the Lorain County Health Department. W. was also ordered not to use the privy or any part of the dairy barn for disposal of his excreta, until he could produce evidence that he was no longer a typhoid carrier.

It is of interest that during the following month, November, an attorney from the city near W.'s dairy sought information about W. The son of a client of his was ill with typhoid fever. The family used milk secured from the W. Dairy. A suit to obtain damages from W. was contemplated. The record does not show whether or not this suit was filed.

W.'s permit to sell milk was not renewed January 1, 1938. It seems probable that this position was taken because of extensive Bang's disease infection in the herd. A program of 60 days' retesting was set up and the minutes of the Board of Health contain several references to improved coöperation on W.'s part. On June 14, 1938, he was given a permit. This does not mean that no milk was sold by the W. Dairy, from January 1, to June 14, but that the degree of noncompliance argued against issuance of a permit. On the other hand, apparently improved relations did not suggest prosecution for operation without the permit.

On the 30th of the same month (June, 1938) a report of a case of typhoid fever was received from the Health Commissioner of the city near W.'s dairy. The report suggested that the epidemiology of the case pointed to the W. dairy as the source of infection.

Repeated tests of the animals in the W. dairy herd and removal of reactors did not materially reduce the Bang's disease. In July, 1938, W. was asked to pasteurize his milk. He agreed to do this and the plant was put in operation about December 1, 1938.

In October, 1941, the Health Commissioner of W.'s neighboring city reported

another case of typhoid fever, writing, "only source of infection that can be determined is W. dairy." He said that he understood that W. was handing out bottled milk to customers, in violation of the court order issued several years previously. This could not be proved.

However, on March 16, 1942, W. was found in his barn milking cows. He said he had been doing it for some time because of the shortage of help, and asked what would be done about it. A motion for citation in contempt of court was filed in the Common Pleas Court, in April, 1942. On June 29, 1942, W. was found guilty and fined \$300 and sentenced to 10 days in jail on each of four specifications. The judge, however, ordered that the fine should be paid on one judgment only, and that the jail sentences should be served concurrently.

This should have settled once and for all the trying relations between W. and the Health Department, and given the public the protection it needed, but no such happy solution resulted.

The question of a renewal of the license—or the granting of a license—to the W. Farm Dairy, Inc. was immediately raised. By this time the demand that W. separate himself from the dairy business had been met by the formation of "The W. Farm Dairy, Inc.," with Mrs. W. as President of the concern. Mr. W.'s attorney sent word that "W. is no longer residing in the home." Counsel for the Health Department at this stage of the game was the Assistant County Prosecutor, since the Prosecutor had represented W. in his successful jury trial in 1934. The Assistant Prosecutor advised the Board that a permit should be issued to The W. Farm Dairy, Inc. "provided W. no longer works or resides on the farm." The permit was issued September 15, 1942. Note was made of the fact that a man and his wife had been employed to operate the dairy. This couple stayed approximately two months.

W. then requested permission to work on the farm until crops were harvested. This was discussed for some time and the request was finally granted. But on November 21, W. was still seen on the farm and objection was made to this. Nevertheless, a permit for 1943 was issued on advice of counsel, again with the stipulation that W. was not to work or reside on the farm. W.'s counsel countered with the statement that the corporation was complying with all laws, and that no further action was necessary "until the declaratory judgment case is heard." This declaratory judgment case was an action, carried to the Supreme Court of Ohio, testing the Common Pleas Judge's correctness in refusing to consider a motion for a new trial, because it was filed too late following the trial on June 23, 1942.

The Supreme Court of Ohio announced on February 10, 1943, that it would not consider the petition of W.'s counsel in the above declaratory judgment. W. was taken to the county jail to start serving his 10 day sentence. He was released after $2\frac{1}{3}$ days, on a habeas corpus action, granted by the Court of Appeals.

W. was then cited immediately by the Assistant Prosecutor on a new contempt of court charge based on evidence secured by deputy sheriffs when they went to his home to take him to jail. They found him in the barn.

He was again found in the barn by a Health Department inspector, before the hearing on the second contempt case. During this interval a public sale was held on the W. farm. Some of the cattle and part of the equipment were sold.

On March 23, 1943, the Common Pleas Court Judge found W. guilty in the second contempt case and pronounced a sentence of 10 days in jail, and a \$500 fine. Motion for a new trial was filed immediately by the defense. W. was taken to jail but was released

after 2 days on bond fixed by the Court of Appeals.

The habeas corpus writ on which W. had been released from jail following his conviction in the first contempt case was passed upon by the Court of Appeals on June 28, 1943. The Appeals Court sustained the judgment of the Common Pleas Court. On June 29, 1943, he was held in contempt and was taken to jail, but was released the following day. The following Journal entry was made by the Clerk of Courts June 30, 1943: "The defendant herein, having this day paid to the Clerk of Courts the sum of One Hundred fifty-three and 47/100's Dollars (\$153.47), and all unpaid costs to date, the Court, on its own motion, does suspend the second fine of \$500.00 and ten (10) days in jail and also the unserved days in jail under the first conviction, said suspension to continue so long as the defendant complies with the injunction here." So ends the official record of twelve years of legal sparring, for the "W. Farm Dairy" surrendered its permit and no evidence of milk sales has been observed since.

Examination of the records of the Clerk of Courts and inquiry of the county sheriff show that in all W. paid one \$300 fine, \$119.11 in court costs and served $5\frac{1}{3}$ days in jail. This seems modest treatment in view of the fact that there were six arrests and that the charges involved a matter of extreme importance to the public.

If profit is to come from this article, we believe it will come because we have

highlighted the fact that "having the law on your side" and "knowing that you are right" does not always protect the public. The average farmer, bent with work and marked by the elements, is a defendant whose appearance and vocation weigh heavily in his favor. This point, perhaps, cannot be fully appreciated by those who deal only with city dwellers. Also, the necessity for keeping our story in hand has prevented a recital of the multitude of legal devices such as demurrers, postponements, appeals, habeas corpuses, etc., which prolong the danger period. Implicit evidence of this is the fact that although constant effort was exerted for twelve years to keep W. away from milk, he was repeatedly found in contact with it. At one time the Health Department had cases pending against this defendant in the Common Pleas Court, the Court of Appeals and the Ohio State Supreme Court. It may be helpful to point out that no case was won in courts below the Common Pleas Court, and none was lost in the Common Pleas or higher courts.

Finally, it might be pointed out for the benefit of those workers in public health who have not realized it before, that one of the foundation stones of legal philosophy in this country is that it is better for many guilty persons to go unapprehended than to have one innocent person convicted.

Awareness of this principle is imperative as regulations are being drafted, evidence collected, policy formed, and affidavits drawn.

American Journal of Public Health

and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

November, 1948

Number 11

Editorial Board

REGINALD M. ATWATER, M.D.
Chairman, and Managing Editor

LEONARD GREENBURG, M.D.
PROFESSOR JOHN M. HENDERSON
RALPH S. MUCKENFUSS, M.D.

STUART MUDD, M.D.
RAYMOND S. PATTERSON, PH.D.
GEORGE ROSEN, M.D.

C.-E. A. WINSLOW, DR.P.H.

C.-E. A. WINSLOW, DR.P.H., *Editor*

AUGUSTA JAY, *Editorial Associate*

NURSING AND NURSING EDUCATION

THERE have been two major signposts on the road to a clearer comprehension of the rôle of the nurse in modern society and of her preparation for her calling—Josephine Goldmark's classic report for the Committee for the Study of Nursing Education in 1923, and the monograph, "Nurses, Patients and Pocketbooks," prepared by May Ayers Burgess for the Committee on the Grading of Nursing Schools, issued in 1928. Esther Lucile Brown has given us a third document of almost equal importance in a recent report, "Nursing for the Future," prepared for the National Nursing Council and published by the Russell Sage Foundation.

Perhaps the most outstanding feature of this document is its recognition of the complexity of the problems involved. Dr. Brown analyzes the actual functions fulfilled in the provision of nursing care and makes it clear that there are at least two quite different types of workers needed in "nursing"; and that—for the present at least—a third, middle category must be recognized between the other two. So long as attention is focused solely on the graduate nurse, "no other avenue is open except that of the present frantic and probably futile effort to recruit more prospective R.N.'s. Even appreciably better educational preparation is likely to be denied them, so insistent will the demand for nursing service continue to be. Once emphasis is shifted to *nursing*" (rather than to nurses), "however, several roads seem to point to potentially larger supplies of service and to possibly increased efficiency both on the nonprofessional and the professional levels."

In connection with a group of simpler functions, there is clearly a need for what Dr. Brown describes as "non-graduate" nursing service, such as is rendered by the "practical nurse," or attendant, the orderly and the ward maid. As to the preparation of the practical nurse, the 1947 study of the U. S. Office of Education is cited with general approval; and Dr. Brown notes the opportunities offered by vocational or adult education units of the public school system. She points out, however, that "No system of training for practical nurses is likely to succeed unless the public that creates broad general policy and provides funds, educators who design and operate instructional programs, hospitals and agencies that provide

clinical facilities, and nursing associations and state boards of control that set standards and influence recruiting are prepared to manifest an *active* interest in practical nursing far beyond any interest yet shown."

At the other end of the scale, Dr. Brown discusses with admirable clarity the functional rôle of the "professional nurse." She analyzes in some detail the responsibilities of such a nurse as a skilled technician, as a minister of the healing art (with particular emphasis on psychotherapy), and as a specialist in supervision, administration, teaching, consultation, planning and promotion of professional activities and public health nursing (above its lowest levels). It would be desirable that Chapters IV and VI of "Nursing for the Future" be made required reading for the individuals and groups who are now advocating various nostrums for the cure of the nursing shortage, without knowledge of the actual status of nursing and nursing education which can alone make their pronouncements of significance. Dr. Brown recommends that the term "professional" when applied to nursing education "be restricted to schools (whether operated by universities or colleges, hospitals affiliated with institutions of higher learning, medical colleges or independently) that are able to furnish professional education as that term has come to be understood by educators." When operating in institutions of higher learning, such schools should be "autonomous units vested with the same status as the other professional schools." She urges that "individual persons, informed groups, and private corporate bodies including foundations and institutions of higher learning themselves, make the largest possible sums available for the creation and strengthening of soundly conceived college and university schools of nursing" and "further, that official bodies—local, state, and federal—concern themselves at once with supplying whatever additional resources are necessary for the adequate support of nursing education on the professional, as well as the non-professional level."

Between these two extremes—of the non-graduate nursing aid, on the one hand, and the truly professional nurse, on the other—stand the graduates of most of the hospital training schools of this country. Whether a middle group of nurses of this type will ultimately be desirable, Dr. Brown holds that we cannot conclude at the present time. It may be that the dynamic forces at work in this field will increase the number of "professional" nurses and raise the quality of "non-graduate" personnel so as to close the gap. At present, however, the vast majority of persons with any training in nursing, come from the middle group. A substantial proportion of the present schools should certainly be closed as "socially undesirable" or turned into training centers for non-graduate personnel. In a rating by the U. S. Public Health Service, of 1,125 schools of nursing participating in the programs of the Cadet Nurse Corps, 30 per cent were rated as "poor" or "very poor." The "fair" and "good" schools should be improved—in various specific directions, outlined in the report, with "experiments in simultaneously shortening the period of training but improving the course of study." The best of the hospital schools should be encouraged to attain professional status by affiliation with adjacent educational institutions. Dr. Brown strongly recommends that "nursing make one of its first matters of important business the long overdue official examination of every school"; and the widespread circulation of a comprehensive list of accredited schools, with the un-quivocal statement that this list includes all schools except those which had failed to meet minimum requirements or had refused to permit examination.

This report has been prepared with expert judgment, temperateness and vision. It presents principles which are essentially sound, and opens the door to fruitful

experimentation and planned progress. It is not a detailed blue print but a challenge.

The bright hopes with which we all hailed the Goldmark Report and the creation of full-fledged University Schools of Nursing at Yale and Western Reserve, a quarter-of-a-century ago, have not been realized. That example has not been followed by the general advances elsewhere which we anticipated. In preparation of personnel for nursing the sick, we have developed neither an adequate training for the non-graduate nursing aid, nor a sufficient number of high grade schools for the education of the professional nurse. Hospital training schools for the most part remain primarily convenient devices for securing unpaid hospital service. They cannot become, in any true sense, educational institutions, until they are provided with adequate funds for educational purposes.

Today, the shortage of nursing personnel makes the solution of this problem more immediately urgent than ever before. It is a problem which can be solved only by the vigorous and ample support of both private philanthropy and official governmental agencies. The solution must, however, be worked out by the nursing profession and sold by the nursing profession to the public. There is no body more open-minded and earnest in its response to new ideas than the nursing group. This group is reading the report and thinking about the report, and discussing the report. Something more than thoughtfulness is, however, demanded of the nursing profession today. It is a time for action.

WE PAY THE PIED PIPER

REMEMBER the story of the city of Hamelin? As a child I recall the feeling of loathsomeness that crept over me as I read of the trials of that little city in its efforts to rid itself of the uninvited and unwanted four-legged guests. There was the feeling of jubilation when the Pied Piper, that good fellow, walked down the street with all of the rats of the city intoxicated by the music of his pipe following him to their death. But the story ends with a tragedy; all of the children of the city are led away by the Piper because his bill for killing the rats was not honored.

Today we are paying the price of the Piper in practically every city of the nation, and in many parts of the world the Piper's penalty is being exacted—and we are not ridding ourselves of the rats!

Hans Zinsser in his delightful volume, *Rats, Lice and History*, quite appropriately dwells on the history of the rat and on its importance. He says, "It carries diseases of man and animals—plague, typhus, *Trichinella spiralis*, rat-bite fever, infectious jaundice, possibly trench fever, probably foot-and-mouth disease and a form of equine 'influenza.' Its destructiveness is almost unlimited." To this imposing array of health hazards can be added *Salmonella* infections through contamination of food by the discharges of rats.¹

The economic price paid for condoning the rat population in our midst has been estimated by numerous investigators. Silver (*op. cit.*) has estimated the rat population to be 60,000,000 on farms; 34,000,000 in non-farm country residences and in towns of less than 10,000 population; and 29,000,000 in cities of more than 10,000 population. This gives a total of 123,000,000 for the country as a whole. Various estimates place the cost of each rat at 2 to 4 dollars per year. Even in

these days of generous spending the loss is considerable. This is part of the Pied Piper's price we pay.

Food is a political force in the world now, perhaps as never before. We have been told that at least 400,000,000 bushels of grain must be made available to Europe to prevent starvation and the unrest that will otherwise be unavoidable. Recent estimates of the U. S. Department of the Interior put the loss of grain due to rats at 200,000,000 bushels per year. This loss is made up in part by the amount eaten, plus an even larger quantity rendered unfit for human consumption by rat contamination or damage. These 200,000,000 bushels can save many lives. Until we stop this avoidable loss we continue to pay the penalty imposed by the Piper.

Public health workers of all categories are now presented with an unequalled opportunity to reduce the danger to health presented by the presence of hordes of rats. They can contribute to the economic welfare and political stability of the world at the same time. The National Urban Rat Control Campaign sponsored by the National Committee for Rat Control, and the Fish and Wildlife Service, U. S. Department of the Interior, has riveted the attention of civic officials on the rat problem. Even though the amount of money made available for the use of this committee was woefully small, it has already stirred up nation-wide interest, has obtained numerous newspaper and magazine articles on the subject, and has appealed directly to the governing bodies of every city of 10,000 population or more for intensive action to eliminate the rat. By the end of June 570 cities had given serious consideration to active rat-eradication campaigns. To this, should be added the list of industries, granges, restaurant, dairy and similar groups that have taken up cudgels against this foe. The health department is the logical body to undertake a continuing program if present enthusiasm is to be used to the fullest extent.

There is no reason why rats cannot be kept in control in any area if public interest demands it—and makes funds available. The fronts upon which the rat population can be attacked remain fourfold: killing the rat itself by trapping, poisoning or gassing; depriving the rat of food supplies; elimination of breeding places; and ratproofing buildings to prevent access. For satisfactory control, all of the four methods of attack must be utilized. Furthermore, the program must not be a sporadic one but must be continuing, for best results. That is why the health department, because of its interest in rat eradication as a disease prevention procedure, seems particularly qualified to take leadership in the programs. The public must be convinced of the desirability of rodent control measures, and funds must be made available to permit the employment of properly qualified staff, and development of effective measures.

Recent activities serve to demonstrate ways by which resources can be brought to bear on rodent control programs. A recent paper in the *A.J.P.H.* relates experiences in Baltimore to show that citizen interest and participation can be obtained with satisfactory results.² The City of St. Louis has seen the advantages of a section of the Health Department, organized for the specific purpose of carrying on a rat control program.

The development of at least two new rodenticides makes the mass killing of rats easier. Antu (alphanaphthylthiourea) has been found particularly effective against the brown rat. Another new resource is Compound 1080 or just plain 1080 (sodium fluoroacetate). Although highly toxic to men and so necessitating close supervision by a thoroughly qualified person, use of this chemical has

produced phenomenal kills. The old stand-by, red squill, is back to pre-war potency, and other favorites are again available.

Numerous good bulletins have been prepared outlining methods for the most effective ways of achieving success on the four-front attack. The U. S. Public Health Service has done outstanding work in preparing usable pamphlets. Several of the state health departments have made commendable contributions in this field. Commercial pest control organizations are meeting their obligations by intensive publicity to their members telling them of new and approved methods.

Here is a "made" situation for every health department. There has not been any other opportunity as great as this for the creation and stimulation of effective rodent control programs. All members of the public health team, the administrator, engineer and sanitarian, the nurse, and the epidemiologist, are keenly concerned with the successful operation of these programs.

REFERENCES

1. Silver, James. The House Rat. *Wildlife Circular 6*, U. S. Department of the Interior.
2. Emlen, John T., Jr. Baltimore's Community Rat Control Program. *A.J.P.H.*, 37:721, (June), 1947.

THE COMMUNICABLE DISEASE CENTER AT ATLANTA

THE Communicable Disease Center of the U. S. Public Health Service was established in Atlanta, on July 1, 1946, but its purposes and possibilities deserve wider understanding than they have yet received.

The principal responsibility of this Center is to assist state and local health agencies in the control and prevention of communicable disease by providing, when requested, facilities not ordinarily available to their health departments. These facilities take the form of personnel, equipment, supplies, and professional services; the Center makes no monetary grants-in-aid.

To assist in the diagnosis of communicable diseases, the CDC accepts from state and local health laboratories limited numbers of reference specimens presenting diagnostic problems beyond the resources of these laboratories. To the technicians employed in these laboratories, it offers refresher courses in various fields of laboratory diagnosis. To maintain high standards of technician interest and performance, test specimens and materials are sent each month to a large number of health laboratories. Evaluation studies are conducted on the sensitivity and specificity of many laboratory procedures.

The CDC assists in the control and prevention of communicable diseases by transmuting appropriate scientific facts about communicable disease into experimental control practices, field-testing them on progressively larger scales and under diverse conditions, until their effectiveness and practicality are proved. It promotes the use of proven procedures by demonstration and by training health personnel in their utilization. Operational control programs, involving the efforts of several states, are coordinated by the Center and are expedited by its technologic assistance in the design, fabrication, and field evaluation of equipment for the dispersal of sprays, dust, and aerosols, and of chemicals used in the control of arthropods, helminths, and rodents of public health importance.

The Center provides investigative and consultative services for the states and communities where communicable disease outbreaks occur or where continued threat of such outbreaks may exist. At the request of state health authorities, epidemiologists and mobile laboratories are dispatched to the scene of epidemics

to determine their cause, sources, and extent. Where possible, control procedures are recommended and, in emergencies, are actually initiated, pending the mobilization of local and other resources. Veterinary public health assistance is offered in epidemics involving both man and the lower animals; consultative services are available, upon request, to state and local health agencies in formulating effective immunization regulations to prevent such outbreaks.

The Communicable Disease Center is the designated agency of the U. S. Public Health Service to render assistance to communities in major disasters. It works closely with the American Red Cross but directs its efforts specifically at the prevention of post-disaster epidemics and in the rehabilitation of local sanitary facilities.

Facilities are available at the Communicable Disease Center and in its training areas for the field training of public health personnel in the diagnosis, control, and prevention of communicable diseases. Publications and audio-visual aids of a technical nature are produced at the Center to implement the training program, and for use by state and local health departments and by certain professional schools. No materials are developed for lay or community health education. As a result of demonstrating and promoting improved techniques in the practical methods of control in communicable diseases, and by the training of health personnel in the field application of these methods, it is anticipated that state and local health departments will extend their interest and effectiveness in programs of communicable disease control.

LETTERS TO THE EDITOR

TO THE EDITOR:

I wish to thank you for your generous praise of the United States Public Health Service in the editorial which appeared in the July *A.J.P.H.* In it you have caught the spirit of increasing concern of both the people and the Congress for the nation's health as evidenced by an expanding Public Health Service program. Frequently, in our staff meetings, we have long discussions of some change proposed by the Federal Security Administrator or ourselves, in either management services or programs, and invariably some of us cling to the past and object to change only to find that the health picture and the programs of the Public Health Service are dynamic, and that with their constant change must come inevitable changes in our approach to the problems.

I appreciate your confidence in the Service and your kind words regarding

its administration of the trust bestowed in it by Congress and the people. I believe that health is now a major issue in the minds of all people and will continue to be that throughout time. I believe we are only scratching the surface at the moment and that the coming years will see far more official and voluntary action in the health field than we have had in the past, paralleled by general improvement in the health of the nation. One thing which we have jealously guarded in the past must be guarded in the future; the Public Health Service must remain a technical agency with broad authority, and must not in any sense be placed in a position where it can be guided by party or politics not in the best interest of health.

I believe that the next steps in public health should include provision of more adequate financial support to professional schools to enable them to secure

their present, and in some cases insecure, status, and to enable them to increase the number of persons being trained. This will help to overcome professional personnel shortages, improve training and increase the opportunities of the people for more adequate medical care.

I am hopeful that there will be a positive and successful drive in the next eighteen months to extend local health services throughout the nation, and that it will be possible within the next year to provide increased support for extension of these services by grants to states, at least up to the limit of the ceiling set by the 78th Congress in 1944. I am confident that the needs of the states for assistance will be more swiftly met by early passage of categorical legisla-

tion stressing the importance of local health units as the foundations for healthy, happy communities.

During my administration the Public Health Service will continue to utilize the best advice available from individuals and organizations outside government in the further development of its programs. If we develop our plans with their help, we can keep "State medicine" the good health service to the public which your editorial described—and history has shown our program to be.

LEONARD A. SCHEELE

Surgeon General

U. S. Public Health Service

August 23, 1948

TO THE EDITOR:

In his view of Carl Malmberg's *140 Million Patients** which you published last spring, Dr. George Baehr presents a criticism of nation-wide compulsory health insurance which deserves serious attention.

Dr. Baehr does not oppose compulsory health insurance in principle, and he recognizes essential inadequacies in voluntary insurance; but he fears that a national health insurance law would saddle us with more demands and obligations than we can meet and that we must *first* get more and better distributed doctors, hospitals, and local health departments; must extend group medical practice, voluntary health insurance plans and regional hospital organization; and must "educate the public and the medical profession concerning medicine in the changing order." The standards of the profession can thus be maintained and the quality of service improved.

I am in full agreement with Dr.

Baehr's objectives but I do not believe they can be attained unless we *first* have comprehensive public action on the economic problems of medical care.

Without national health insurance, organized medicine and its allies will be able to channel the inevitable growth of voluntary health insurance plans into forms quantitatively insufficient and in most cases qualitatively undesirable, compelling these plans in all but a few exceptional instances to fall within the pattern of individual practice, limited scope of service, unsupervised quality of care. Tax-supported medicine will also increase for special categories of persons and of disease. It will be available as a rule only to those who can pass a means test and will mostly be either direct state medicine or individual "panel practice."

I had hoped for an evolutionary development of group practice along with prepayment when I signed the *Report of the Committee on the Costs of Medical Care* in 1932, recommending essentially what Dr. Baehr now proposes. But observation of the course of events

* *A.J.P.H.*, 38, 4:573, (Apr.), 1948.

and analysis of the forces at work on all sides of these issues, have convinced me that this outlook is academic. By 1942 the door seemed to me definitely closed to the possibility that leadership from physicians like Dr. Baehr would be accepted by official organized medicine and followed by the body of the profession. Soon thereafter I expressed myself publicly, for the first time, in behalf of the prompt enactment of national health insurance, and have since done what I could to support and improve the legislation proposed to establish it.

The major professional problems of organization, distribution, and quality of medical services cannot be solved without more assured and more stable paying power on the part of patients, nor without some increase in paying power among self-supporting families of the middle and lower income groups and in the poorer areas. Nor can they be solved, I readily admit, by these economic measures alone. But the establishment of national health insurance would do more than merely provide the needed improvements in paying power. It would also create active demand among many laymen for improved forms of medical service, because it would assure the wherewithal to achieve these ends and would make it worth while to utilize the advice and leadership of progressive physicians and administrators.

It would remove the financial barriers to preventive services and to early diagnosis of disease. It would increase and stabilize rural paying power for physicians and hospitals, and would at long last reverse one of the major causes of rural medical impoverishment. It would

assure the continued independence of voluntary hospitals, and provide payment of cost-of-service for care rendered insured persons and their dependents.

Potential group practice plans and their doctors could be assured of income from the health insurance funds. A properly designed health insurance law would permit the majority of physicians to select the method of practice and payment which they prefer, and would also protect minority groups in the same freedom of choice. In sum, national health insurance would create new incentives for both laymen and physicians to achieve professional and economic goals conjointly.

The fear that national health insurance would be premature and disruptive arises partly from misunderstanding. Dr. Baehr shares this misconception when he says that the proposed law "would promise all workers complete and adequate medical care wherever they may live." No sensible advocate of national health insurance and no proposed legislation makes any such promise. I bespeak study of the actual proposals and of the timing of the steps toward their realization. It is time now for progressive physicians, public health and hospital administrators who work to improve the standards of medicine, to sit down with leaders in the lay groups who, as at the National Health Assembly, demand prompt, nation-wide application of the health insurance principle. By such coöperation, results desired by all can be achieved.

MICHAEL M. DAVIS

October 7, 1948.

Clearing House on Public Health Salary Information

WHY NOT JOIN THAT NEIGHBOR

The latest list of local health officers in Mississippi has just been received. It furnishes a classic text for a sermon that cannot be too often preached in the attempt to solve the problem of current personnel shortages which is due in part to salary levels that put health workers at a disadvantage with other professional workers of comparable training in a community.

Mississippi, with the lowest per capita income among the 48 states, has 82 counties, 9 of which had 1940 populations of approximately 50,000 or more and only 1 of which had more than 100,000 persons.

The list of health officers indicates that 52 counties, including the most populous 9, are organized to have single county health departments; 6 are organized in three bi-county units, 3 in a tri-county, and 4 in a four-county unit. Two of the single county departments, each serving populations of less than 20,000, are currently without the services of a health officer, as is the three-county unit with a population of nearly 50,000. Four counties are served by acting directors who have other responsibilities in the State Health Department or elsewhere. Significantly, 11 counties and a bi-county unit are served by acting directors who are the health officers of neighboring counties, and in two instances health officers are shared by two counties or by a county and a bi-county unit without their being reported as multi-county units. Of these 14 temporary combinations none serves a population of 100,000 and 6 serve fewer than 50,000 persons.

The inevitable question that comes to mind is "Why are the partners of these temporary companionate marriages not led to the altar and blessed with the marriage lines?" Does a county with 19,000 population hope to attract or pay for a trained health officer and other professional personnel in the present market, or for a long time to come? Is not this the time to snatch victory out of adversity?

It should be added further that Mississippi has 8 counties with part-time health officers, presumably giving their major attention to private practice, and 7 unorganized counties.

If the findings of the Subcommittee on Local Health Units have any validity, the entire population of Mississippi could be served by from 30 to 40 local health departments. The state has 35 medical health officers currently on the job locally. Why should they not serve the entire state and their salaries be increased proportionately so that they would not be raided by states paying higher salaries? It cannot be too often repeated that suitable administrative organization is a part of the salary and personnel problem.

It should be added that a similar situation could be found in the list of health officers of any of a dozen other states. Mississippi is merely more up-to-date in furnishing a current list of health officers.

WHAT YOUR 1948 SALARY BUYS

Material that might be used with good effect in persuading appropriating bodies of the need for increasing public health salaries is an article in the August

13, 1948, *U. S. News and World Report* (24th and N Streets N.W. Washington 7, D. C.). Entitled "Where Buying Power Goes Up," this indicates that price rises have offset the 1948 tax cuts for the majority of persons, leaving them worse off in 1948 than they were in 1947. All persons with 1948 incomes of less than \$12,500 have less buying power in 1948 than in 1947. A married man with two dependents who had a net income of \$7,500 in 1939 needed to have \$15,809 in 1947 to have the same buying power as in 1939, but in 1948 he needed only \$15,168 or nearly \$600 less. But the man with an income of \$5,000 needed \$9,769 in 1947 and \$9,819 in 1948 to maintain his purchasing power. The \$2,500 man of 1939 needed \$4,511 in 1947 and \$4,664 in

1948 to maintain his standard of living.

"What all this means," the *U. S. News and World Report* points out, "is that people have had to change their ideas about salary ranges," and what that means to the appropriating body of County X is that if \$7,500 was a proper salary for its health officer in 1939, \$15,000 plus is its 1948 equivalent, and if he had reached the rarified atmosphere of a \$10,000 salary in 1939, he now needs \$20,650, if he is not to seek greener pastures in other states or other activities.

The report is accompanied by excellent pictograms in color that do not require the reader to be statistics minded in order to grasp the significance of the figures.

Credit Lines

A NEW TECHNIQUE FOR RECRUITING NURSES

The Ohio State Nurses' Association and the Cleveland Health Museum have coöperated in creating a special Nursing Education Exhibit entitled "What Nurses Do." It has a three-way goal: (1) to attract qualified young women to the nursing profession, (2) to tell the public about the nurse's educational backgrounds and the value of her services to the community, (3) to emphasize the varied duties in the six major nursing fields.

The exhibit had a preview showing in the Cleveland Museum of Health in October beginning with a special ceremony on October 2, at which Haven Emerson, M.D., made the keynote address. The exhibit is now being featured in special showings throughout the state.

A LIVING WAR MEMORIAL

The National War Memorial Health Foundation; A Living Memorial, The Plan for People's Centers; and Why People's Centers; are three pamphlets that tell how the idea for a living memorial to the 10,000 South Africans who gave their lives in the 2nd World War, was born among the South African troops themselves during the Italian campaign. The story goes that they read and reread the famous "Four Freedoms" on the lire notes they received as pay. They mused on the reasons why Cape colored troops of Africa showed a lower disease rate than European troops of Africa, though in Africa itself conditions were reversed. They suspected freedom from want was the answer and they planned a war memorial that would "bring to the needy of South Africa freedom from want and freedom from fear." And forthwith

they pledged 17,000 pounds out of their own army pay.

Out of this grew the health foundation which is concentrating its efforts on promotive health. People's centers are being set up to promote good health and living conditions for all sections of the country, with special regard to the needs of the non-European. Eight regional offices have been opened.

These pamphlets are available from the National War Memorial Health Foundation, P. O. Box 8446, Johannesburg, South Africa.

TEN YEAR DENTAL PROGRAM

A citizen's committee of Askov, Minnesota, which in 1940 was a hamlet of 312 people, initiated a request for a 10 year dental program which is now being furnished through the coöperation of the U. S. Children's Bureau, the Minnesota Department of Health, the Minnesota Dental Society, and the 6 practising dentists of Pine County.

The aim of the program is to find out how much dental improvement can be effected by using every known method of promoting dental hygiene. All Askov children from 3 to 17 years of age and other children attending the Askov high school, a total of about 350, will be included in the program.

There will be periodic application of fluorine to the teeth of children, brushing the teeth with a dibasic ammonia dentifrice, frequent dental checkups with prompt repair of all cavities, and continuous education in nutrition and general health measures.

The State Health Department's Dental Division Director, William A. Jordan, D.D.S., is supervising the program, and furnishes a dental health adviser. The actual dental work is being done

by the 6 dentists of the county, the community provides office space, a full-time clerk, and funds to pay dental fees of families who cannot pay their own. Preventive work is financed by the program, but corrective work is paid for by the families at a scale set by the participating dentists. The program began operation shortly after the opening of the school year in September.

TRAINING MANUAL, U.S.P.H.S.

Although orientation is already an overworked word, the concept that it represents—making it possible for a worker to see what he does in relation to the whole program of his organization and giving him perspective on its importance—is far too often forgotten. As an orientation and training manual for U. S. Public Health Service workers, the Communicable Disease Training Center at Atlanta, Ga., under the direction of R. A. Vonderlehr, M.D., has prepared "For the Nation's Health."

It has excellent historical material on the Service, and good short descriptions—with illustrations, humorous and photographic—of its activities. Though not intended for that purpose, it would also serve admirably to give workers in other fields and the public generally, perspective on this important federal agency.

The fly leaf says "Material in this manual is not for publication." But if it were wanted badly enough, the Communicable Disease Center, 605 Volunteer Building, Atlanta, Ga., might part with a copy.

WEST VIRGINIA'S MOVIES CATALOGUE

West Virginia has joined the list of state health departments that have prepared a list of films available on loan from the department's health education service.

The mimeographed list of some one hundred films is divided into 13 subjects; there is uniform name, facts, de-

scription, and suggested use information for each film as well as blank spaces for additional films on the subject.

The use of simple line drawings and colored paper on alternate pages and good workmanship generally make it a pleasing as well as a useful document. Also the list is prefaced with a discussion of the film as an aid in education but not as a substitute for the teacher. There are also suggestions on how to use films and exact instructions on film borrowing procedures. There is no indication whether it is available outside of the state but the address of the State Health Department is Charleston 5, W. Va.

TEXAS CANCER BULLETIN

Now in its fourth issue the *Texas Cancer Bulletin* is published bi-monthly by the Texas Cancer Coördinating Council, representing the State Medical Society, the State Health Department, the State Cancer Hospital, and the Texas Division of the American Cancer Society. On the theory that the family doctor is the one who sees cancer in its early stages, its purpose is to "convey to the physician in brief, meaty form, the results of important researches in the varied fields of cancer" with emphasis on the "time-tested and proven techniques" but not omitting "News."

It is also an excellent production job—attractive colors, good illustrations, print that is easy to read. Editor, Russell W. Cumley, Ph.D., M.D., Anderson Hospital for Cancer Research, Houston, Tex. \$4.00 per year.

MORE MINNESOTA HEALTH DAYS

In February, six southwestern Minnesota counties held a Health Day (*A.J.P.H.*, May, 1948, p. 718). This was followed by the formation of a number of local or county health councils. Six additional Health Days were held in September and October with

each group including from 5 to 14 counties and totaling 52 counties. Governor Youngdahl addressed each of the meetings which included group discussions of local health problems, health films, and keynote speeches. It is expected that local or county health councils will grow out of these district health days. The meetings were sponsored by the Woman's Auxiliary of the Minnesota Medical Association, and the State Health Department helped in organization and publicity. Twenty-four counties will be covered in future Health Days.

THE HOME TOWN REALITY OF A FEDERAL POLICY

Nearly two years ago the *Ladies Home Journal* started a Public Affairs Department under the editorship of Margaret Hickey, (*A.J.P.H.*, 37, 4:463). The October, 1948, issue has two related articles that are significant not only for the information they give but for their method of presentation. One article is "Next Steps in Medical Care," an analysis of the program of the U. S. Children's Bureau for the extension of maternal - and - child - welfare services through a doubling of Congressional appropriations between 1947 and 1948. The other article is "Mountain Mothers" which tells for the layman, or perhaps better the laywoman, the story of the Oneida Maternity Hospital serving the sparsely settled mountain region of Clay County, Kentucky, and financed in part by grants from the Children's Bureau. Miss Hickey makes real the hardships of the mountain women, the struggles the hospital management suffered from the time in 1941 when it opened with a staff of a nurse, a cook, and a doctor, to the present time when there is a staff of twenty-five and affiliation with the Louisville Medical School. This is an outstanding example of humanizing for the reader the general facts about coöperation between state and fed-

eral authorities and the principles of federal grants-in-aid to states for health and medical services needed and planned by local communities.

THE HABIT OF ANNUAL MEDICAL EXAMINATIONS

In his annual report, Edwin S. Burdell, director of Cooper Union (Cooper Square, N. Y. 3), says "If college students already haven't the habit of annual physical examinations, it is up to the schools to help them acquire the habit and to encourage those with ailments to do something about their defects in terms of appropriate private or public health organizations."

In accord with his belief that educational institutions must assume responsibility in the field of preventive medicine, Cooper Union's 2,000 undergraduates are required by its student health program to have physical examinations at least annually. Twenty per cent examined by the staff physician are found to have remediable ailments and are referred to appropriate specialists for correction. Sometimes also a reduction of subjects carried by the student is recommended until corrective measures have operated. In 1947-1948, 567 students were given supplementary examinations at their own request. In the same year, 1,753 students received chest x-rays of whom 2 per cent were referred to the Department of Health's Chest Clinic and three with active tuberculosis put under medical care.

ATTRACTING ATTENTION WITHOUT SHOUTING

Canada's Health and Welfare is less than three years old. But it would put many an older publication to shame. Its July, 1948, issue, which includes a Family Allowances Supplement, is a joy to behold with sprightly pictographs, simple writing, and subdued colors. The chart showing the allocation of the \$17,000,000 annual national health grants

for various purposes is an original way of presenting conventional pie chart material. Information Services Division, Department of National Health and Welfare, Ottawa, Canada.

KNOWING YOUR OWN DEPARTMENT

Among the innovations of Harry S. Mustard, M.D., Health Commissioner of New York City, is a manual for employees entitled "You and Your Department of Health." This 50 page document might well serve as a model for other health departments. It is neither mealy-mouthed nor saccharine but says what it means and means what it says. The mailed fist never appears but rather the velvet glove. It was prepared by the Personnel Bureau whose director is William Brody. It is amusingly and effectively illustrated by Tom Darling, of the New York Tuberculosis and Health Association, an interesting example of voluntary and official health agency coöperation.

A GOOD BREAKFAST CAMPAIGN

A recent sampling study of 1,200 West Virginia school children showed that only 10 per cent ate an adequate breakfast; of the other 90 per cent, one out of every ten had no breakfast at all. The State Nutrition Committee and the State Departments of Health, Education, and Agricultural Service took this to mean that a long-range Good Breakfast program was in order. A two year program is now being carried on throughout the state through newspapers, radio, posters, exhibits, leaflets, and other mass education media, and by county health departments giving such material to clinic patients, to families during home visits, to schools and other groups. The state health department is integrating the program in its nutrition activities.

An interim report, with charts, pictures, etc., about this program is available from Estelle Ingoldsby, Chairman,

State Nutrition Committee, State Department of Health, Charleston, W. Va.

WHAT SHALL CHILDREN LEARN ABOUT FOOD

In Union County, Florida (with a population of less than 10,000 and part of a tri-county health department), school health examinations revealed that nutrition was among the urgent problems needing attention. Instead of teaching the general theme "Good food is good for everybody; we should eat more of it," a study was undertaken to find what children were eating and in what respects each child's food was deficient. For three days all children in the third to seventh grades reported on what they had eaten. How the study was carried out, what it showed and what some of its health education by-products were is told in "What Shall We Teach Our Children About Food," available on request from Nutrition Investigations and Services, Florida State Board of Health, Box 210, Jacksonville, Fla.

OFFICIAL LANGUAGE NEEDN'T BE STUFFY

The Cancer Control Letter of the National Cancer Institute reached its 9th issue on August 17. It is written in refreshingly simple language that somehow manages in itself to satirize the gobbledygook too often found in official documents. Has a lot of valuable information and is presumably available from National Cancer Institute, Washington, D. C.

WORTH ACQUIRING

The Role of the Voluntary Health Agency in Promoting Public Health Services in Iowa is by George Nelbach, recently moved up from Secretary to Consultant of the New York State Committee on Tuberculosis and Public Health. An address made at the 1948 meeting of the Iowa Tuberculosis and Health Association, it may well be thought of as the Bible for voluntary

health agencies in their relationships to the development of official community health services. It outlines the functions of a full-time health department and, with appropriate illustrative stories, what are the principles and minimum personnel on which a local health department should be set up as outlined in Haven Emerson's *Local Health Units for the Nation*; with special reference to the Iowa situation; the widespread professional and citizen interest in extending local health services; and finally, a bit of New York State experience. Published by and presumably available from Iowa State Tuberculosis and Health Association, 2124 Grand Avenue, Des Moines 12, Iowa.

"Recent Amendments of the U. S. Public Health Service Milk Code," published in the *Journal of Milk and Food Technology* for May-June, 1948, by A. W. Fuchs, discusses changes approved by the Milk and Food Sanitation Advisory Board, U. S. Public Health Service, to the 1939 edition of the *Milk Ordinance and Code* recommended by

the Service. Reprints available from Mr. Fuchs, U. S. Public Health Service, Washington, D. C.

"Nation-wide Inventory of Sanitation Needs," Supplement 204 to the *Public Health Reports* is the report of the 1947 U. S. Public Health Service survey of nation-wide sanitation needs. This survey disclosed a need for water supply and sewage disposal facilities costing \$7,834,581,000, including water supply systems for 5,710 communities now without central systems; improvements and extension to existing systems of 15,000 communities; attention to the water supplies of 27,000,000 rural inhabitants; complete sewerage systems for 9,100 communities; improvements to existing systems; and coverage of rural populations. In 8,300 communities better collection and disposal of garbage was found necessary. The survey also found that 36 per cent of the facilities to meet community needs are either ready for construction or in the planning stage. Superintendent of Documents, Washington, D. C., 15¢.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Medicine in the Post War World
—The March of Medicine, 1947—
Number XII of The New York Academy of Medicine Lectures to the Laity. New York: Columbia University Press, 1948. 106 pp. Price, \$2.00.

In these six *Lectures to the Laity* sponsored by the New York Academy of Medicine, the task of providing factual information for the layman is accomplished through presentations which are simple and authoritative, yet neither patronizing nor pedantic. Intended primarily for laymen, they will be interesting and enjoyable to professional workers as well.

The post-war world referred to in the title offers Major General Kirk and Dr. Solomon a good vantage point from which to evaluate medicine's achievements in the past war, and it is apparent that medicine and psychiatry have gained information which will be most useful in adapting valuable techniques for civilian use in the hoped-for peaceful future.

Both Dr. Solomon's lecture on the atom in medicine and Dr. Dubos's discussion of the biotic agents stress the need for continuing scientific investigation to insure a greater usefulness of these agents in the study and control of disease. Dr. Haggard offers a brief and fascinating account of the life and work of Dorothea Dix, and Dr. Spitz provides evidence which emphasizes the great importance to the infant and growing child of the mother's love and affection.

The atom, the biotic agents and psychiatry have been dramatized during the past few years by the press, the

radio, and movies to a degree not always consistent with the facts. It is hoped, therefore, that this informative and stimulating book will have wide circulation among the laity.

HENRY B. MAKOVER

Fundamentals of Human Reproduction—By *Edith L. Potter, M.D. New York: McGraw-Hill, 1948. 231 pp. Price, \$3.50.*

This compact, dynamic book is divided into four sections. The section on background deals with early forms of animal life, general pattern of reproduction, factors responsible for body form and number of offspring. The second section (General Plan) covers sex organs and their function, development of the blastocyst and formation of the placenta and a survey of embryonic and fetal development. Thirteen chapters devoted to development of the various organs form the third part, and the fourth section is devoted to the infant.

The material is very readable and reflects the author's excellent performance as a lecturer. Use of simple analogies, colorful language and interesting comments regarding the rational bases of developmental changes help not only in making all development seem logical and understandable but easier to remember. Comparison of human developmental structures with those of other animals makes evolutionary changes seem more real. The illustrations and photographs are clear and forceful and add much to the clarity of the text. There are also a helpful list of visual aids and a bibliography.

Maternal and child health directors and public health nurses and all others interested in a clear, concise, and interesting text on human reproduction will find this a good addition to their libraries.

MARION HOTOPP

Tifus Exanthematico—By *Dres. F. Fonséca and Fr. Wohlwill*. Barcelona-Buenos Aires: *Salvat Editores*, S. A., 1944. 212 pp.

The last war has of necessity stimulated a revival of interest and of work in the rickettsial field. Several studies have appeared in Spanish, stressing various aspects of the subject. Thus, Del Campo and Gallardo (Madrid, 1943) presented a work on the laboratory phase of typhus fever which surpasses in detail and in illustration anything as yet available in English. The present volume, however, is rather designed for the general medical reader than for the specialist. The authors achieve a balance among such aspects of typhus fever as the clinical picture, laboratory diagnosis, pathology, epidemiology, prophylaxis, and treatment. The sections on symptomatology and on pathology are perhaps the strongest. It is due to no fault of the authors that neither DDT in louse control, nor para-aminobenzoic acid in therapy receives any mention, since these significant developments had not yet been established at the time of writing of the volume. The illustrations have been well selected, and are generally informative.

M. TAGER

Introduction to Human Physiology—By *William D. Zoethout, Ph.D., Professor Emeritus of Physiology in the Chicago College of Dental Surgery (Loyola University)*. St. Louis: *Mosby*, 1948. 424 pp. Price, \$4.00.

In this elementary treatise on human physiology or bodily function an attempt has been made to provide enough information in the basic sciences to

make the work intelligible to a layman. In the first three chapters, fundamental concepts in the fields of physics, chemistry, tissue structure, and biological form and reproduction are covered. The remaining 22 chapters of the book deal briefly and in a simple manner with the main facts of biological function as they apply to man.

Chapter material is divided on the basis of the system or systems of body parts involved and their related functions. Most chapters are provided with an initial paragraph outlining the main points to be dealt with in the chapter. Each chapter presents, in a brief manner, the main facts relevant to the subject. The chapter ends with a series of questions covering the material presented. The book is rather more exhaustive than the usual elementary text on physiology or the related sciences. However, the material presented falls short of the minimum requirements of the medical student and therefore the use of this book is limited to high schools and a few very elementary university courses. The book is well produced and well illustrated (138 black and white and 4 colored illustrations). An excellent index is provided and is more generally adequate than is to be found in most advanced textbooks.

DONALD YOUNG SOLANDT

Pamphlets That Pull—By *Alexander L. Crosby*. New York: *National Publicity Council*, 1948. 32 pp. Price, \$1.00.

A clumsy but more accurate title for this brochure would be "How to Make an Attractive Pamphlet That Has a Good Chance of Being Read." Nowhere is evidence developed to show that pamphlets prepared in accordance with the clear and excellent suggestions given will "pull" better than pamphlets which, prepared by some other methods, produce a less glamorous result. This

guide is based on the assumption long held by advertisers, health educators, and other pamphleteers—that a format which is pleasing to the eye and satisfies the silent ear will produce better results than a production which does not meet these qualifications.

For those who must prepare pamphlets and reports, however, this guide is perhaps one of the best that have ever been published. In its own writing and make-up it brilliantly illustrates the principles which it expounds. It is replete with simple instructions so clearly given that they will be immediately intelligible even to the scientist who, though well versed in his science, has never been trained how to impart his wisdom via the printed page to those who have the misfortune of not being trained in his particular curriculum.

Pamphlets That Pull is the ninth publication in the *How To Do It Series* published by the National Publicity Council. In the library of every health organization which must speak to the public from time to time it should take its place along side of all the other pamphlets in that series.

HOMER N. CALVER

Dental Health Teaching Outline
—By Verne D. Irwin, D.D.S., M.P.H., and Netta W. Wilson, M.A. Minnesota: Bruce Publishing Company, 1948. Price, \$1.00 per set, or No. 1, 20 cents, Nos. 2 and 3, 25 cents each, and No. 4, 30 cents.

Motivation of children to obtain dental care and establish good practices of mouth hygiene is the purpose of the four dental health teaching outlines which have been developed for use in the schools. Prepared as a series for use with children in the primary, intermediate, junior, and senior grades, they should be valuable to school teachers, public health dentists, dental hygienists, school nurses, and others.

The authors, with broad experience

in the field of dental health education, and aware of the need for this phase of education in the schools, have prepared the outlines in a manner acceptable to present-day teaching methods. Recognizing that the integration of dental health education with the general school program is not a simple task for teachers whose background of dental education is somewhat limited, they have carefully prepared the text to include such dental and related information as is necessary and essential for instruction of children at the various grade levels. Also, they have demonstrated in a very practical manner the ways in which this information may be used as a regular lesson, or correlated with other activities of the classroom.

Each outline includes a recommended reading list for both teachers and pupils, and a list of films and other visual aids, together with the costs and the sources from which they may be obtained. The lists add greatly to the usefulness of this series of dental health teaching outlines which public health workers may well recommend.

MARGARET H. JEFFREYS

Veterinary Helminthology and Entomology—By H. O. Mönnig. (3rd ed.) Baltimore: Williams & Wilkins, 1947. 427 pp. Price, \$9.00.

Dr. H. O. Mönnig has increased his contributions to veterinary medicine and public health in the third edition. It has been ten years since the second edition appeared and Dr. Mönnig has brought his book up-to-date and added numerous plates of eggs of helminths of the various domestic animals and birds.

The book is written primarily for veterinary students and practitioners but will have considerable value for public health veterinarians, laboratory workers, and epidemiologists. The host parasite list on pages 405 and 415 will be of real value to public health workers.

Dr. Mönnig has confined his text to

the more common parasites of domestic animals and some wild animals. The *International Rules of Zoölogical Nomenclature* are followed throughout. The student and other interested persons will find a good general discussion and definition of the relation of parasitism and other forms of life, pathogenicity and pathogenic effects, resistance and immunity, and epizootiology.

A concise chapter on how to prepare specimens for clinical diagnosis will be of value to veterinary practitioners, public health veterinarians, and laboratory workers. Attention is given to the diagnosis of external parasites and those found in body fluids and excretions.

The most important content of the book is given over to the discussion of parasitic infections of domestic animals. The most attractive feature of the discussion of the parasites is the manner in which they are presented in the text. The author has followed a definite outline which is brief and readable. The morphology is briefly discussed, followed by the life cycle, pathogenicity, symptoms, diagnosis, post-mortem findings, treatment, and prophylaxis. The only shortcoming of this discussion is the lack of further details on treatment and prophylaxis. Considerable research work in treatment has been going on during the war and post-war years which has not been given adequate attention. The same may be said for prophylaxis where the discussion of insecticides is very brief. The greatest value of this book is its concise treatment of morphology, pathogenicity, symptoms, and diagnosis. For the advanced student there are many more valuable publications.

JAMES H. STEELE

The Issue of Compulsory Health Insurance—By George Bachman and Lewis Meriam. Washington, D. C.: Brookings Institution, 1948. 271 pp. Price, \$4.00.

The most charitable statement that

can be made about this report—which was supposed to evaluate compulsory health insurance versus federal grants-in-aid to the states for the medical care of the indigent—is that it was evidently prepared in some haste. It abounds in irrelevant material, questions raised but left unanswered, contradictions, and repetitions. The authors apparently do not understand the insurance principle, for they imply throughout that it is unjust for healthy persons to participate in a pool with the "bad risks" who are ill.

Haste, however, cannot excuse violation of the fundamental rules of scholarship by the almost complete lack of relevance of the factual material to the main issue and the opinions expressed about it. Conclusions spring fully clad from the authors' minds like Athene from the brow of Zeus. The only clue to their origin is Mr. Meriam's disapproving personal attitude toward social insurance, set forth at length in his *Relief and Social Security* (Brookings, 1946).

Regarding neither care for the needy nor insurance is any attempt made to analyze the wealth of experience available from programs of both types here and abroad. Because they ignore (or are ignorant of) this experience, the authors naively disregard the fact that most of the administrative problems they attribute to national compulsory health insurance—and which, in their opinion, make it undesirable—are common to all medical care programs, voluntary or governmental, national or local, including the ones they approve. In the absence of supporting factual material, the dogmatic conclusions reached are largely meaningless.

Most pages in the report are devoted not to the stated issues, but to a purported review of our health needs, resources, and expenditures. Mortality statistics are discussed at length, although admitted by the authors to be a poor

index of medical need. Rural dwellers, Negroes, the aged, widowed, and disabled are identified as undersupplied with medical care, but their problems are dismissed as basically social and economic—hence their health needs can apparently be ignored. Throughout runs the theme that if people were prudent and really wanted medical care, most could afford it.

The superficiality of this report and the methodology employed does not reflect credit upon either its authors or the Brookings Institution. In fairness, it should be added that the section on supply of personnel and facilities, although scarcely related by the authors to the main issues, is in general a scholarly presentation.

KATHARINE G. CLARK AND
DEAN A. CLARK

Research and Regional Welfare—
Edited by Robert E. Coker, with a Foreword by Louis R. Wilson. Chapel Hill: University of North Carolina Press, 1946. 229 pp. Price, \$3.00.

The University of North Carolina is perhaps the father of what is now generally known as regionalism. As a part of its sesquicentennial celebration in 1945 it held a 3 day conference on research and regional welfare, the papers of which have been published.

In 16 papers by as many authors the contributions of research to the well-being of the South are explored. They add up to interesting and provocative reading. The Foreword recognizes the responsibility of the University, by virtue of its public support, to prosecute "research not only for the discovery of new knowledge, but also for the advancement of the material, intellectual, and spiritual welfare of the public which it serves."

The chapter on Nutrition and Public Health contains 2 papers, *Research in Nutrition: Importance to the Public Health*, by Russell M. Wilder, M.D.,

Division of Medicine, Mayo Clinic; and *Medical Research: The Foundation for Future Progress in Health and Public Welfare in the South*, by James Steven Simmons, M.D., Director of the Harvard University School of Public Health.

MARTHA LUGINBUHL

Interesting and Useful Medical Statistics—*Edited by William H. Kupper, M.D. Dubuque, Iowa: Wm. C. Brown, 1948. 528 pp. Price, \$6.50.*

This volume is a collection of approximately 1,000 tables taken from papers published in medical journals. The tables are presented by subject such as absenteeism, accidents, age groups, alcoholism, allergy, etc. The *Journal of the American Medical Association* is the source of more than half of the tables. Other journals drawn on heavily are *Public Health Reports*, *Metropolitan Statistical Bulletin*, and *New England Medical Journal*.

The presentation of such tables without comments regarding the source of the data raises a question of the purpose of the text of the original paper. Usually the text of paper includes a description of the program, study or material, and the interpretation of the data collected and presented in the tables.

Also, review of the tables brings forth questions regarding the characteristics of good tables. The title of a table should acquaint the reader with the data being presented, giving the source of the data, when, and where the data were gathered. These tables indicate that scientists would benefit by study of the book by Walker and Durost* entitled *Statistical Tables, Their Structure and Use*.

Some of the tables in the volume are excellent and are readily understood because of completeness of titles and be-

* Walker, H. M., and Durost, W. N. *Statistical Tables, Their Structure and Use*. New York: Teachers College, Columbia University, 1936.

cause the data are for the United States or for areas for which the method of collection of data is well known. Some of the tables are for limited periods of time, such as case reports for a few weeks, and others are for small experiences. The tables in this collection are selected ones and cannot be said to give typical or representative data on a given subject.

Because of the lack of description of the material and the dangers of improper use and incorrect interpretation, this collection of tables is not recommended for use by scientists.

RUTH R. PUFFER

Health in Your Daily Living—
By Josephine L. Rathbone, Francis L. Bacon, and Charles H. Keene, M.D.
Boston: Houghton Mifflin, 1948. 442 pp. Price, \$2.60.

Health in Your Daily Living has from all apparent evidences been written for young people in high schools. It is an interesting and attractive textbook, meeting most of the requirements demanded by teachers who are making selections of health textbooks. Such requirements which are here met include accurate, reliable content, interesting readable script, with a selection of topics of interest to the intended age group, and illustrations and graphs which engage the interest of the reader as well as clinch points made in the text. The glossary is complete and the teaching aids are excellent. Pre-tests of materials to be presented might have been added which would assist the teachers in selecting points for emphasis in class.

Since there is no mention of a supplement in which the reproductive system and its function have been mentioned, it is safe to assume that this important subject again has been omitted. The reviewer hopes that some day an author and a publishing company will have the courage to include in a text this all important problem, giving it its rightful

place among the other topics thought to be vital to the welfare of our high school youth.

Educators should carefully consider this excellent text when selecting health textbooks.

A. L. BEAGHLER

The American Year Book—*Edited by William M. Schuyler, with numerous contributors.* New York: Thomas Nelson, 1948. 1125 pp. Price, \$15.00.

"Contemporary thinking on epochal events" in the United States of America in the year 1947 is presented in this 33rd annual issue of the *American Year Book*. These events are within the fields of government, economics and business, social conditions, science, and the humanities.

Here we have epitomes of high lights, developments, and factual data much of which provide most useful reference material for public health workers. It is not a simple task to review an encyclopedia, but the following condensed notes are suggestive of the breadth of content.

Seventy-eight additional cities adopted the council-manager form of government. Expenditures for welfare services increased in spite of high employment. Cities are consolidating departments. James F. Byrnes resigned as U. S. Secretary of State on January 8. The Massachusetts legislature rejected an act making the Civil Service law applicable to county employees. The United States consumes 15 times as much oil per capita as Great Britain. The largest single sunspot ever recorded appeared in March, 1947. Motor busses are supplanting street cars. "The Winslow Boy," following a huge success in London, moves to New York. There are 6,300,000 students in the secondary schools of the United States. Six states now have a \$2,400 minimum salary for teachers. The travel literature for Europe is still sparse. A new disease entity is given the name "rickettsialpox."

A National Conference on Local Health Units was held at Princeton University in September. Relationships between Blue Cross organizations and hospitals have been strained for some time. The position of streptomycin in the therapy of infections was clarified during the year.

Forty-six national learned societies have participated in the production of this useful encyclopedia. A 36 page index, covering subject matter and authors' names, permits one to "get at" the material readily.

Dr. William R. Willard, Assistant Professor of Yale University, School of Medicine, is author of the 8 page section on Public Health, and Dr. Halbert L. Dunn, Chief of the National Office of Vital Statistics, provides 10 pages on the latest available vital statistics.

While sunspots and leading motion picture productions may not be related to public health, the trends in government, business and science are unquestionably matters of prime importance to the expansion of public health programs.

GEORGE T. PALMER

Water Purification Control—By *Edward S. Hopkins*. (3rd ed.) Baltimore: Williams & Wilkins, 1948. 289 pp. Price, \$4.00.

The introduction of this book is noteworthy. It gives a historical outline of water treatment, with Louisville experiments credited with the basis for scientific control. The author has missed no detail in water treatment practice; all kinds of coagulants; the when and how to use them; pH control is clearly stated; the filtration chapter is complete; collecting systems are well described, but relative advantages are not pointed out; disinfection by chlorine and caustic alkalinity are given space relative to their importance. The disadvantages of ozone and R.U.V. in carrying residuals into the system should have been noted. Control of micro-

organisms is brief but essentials are given and methods in use. Corrosion control in treated and natural waters is well described. Chapters on softening hit high spots of the problems involved, the processes, and equipment. The book gives nothing on bacteriological tests other than a chapter, "Plant Control," covering the U. S. Public Health Service drinking water standards, the value of chemical tests, record keeping, plant maintenance, and cross-connections.

Each chapter is well annotated for one who wishes to delve more deeply into the various subjects treated. An excellent book for the large as well as the small plant operator, and one from which the designing engineer could profit. It is a well written book which covers the field thoroughly.

THOMAS R. LATHROP

Rural Health and Medical Care—By *Frederick D. Mott, M.D., and Milton I. Roemer, M.D., M.P.H.* New York: McGraw-Hill, 1948. 610 pp. Price, \$6.50.

A valuable pioneer study of a most important problem.

Comparative statistics for urban and rural populations, cited in early chapters, seem to the reviewer of doubtful value; but the National Youth Administration studies, later quoted, demonstrate beyond question the presence of a relatively high proportion of specific physical defects (such as carious teeth, diseased tonsils and underweight) in rural youth. Even on the assumption that the health problems of rural and urban populations are not widely different, there is a shocking lack of medical care in the farm group. The authors cite figures which show 876 persons per physician in the country as a whole, while the figure for 8 states which are over 70 per cent rural is 1,428; and for the counties in these states which have no urban center, the ratio rises to 2,256

persons per physician. In these purely rural areas, nearly half the physicians are over 56 years of age.

Hospital beds average 3.5 per thousand population for the country as a whole; and 2.2 for the 8 predominantly rural states. Similar discrepancies appear in regard to dental personnel and nursing personnel; but it is noted that undertakers are quite evenly distributed in different areas.

The reasons for these deficiencies are partly geographical and organizational, but mainly economic. The per capita expenditure of the average urban family for medical care in 1941 was \$26.76; of the average farm family, \$14.37.

In the last third of this volume, Mott and Roemer discuss possible remedies for the situation. They discuss the Farm Security Administration program of medical care for rural areas which reached its peak in 1942 (largely under the leadership of the senior author); and show how this program succeeded in bringing needed medical care to tens of thousands of farm families; and how its value was limited by the relatively small and unfavorably selected group of families served, the small financial contributions which could be provided by low income farmers, and the high cost of a fee-for-service program. Later experiments with a better organized program (not limited to low income families and with additional subsidy) in 6 southern and western counties gave much more promising results. Experience with various voluntary insurance plans is then reviewed which indicates—as might have been expected—that such plans cannot reach the lowest income groups and inevitably tend to increase costs by selection of families and groups who are poor health risks.

The authors point out the importance of general social and economic measures which will increase the earning power of the farm population, the need for rural health and hospital facilities,

and for basic public health services. They conclude, however, that the fundamental approach to a solution of the problem must be the establishment of a national system of compulsory health insurance. Such a system would provide needed care for all and apportion the cost to family income, "the only effective way to apply the time-honored sliding scale principle." The sole alternative possibility is a medical care program, like that proposed in other countries, financed directly from tax funds, which the authors consider too radical a step for us. Their figures show clearly that, while a universal contributory program could be financed by such prosperous states as California and New York, it would be completely out of the reach of the rural states which need it most.

Mott and Roemer conclude that "In all nations the economic problems of medical care have been faced and the development of social insurance has become almost historically inevitable in the path toward their solution. With this central economic measure, other steps toward a total health program will be on firm ground. The goal of the plain people on the farms and in the villages of America will cease to be a vision and will be attained. When the steps clearly within our power are taken, we can be certain that the gap between the technology of modern medicine and its social application will be closed."

C.-E. A. WINSLOW

Physiology of Exercise—By Lawrence E. Morehouse, Ph.D., and Augustus T. Miller, Ph.D. St. Louis: Mosby, 1948. 353 pp. Price, \$4.75.

This is a useful monograph upon a subject which advanced so much just before and during the war as to render previous summaries in review journals and in book form out of date.

To a large degree much of the experimental work recounted was done in the Fatigue Laboratory at Harvard. One

is not surprised, therefore, that the idea that motivates the book consists in an effort to describe the functional powers of man by centering upon the way in which he meets the requirements of exhausting exercise, not only when untrained and trained, but also under trying environments of heat and cold.

The authors are interested in describing the reactions of the body to hard work on the treadmill or under standardized laboratory conditions. The best feature of the book is the readable and well documented manner in which these descriptions of performance are given. No one can expect that, in a short monograph, all aspects of an experience so broadly affective as hard physical work can be treated with equal success. A monograph should convey the interests and conclusions of men who have worked in a subject. It is a short cut to information, not a compilation of data and references which weight the reader with the necessity to undertake wide research in literature, listed comprehensively, but not with critical insight.

The authors have fulfilled this requirement. Exercise means muscular work and, systematically, the structure, physiology, and biochemistry of muscle are described, and then the adaptations of circulation and breathing, which must accompany muscular work. Later chapters deal with "Skill," "Endurance," "Fatigue," "Training," "Environmental Temperatures"—all the considerations involved in physical performance. Each of the 30 short chapters is followed by a brief and well selected bibliography.

The book should be useful to all students who have had a year or two of training in physiology and biochemistry. Applied science is usually considered a simple version of basic matters. This is a great mistake. Those who can apply scientific methods most successfully, think in and talk the language of science

without effort. To the reasonably prepared mind in colleges and professional schools, this small book will prove a useful resource. CECIL K. DRINKER

Life Insurance Medical Research Fund—Third Annual Report, 1947. New York: Life Insurance Medical Research Fund, 1948. 95 pp.

Public health workers ought to know about the Life Insurance Medical Research Fund which was organized in 1945 by a group of United States and Canada life insurance companies representing most of the business done in North America. The resources of the Fund are derived from contributions made by company members in proportion to the volume of their business. The purpose is the support of medical research with the ultimate objective of increasing life expectancy, and the resources of the Fund are now devoted to the support of fundamental research on problems of the heart and blood vessels.

A board of outstanding physicians makes up the Advisory Council and guides the grants which in 1947 included nearly 100 research programs and about 35 fellowships. More than \$580,000 was awarded in grants and fellowships during 1947, bringing the total since organization of the Fund to more than \$1,250,000.

A review of the projects themselves is rewarding. Among the list are some classified under the heading "The Prevention of Disease." These include metabolic production of arteriosclerosis; streptococcus, rheumatic fever, and nephritis; the roles of diets and hormones; protein intake and hypertension; streptococcal infections; streptococcus growth products, and other subjects.

The Life Insurance Medical Research Fund represents an important new approach to medical research. It is to be hoped that the federal program of

grants-in-aid for medical research will supplement and not replace ventures of this kind, as has been recommended in the Steelman Report.

REGINALD M. ATWATER

400 Years of a Doctor's Life—
By George Rosen, M.D., and Beate Caspari-Rosen, M.D. New York: Henry Schuman, 1947. 429 pp. Price, \$5.00.

400 Years of a Doctor's Life is not a history of medicine, but, as the authors point out, an anthology of biographical material about and by representative men active in the field of medicine from the 16th century to the present time. It is not a history book but rather a story book, but unlike most stories with a limited number of characters, it contains 162.

It is, for this reason, excellent bedside table reading, for it lends itself well to the frequently interrupted type of literary browsing.

The short, interesting, pertinent, and concise statement introducing each new biographical vista into the life of the composite 400 year old doctor is a good setting for each component part.

The reviewer is sure that this anthology will stimulate many to read more fully in the sources from which these delightful samples were taken.

A. L. BURGDORF

Citizen Participation in Government—A Study of County Welfare Boards—
By Helen E. Martz, Ph.D., Introduction by R. Clyde White. Washington, D. C.: Public Affairs Press, 1948. 63 pp. Price, \$1.00.

Public health workers are quite aware of today's high interest in gaining citizen participation in health affairs. In this study they will find outlined some of the weaknesses and the strengths of such participation as discovered in the welfare field. It may serve only to deepen the convictions of some that lay involvement in activities that are essen-

tially professional prerogatives is at the least a vexatious irritation. However, more objective persons will learn from the study how they can effectively utilize this potent source of support.

While much has been written about citizen participation in the nonofficial health field, there has been relatively little attention given to it in relation to the official health agency. Because there is an apparent trend toward more lay appointments on boards of health, the subject of this study is of increasing significance to health officials. It may be remarked parenthetically that some professional members of boards of health may be, in matters of public health administration, in much the same position as the lay citizen.

The 63 page pamphlet is a summary of a detailed study, and as such will appeal to the busy professional who has little time to digest minutiae. A 10 page summary and conclusions section is well done. Many will find the rather extensive bibliography of value. The study warrants a better print job than it has received.

JOHN W. FERREE

Victorian Order of Nurses for Canada — Fiftieth Anniversary —
By John Murray Gibbon. Ottawa: Victorian Order for Nurses for Canada, 1947. 124 pp. 32 illus. Price, \$2.00.

This book is a factual story of the services provided by the Victorian Order of Nurses in Canada during the 50 years since the inception of the Order. The book is well illustrated with pictures dating back almost to the beginning of the Order. It tells the story of hardships encountered by nurses beyond the frontiers of civilization in Canada and shows their ingeniousness in carrying out many arduous tasks in spite of almost insurmountable obstacles.

The book is rather difficult to read, most of the material being quotations from letters and other documents on file at the central office.

It is apparent that the original activities of the nurses, which were mostly in communities where no other form of medical service was available, have now developed into the accepted pattern of bedside nursing, namely a nursing service in communities where medical service is available and only under the supervision of a qualified medical man. One questions whether or not the service now being provided by the Order is the type of service that was originally visualized by the founders of this excellent nursing service. F. W. JACKSON

Handbook of Communicable Diseases for the Use of Medical Officers of Schools—By Medical Officers of Schools Association. (11th ed.) London: J. and A. Churchill, Ltd., 1948. 71 pp. Price, 5 s.

It is interesting to compare the British procedures with our own regulations for communicable disease control. This eleventh edition which had its origin 62 years ago in a code of rules is published by the Medical Officers of Schools Association, which has no counterpart in America. Since the last edition in 1940 they have adopted the format of the booklet *The Control of Communicable Diseases* by the American Public Health Association which had involved consultation with the medical staff of the British Ministry of Health, and they have added a new item "Return to School." The statements are the work of a committee of 7 which met on 10 occasions. The preface to the first edition is also included. This was based on "an elaborate series of questions" and revealed "curiously divergent" procedures when dealing with the same conditions of disease. It would seem that we might profit in this country today from such an inquiry as was made by the British Medical Officers of Schools Association in 1884.

Naturally the differences from policy in the United States are most notable

when compared with our more recent changes in rules which have recently been made less restrictive and less expensive than formerly, and where our knowledge is limited. For example, the code calls for:

Chicken pox—isolation and exclusion of patients from school until every primary scab has fallen off and the skin lesions have healed. Return to school at the end of isolation. No mention is made of contacts.

Measles—the period of isolation extends until catarrhal symptoms cease and the minimum period before return to school seems to be 10 days from the appearance of the rash, with no mention of contacts.

Pertussis—in the discussion of the period of communicability we find infectivity rapidly diminishes at the end of the catarrhal stage and freedom from infection may be demonstrated as early as the 21st day after onset, and yet isolation from susceptible children and exclusion from school is recommended for 4 weeks from onset, or until proved free from infection by bacteriological examination. Further restriction is recommended for those exposed who develop a cough, and under epidemic conditions non-immunes are excluded from school for 14 days after their last exposure to a recognized case.

Ringworm of the scalp—under the heading "return to school" we find the ultimate in non-committal policy, i.e., "If isolation has been considered necessary, as soon as it is considered unnecessary."

Scarlet fever is a notifiable disease but not septic sore throat nor streptococcal tonsillitis. The recommendation "return to school" does not specify whether it applies only to the erythrogenic conditions or not, but does indicate that there must be no sore throat, discharge from the ear or nose, suppurating or recently enlarged glands, and a negative swab is usually obtained.

No mention is made of contacts except the recommendation under "General Measures"—"Daily examination of throats and temperatures. Swabbing both nose and throat where doubt exists."

Apparently these general recommendations from the British Medical Officers of Schools are in some ways more strict than our more recent proposals, which have been designed to avoid restrictive measures that have not been effective, and they are less restrictive in other ways than most of the policies attempted by well organized health departments in the United States. This handbook, however, expects the medical officer to decide whether a person will be isolated when "suspected of having or incubating an infectious disease," and "the school doctor should possess undivided responsibility in dealing with the circumstances" of infection and its control and in dealing with the sick.

HAROLD H. MITCHELL

Sex Variants: A Study of Homosexual Patterns — *By George W. Henry, M.D.* New York: Hoeber, 1948. 1000 pp. Price, \$8.00.

This single volume edition of a two volume study originally published in 1941 reports an investigation undertaken at the request of the Committee for the Study of Sex Variants. Sixty

detailed case histories have been selected from among 200 individuals studied, representing both sexes and including bisexual, homosexual, and narcissistic cases of a great variety.

Public health workers are aware of the confused approach to cases of homosexuality by the public and by the medical and legal professions. This book will be significant to them because it brings together a larger number of cases in an exhaustive way than would ever be encountered in ordinary practice. The reporting is thoroughly objective and includes studies of family backgrounds, heredity, and childhood experience as well as of adult behavior. Although this volume does not emphasize methods of handling homosexual cases, it does point up the necessity of sound procedure to avoid the stupidly ineffective measures so often employed. It throws light on problems of child guidance which if well handled can prevent the fixing of variant sex patterns that are socially undesirable. The author is to be commended for the most thorough study of its kind. The volume represents the best present source for orientation of physicians, nurses, social workers, and lawyers. There ought now to be a study of the most effective handling of homosexual cases.

REGINALD M. ATWATER

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

News—Barring catastrophe, it is likely that the 1948 death rate will be as low as, or slightly lower than, the 1947 rate which was the lowest previous record.

ANON. 1948 May Set New Low Mortality Record. Stat. Bull. (Met. Life Ins. Co.) 29, 7:3 (July), 1948.

First Fruits—Continuing decline in mortality from cancer among women is the most encouraging aspect of that still grim picture.

ANON. Improvement in Cancer Mortality among Women. Stat. Bull. (Met. Life Ins. Co.) 29, 8:2 (Aug.), 1948.

Nothing Nutritionally Significant Is Lost—Two engineers say that health officers are justified in recommending pasteurization of all milk. Though this will come as no surprise to you, perhaps you will want the reference for your files.

ANDREWS, J., AND FUCHS, A. W. Pasteurization and Its Relation to Health. *J.A.M.A.* 138, 2:128 (Sept. 11), 1948.

Existing Breast-Feeding Patterns—Here's a statistic you may want to use. In a nation-wide survey of lying-in hospitals it was found that a third of the infants were on bottle feeding at time of discharge from the hospital. There were striking regional differences. In the Northeast 60 per cent were weaned to the bottle, whereas only 18 per cent were so weaned in the South.

BAIN, K. The Incidence of Breast Feeding in Hospitals in the United States. *Pediatrics*, 2. 3:313 (Sept.), 1948.

Some Do—We know a lot more about school children's health; we have improved means of maintaining their health; now all that remains is for us to do something about it.

BAUMGARTNER, L. The New Look in Health for Children of School Age. *Pub. Health Nurs.* 40, 9:444 (Sept.), 1948.

Human Understanding Needed—My uninformed guess is that this study (of the sort of help new parents want over and above what they are likely to get from existing lying-in hospital services) is a revealing and suggestive document. It may be "old-stuff" to pediatricians and nurses steeped in infant hygiene lore, but I doubt it.

CLAY, A. S. Guidance in Maternal and Infant Care Two Months before and after the Birth of the First-Born. *Pediatrics*. 2, 2:200 (Aug.), 1948.

Infant's Rights—This is my idea of a swell paper. Spades are called you've guessed-it. Chips fall you-know-where. There's red meat in every paragraph.

Mostly it's about better rural maternity services. The means are at hand—if we have the vision.

DAVIS, M. E. Trends in Maternal Health. *Pub. Health Nurs.* 40, 9:450 (Sept.), 1948.

Two-Thirds Have Done Something—Half a century has passed since the first state law to solve the cancer problem was enacted (in New York). The legislative flood that has poured over the dam in the intervening 50 years is reviewed. Surprisingly enough, more laws are needed.

DEIBERT, A. V. A Half Century of State Cancer Legislation. *Pub. Health Rep.* 63, 35:1128 (Aug. 27), 1948.

High Aims: High Attainments—We know a health council can integrate the planning of all health organizations, thus preventing overlapping. It can survey needs, and establish a well balanced community program based on revealed needs, through stimulated public participation. So says this writer.

FERREE, J. W. Health Councils and Their Potentialities. *Pub. Health Nurs.* 40, 9:461 (Sept.), 1948.

Homely Simile—" . . . even during its infancy, it is already evident that health education will reach the stature of a giant. When a child shows such rapid growth, its parents must be resigned to buy it new sets of clothes more frequently than they would like to."

GILBERT, J. Public Health Education in Local Health Departments. *Canad. Pub. Health J.* 39, 8:325 (Aug.), 1948.

Dangerous Thoughts—A Britisher's thesis: if we want to prevent we must treat, and to treat effectively we must provide for early diagnosis. He answers nine questions about what a productive health service should be like. If you are intrigued by a viewpoint as wide of ours as the Atlantic, you'll hunt out this dissertation.

HASTINGS, S. A National Health Service. M. Officer. 80, 11:111 (Sept. 11), 1948.

Definitive Is the Term for It— This is the sort of review article that does everyone good. We should have more of them. The man who knows best explains just where streptomycin stands among the five categories of remedies for tuberculosis.

HINSHAW, H. C. Antibacterial Drug Therapy in TB. Bulletin (N. T. A.) 34, 8:119 (Sept.), 1948.

No High-Flown Theory Here— Perplexing problems of policy that plague a health officer during a polio epidemic are pondered o'er productively.

KITCHING, J. S. The Health Officer and Poliomyelitis. Canad. Pub. Health J. 39, 8:310 (Aug.), 1948.

Since the "Year of Revolutions"—More historical references for you when you want them. This covers the hundred years that have passed since the first Public Health Act which caused public health to become a national responsibility (in Great Britain).

McNALLY, A. S. A Century of Public Health. J. Roy. Inst. Pub. Health & Hyg. 11, 8:257 (Aug.), 1948.

Minerals and Vitamin D— Progressive improvement in the condition of the teeth of 5 year olds attending London schools is believed by the reporters to be due to the calcifying qualities of better diet over the whole antenatal and postnatal life of the children.

MELLANBY, M. AND MELLANBY, H. The Reduction in Dental Caries in 5-year-old London School Children (1929-47). Brit. M. J. 4573: 409 (Aug. 28), 1948.

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

AMERICAN NURSES' ASSOCIATION PUBLIC RELATIONS WORKSHOP. Edward L. Bernays. New York: ANA, 1948. 32 pp. 39 illus. Price, \$2.50.

BABY BOOK, PREPARED BY NEW YORK STATE DEPARTMENT OF HEALTH, Bureau of Maternal and Child Health. Albany, New York: Department of Health, 1948. 48 pp.

THE COLLEGE CURRICULUM IN HOSPITAL ADMINISTRATION. A Final Report by the Joint Commission on Education. Chicago: Physicians' Record, 1948. 107 pp. Price, \$2.00.

EMERGENCY MATERNITY AND INFANT CARE. A Study of Administrative Experience. Nathan Sinai, Dr.P.H., and Odin W. Anderson, Ph.D. Ann Arbor, Mich.: University of Michigan, School of Public Health, 1948. 181 pp.

ESSENTIALS OF PATHOLOGY. Lawrence W. Smith, M.D., F.C.A.P., and Edwin S. Gault, M.D., F.C.A.P. (3rd ed.). Philadelphia: Blakiston, 1948. 764 pp. Price, \$12.00.

FRONTIER DOCTOR. Samuel J. Crumline, M.D. Philadelphia: Dorrance, 1948. 284 pp. Price, \$3.00.

HANDBOOK FOR ADVISERS TO STUDENTS PLANNING TO ENTER MEDICINE. Dewey B. Stuit and Raymond J. Schlicher. Chicago: Asso-

ciation of American Medical Colleges. 34 pp. Price, \$5.00.

A HEALTH PROGRAM FOR COLLEGES. Report of Third National Conference on Health in Colleges. New York: National Tuberculosis Association, 1948. 152 pp. Price, \$2.00.

HOSPITAL TRENDS AND DEVELOPMENTS 1940-1946. Edited by Arthur C. Bachmeyer, M.D., and Gerhard Hartman, Ph.D. New York: Commonwealth Fund, 1948. 819 pp. Price, \$5.50.

THE LEPTOSPIROSES. P. H. van Thiel. Leiden, Netherlands: Universitaire Pers Leiden, 1948. 231 pp. Price, f.16.50.

LETTERS TO JANE. Gladys Denny Shultz. Philadelphia: J. B. Lippincott, 1948. 224 pp. Price, \$2.75.

LET'S TELL THE TRUTH ABOUT SEX. Howard Whitman. New York: Pellegrini & Cudahy, Inc., 1948. 242 pp. Price, \$2.50.

MEDICAL AND HOSPITAL SERVICES PROVIDED UNDER PREPAYMENT ARRANGEMENTS. Trinity Hospital, Little Rock, Arkansas 1941-1942. Margaret C. Klem, Helen Hollingsworth and Zelma A. Miser. Washington, D. C. Gov. Ptg. Office, 1948. 259 pp. Price, \$1.00.

THE NATION'S HEALTH. A Ten Year Program.

- A Report to the President by Oscar R. Ewing. Washington, D. C. U. S. Gov. Ptg. Office, 1948. 186 pp. Price, \$1.00.
- NURSING FOR THE FUTURE. Esther Lucille Brown, Ph.D. New York: Russell Sage Foundation, 1948. 198 pp. Price, \$2.00.
- ON THE DEVELOPMENT OF TUMORS IN VARIOUS TISSUES IN MICE. Ragna Rask-Nielsen. Copenhagen, Denmark: Einar Munksgaard, 1948. 144 pp.
- THE OUTLOOK FOR WOMEN:
- | | | |
|-------------------------------|--------|---------------|
| In Chemistry | 65 pp. | Price, \$2.00 |
| In the Biological Sciences | 87 pp. | .25 |
| In Mathematics and Statistics | 21 pp. | .10 |
| In Physics and Astronomy | 31 pp. | .15 |
- Washington, D. C.: Gov. Ptg. Office, 1948.
- PLANNING YOUR EXHIBIT. Janet Lane and Beatrice K. Tolleris. New York: National Publicity Council, 1948. 28 pp. Price, \$1.00.
- POLIO AND ITS PROBLEMS. Roland H. Berg. Philadelphia: Lippincott, 1948. 174 pp. Price, \$3.00.
- A PRACTICAL MANUAL OF DISEASES OF THE CHEST. Maurice Davidson, M.A., M. D. Oxon, F.R.C.P. Lond. (3rd ed.) New York: Oxford University Press, 1948. 670 pp. Price, \$16.50.
- THE QUEST FOR PURE WATER. M. N. Baker. New York: American Water Works Association, 1948. 527 pp. Price, \$5.00.
- SOME BRITISH PIONEERS OF SOCIAL MEDICINE. Major Greenwood, D.Sc., F.R.C.P., F.R.S. New York: Oxford University Press, 1948. 118 pp. Price, \$4.00.
- SYMPOSA ON NUTRITION. Volume I Nutritional Anemia. Edited by Arthur Lejwa. Cincinnati, Ohio: Robert Gould Research Foundation, Inc. October 16-18, 1947. 194 pp.
- THERAPY THROUGH INTERVIEW. Stanley G. Law, M.D. New York: McGraw-Hill, 1948. 313 pp. Price, \$4.50.
- TYPING OF SALMONELLA TYPHI MURIUM BY MEANS OF BACTERIOPHAGE. Kaare Lilleengen. Copenhagen, Denmark: Einar Munksgaard, 1948. 125 pp.
- UROLOGY FOR NURSES. Oswald Swinney Low-ley, M.D., F.A.C.S., and Thomas Joseph Kirwin, M.D., F.A.C.S. (2nd ed.) Philadelphia: Lippincott, 1948. 687 pp. Price, \$6.00.
- VIRAL AND RICKETTSIAL INFECTIONS OF MAN. Edited by Thomas M. Rivers, M.D. Philadelphia: Lippincott, 1948. 549 pp. Price, \$5.00.
- THE FOLLOWING REPORTS HAVE BEEN RECEIVED
- ALL-INDIA INSTITUTE OF HYGIENE AND PUBLIC HEALTH, CALCUTTA. 1944-1945, ANNUAL REPORT OF THE. Calcutta, India: Government of India Press, 1947. 56 pp.
- APPENDICITIS IN CINCINNATI. Its Rate of Mortality, Incidence and Case Fatality 1929-1947. William S. Groom. Cincinnati, Ohio: Public Health Federation (Health Division of the Community Chest), 1948.
- BOARD OF SOCIAL WORK EXAMINERS. Department of Professional and Vocational Standards. First Biennial Report to the Governor, July 1, 1947. San Francisco, Calif.: Board of Social Work Examiners. 26 pp.
- CENSUS PUBLICATIONS 1947. Catalog and Subject Guide. U. S. Department of Commerce, Bureau of the Census. Washington, D. C.: U. S. Gov. Ptg. Office, 1948. 204 pp. with a special appendix on publications of the 1945 Census of Agriculture.
- CHILD HEALTH SERVICES IN OREGON. Report of the American Academy of Pediatrics. Portland, Oregon: State Board of Health, 1948. 40 pp.
- CITY OF MONTREAL, Department of Health Organization and Activities. Dr. Adelard Groulx, M.P.H., Director. Montreal, Canada: Department of Health, 1948. 32 pp.
- CONFERENCE ON INTERNATIONAL STUDENT EXCHANGES MAY 10-12, 1948. University of Michigan. Special Report. New York: Institute of International Education, 1948. 79 pp. Price, \$5.00.
- COOK COUNTY DEPARTMENT OF PUBLIC HEALTH. Annual Report 1947. Cook County, Illinois: Board of Health.
- COMMUNICABLE DISEASE CENTER ACTIVITIES 1946-1947. Atlanta, Georgia: Public Health Service. 153 pp.
- EAST ORANGE, NEW JERSEY 33RD ANNUAL REPORT OF THE BOARD OF HEALTH 1947. East Orange, N. J.: Board of Health. 78 pp.
- THE FOOD AND DRINK INFECTIONS. REPORT OF A CONFERENCE HELD BY THE CENTRAL COUNCIL FOR HEALTH EDUCATION IN LONDON, October 9, 1947. London: Central Council for Health Education. 62 pp. Price, 4s.
- HAYFEVER STUDIES IN NEW HAMPSHIRE 1947. Frederick J. Vintinner and George W. Morrill, Jr. Concord, N. H.: State Department of Health, 1948. 59 pp.
- HEALTH SERVICES IN BRITAIN. New York: British Information Services, 1948. 23 pp.
- HIGHLIGHTS OF THE NATIONAL CONFERENCE ON FAMILY LIFE. New York: National Conference on Family Life, 1948. 23 pp. Price, \$15.
- THE HYGIENIC INSTITUTE FOR LASALLE-PERU-OBLESBY. 33rd Annual Report for year ending 1947. LaSalle, Illinois: Department of Health. 30 pp.
- INSTITUTE FOR THE CRIPPLED AND DISABLED.

- Summary of Results for 1947. New York: Institute for the Crippled and Disabled. 79 pp.
- A LIST OF SOURCE MATERIAL FOR TEACHERS OF COLLEGE HYGIENE. Compiled by the American Student Health Association with the Coöperation of the Metropolitan Life Insurance Company. 40 pp.
- MATERNAL AND CHILD HEALTH. Forrest County, Mississippi, 1948. A Record of Procedures Within the County. Jackson, Miss: State Board of Health. 56 pp.
- MEETING NEEDS OF MANKIND BY SCIENTIFIC RESEARCH. Experience and Activities of Mellon Institute. 35th Annual Report of the Director to the Board of Trustees. Pittsburgh, Mellon Institute, 1948. 44 pp.
- NEW MEXICO HEALTH OFFICER. Annual Report 1945. Santa Fe: Department of Public Health. 55 pp.
- NON-SELF-GOVERNING TERRITORIES. United Nations Summaries and Analysis of Information Transmitted to the Secretary-General during 1947. New York: Lake Success, 1948. 509 pp.
- NUTRITION FOUNDATION, INC., THE. Report of Scientific Director. New York: Nutrition Foundation. 101 pp.
- REPORT OF THE MINISTRY OF HEALTH FOR THE YEAR ENDED 31ST MARCH 1947, including the Report of the Chief Medical Officer on the State of the Public Health for the Year Ended 31st December 1946. London: His Majesty's Stationery Office, 1948. 204 pp. Price, 3s 6d. net.
- REPORT ON OPERATIONS OF THE SASKATCHEWAN HOSPITAL SERVICES PLAN. Covering the Organization Period in 1946 and the Calendar Year 1947. Regina: King's Printer, 1948. 72 pp.
- SOCIAL ADJUSTMENT IN OLD AGE. A Research Planning Report. Otto Pollak. New York: Social Science Research Council, 1948. 199 pp. Price, \$1.75.
- THE SOCIAL CONTROL OF VENEREAL DISEASE, Report of a National Inquiry of Professional Opinion. Coöperative Studies in the Social and Educational Aspects of Venereal Disease Control. Yale University, Department of Public Health. Washington, D. C.: Venereal Disease Division, U. S. Public Health Service, 1948. 151 pp.
- WESTCHESTER COUNTY DEPARTMENT OF HEALTH. Annual Report 1945-1946. White Plains, New York: Department of Health. 92 pp.
- WOMEN'S BUREAU CONFERENCE, REPORT ON 1948. February 17, 18, 19, 1948. The American Woman—Her Changing Rôle. Washington, D. C.: U. S. Department of Labor, 1948. 210 pp.

Public Health in Foreign Periodicals

GEORGE ROSEN, M.D., PH.D.

HEALTH conditions in the Balkans have long been deplorable, and particularly so in Rumania. Underlying and interrelated with these conditions are a welter of social and economic problems, chief among them rural poverty and ignorance. Such knowledge of health and disease among the Rumanian people as was available prior to World War II was at best spotty and likely to be misleading when the whole population of the country was considered. With the cessation of hostilities it was realized that the time had come to undertake a comprehensive investigation of the social biology of Rumania. Late in 1946, therefore, at various sessions

of the Rumanian Academy of Medicine, G. Banu, professor of social medicine at Bucharest, presented a plan for such a project, as well as the results of a number of preliminary studies that he and his coworkers had already undertaken.

A PLAN FOR STUDYING THE BIOLOGY OF THE RUMANIAN PEOPLE¹

Banu begins by emphasizing that the biology of the Rumanian people is still very inadequately known. Statistical data from the various regions of the country are as yet lamentably incomplete. From the figures that are available, it would appear that the problems

of infant mortality and the protection of childhood are exceedingly urgent and demand immediate attention. Furthermore, the incidence of such communicable and social diseases as tuberculosis, syphilis, malaria, pellagra, cancer, endemic goiter, trachoma, and alcoholism is at a much higher level than in the countries of Western Europe.

In dealing with these problems, insists Banu, regional differences must be taken into account. Any health plan that may be devised must be flexible enough to deal with special regional matters. In general, however, particular emphasis should be placed on demography and eugenics, child welfare, control of communicable diseases, and improvement of living standards (nutrition, housing, education). Finally, he recommends that the Rumanian Institutes of Hygiene should immediately undertake to study problems of social pathology, health education, and sanitary engineering. In these efforts they should be supported by the Academy of Medicine. These studies could then serve as a firm foundation for a national public health organization.

REGIONAL CHARACTERISTICS OF INFANT MORTALITY IN RUMANIA²

Rumania is characterized by a high infant mortality. In 1927, the infant mortality rate was 17.8 (per 100 live births) in Rumania, as compared with 8 in Belgium and 3.8 for Holland. Infant mortality is higher in rural areas than in towns. In 1940, it was 18.5 in the former and 17.2 in the latter.

Banu attributes the high infant mortality to four causes. Most important in this connection are congenital abnormalities and debility. Thus, infants dying during the first month account for one-half the total deaths reported in the first year of life. Premature birth and obstetrical mishaps also play a part here. Second in significance are the medical causes of infant mortality; that

is, respiratory diseases, nutritional disturbances, gastrointestinal infections, and cutaneous diseases. Another important factor is the lack of medical assistance during childbirth. Only 30 to 50 per cent of Rumanian mothers are assisted by doctors or midwives during labor. Absence of medical attention during the first year of life adds still further to the high mortality. Finally, social factors are involved in this situation. Thus, the infant mortality rate among the poorer classes is three times as great as that found in well-to-do groups. Significant social factors are income, quality and quantity of food, housing, and working mothers.

In order to reduce infant mortality, Banu proposes a planned campaign based upon the preceding analysis. This would require satisfactory statistical data, organization of the campaign against pathological conditions so as to take into account regional variations, proper provision of medical care during labor and during childhood, and finally improvement of living conditions for mother and child.

RECRUITS—A CRITERION FOR THE STUDY OF THE BIOLOGY OF A POPULATION³

Banu and Dinu call attention to the public health significance of statistical data on military recruits. These data are important because the recruits are an expression of the biological and social environment from which they come, and can therefore give valuable information on the demographic, social, and public health problems of Rumania.

Conscripts are called up every year at the age of 20 for military duty. This study, the first of its kind in Rumania, was carried out over a 7 year period (1941–1947). During the years 1941 to 1946, it was found that from 32 to 35 per cent of those due to report for military service were dead. These percentages showed considerable regional variation. The mortality was much

greater in rural districts (33.8 per cent) than in urban areas (28.4 per cent). This inequality is an expression of the variation in the living standards of different regions, and in the application of public health practices.

Of the recruits examined during the 7 year period, 1941-1947, 5.9 per cent were rejected. On breaking down this overall figure, it was found that of those called up from urban areas 10.2 per cent were rejected, while among those from rural areas, 5.9 per cent were rejected. The causes of rejection, in order of importance, were tuberculosis, congenital and acquired malformations, mental diseases, diseases of the nervous system, surgical diseases, deaf-mutism, dwarfism and infantilism, developmental defects and general debility, eye diseases, and goiter.

REGIONAL CHARACTERISTICS OF RUMANIA WITH REGARD TO INFECTIOUS DISEASES⁴

In this study, Banu and his coworker, Rugina, undertook detailed analyses of morbidity and mortality statistics for infectious diseases in Rumania. As in the investigations noted above, there is considerable regional variation in morbidity and mortality. Regarding the factors which determine this variation, there is an undeniable correlation between standards of living and availability of public health facilities on the one hand, and the level of morbidity and mortality on the other. Areas that have a low standard of living and poor public health facilities tend to have the highest morbidity and mortality rates.

During the 5 year period 1935-1939, the mortality figures in the provinces ranged from 94.4 per 100,000 in Moldavia to 41.7 in the Banat. Similarly for the administrative departments the figures varied from 121.7 in Tecuci to 28.7 in Timis. In addition to the overall figures, separate analyses were made for typhoid fever, scarlet fever, measles,

and whooping cough. The general trends were the same as for the overall figures. To cope with this problem, an extensive campaign of prevention based on precise factual data is proposed. Such a program must take into account the conditions found in different regions.

CONTRIBUTIONS TO THE STUDY OF THE BIOLOGY OF THE WORKING WOMAN⁵

In the summer of 1945, Banu and Sapira undertook a medico-social study of 512 women workers from seven factories in Bucharest. These women were employed in the following industries: textiles, food, leather goods, electrical, cardboard boxes, and cosmetics. The study was based on a detailed questionnaire which dealt with the family history, economic and social conditions, literacy, past and present medical history, working conditions, number of children according to age, and medical and social status of the children. This was supplemented in each case by a clinical examination.

The age distribution of the group shows that 1 per cent was between the ages of 10 and 15, 10.2 per cent in the 15 to 20 age group, and the largest number, 23 per cent, was in the 20 to 25 group. After 40 years the percentage employed fell steeply. The women aged 20 to 40 years made up 70.7 per cent of the total.

Of the 512 women in the group, 46 per cent came from towns and 54 per cent from rural areas.

In regard to personal hygiene, it was found that 60 per cent of these women workers take their bath weekly, either at home or at the factory.

Analysis of other medical histories showed that 43.5 had suffered from acute infectious diseases (diphtheria, scarlet fever, and typhoid fever were most common), 14.3 per cent from surgical conditions, 12.5 per cent from pulmonary conditions exclusive of tuberculosis, 11.7 per cent from gynecological complaints,

and 10.4 per cent from ear, nose, and throat conditions. Other diseases listed concerned the gastrointestinal tract, blood, urinary passages, skin, nervous system, and the eyes. Of the social diseases, malaria accounted for 22.3 per cent of cases of previous ill health, rheumatic conditions for 10.7 per cent, venereal disease for 5.7 per cent, and tuberculosis for 5.1 per cent. The investigators point out that the figure for venereal disease falls far below the actual situation, owing to the impossibility of obtaining accurate data.

At the time when the investigation was actually carried out, the following medical conditions were found among the 512 women: 8.4 per cent suffered from rheumatic conditions, 8 per cent from pulmonary tuberculosis, 5.1 per cent from cardiovascular conditions, 3.9 per cent from visceral syphilis, 3.3 per cent each from pleurisy and malaria, and 0.6 per cent from sciatica.

In the course of the study it was found that despite various legal prohibitions 63 of the women had already been employed in industry while they were still under 14 years of age. Of all the women, more than 40 per cent had gone to work before the age of 18.

Study of the maternity situation in this group showed that 273 had never had any children. Among the remaining 239 the average pregnancy rate was 2.6 for each woman. The percentage of women with only one pregnancy was 43.5 while 18.1 per cent reported having more than five pregnancies. The rate of abortion was 37 per cent, that of premature births 3.1 per cent.

VENEREAL DISEASES IN RUMANIA AND MEASURES FOR THEIR CONTROL⁶

Nicolau and Theodoresco point out

the considerable increase in venereal disease in Rumania as a consequence of the last war, and consider what can be done to master this problem. The legal basis for venereal disease control has a number of excellent provisions—obligation to obtain treatment, free treatment for those unable to pay, obligatory premarital examination, provision for compulsory hospitalization of recalcitrants. Nevertheless, full benefit has not been obtained from this law because of the laxity with which it has been applied. Consequently, a demand is raised for more stringent application of the law, and for more adequate provision for case finding and treatment. New hospitals and dispensaries are urgently needed in cities and towns. For the prosecution of the anti-venereal campaign in the rural areas the authors propose a system of motorized dispensaries, equipped with all the means needed for case finding and treatment. Finally, stress is laid upon the absolute necessity for a concurrent campaign of health education to explain the nature and consequences of venereal infection, as well as to disseminate knowledge concerning individual prophylaxis.

REFERENCES

1. Banu, G. Biologie du peuple Roumain. Principes d'un plan de travail pour l'Académie de Médecine. *Bull. Acad. Méd. Roumanie*, 19:213-302, 1946.
2. Banu, G. Les Caractères régionaux de la Roumanie d'après la situation de la mortalité infantile, *ibid.*, 19:333-365, 1946.
3. Banu, G. and Dinu, I. "Les Recrues," Criterium d'investigation dans la biologie de la population, *ibid.*, 19:401-429, 1946.
4. Banu, G., and Rugina, I. Caractérisation régionale de la Roumanie par rapport aux maladies infectieuses, *ibid.*, 19:459-488, 1946.
5. Banu, G., and Sapira, B. Contributions à l'étude de la biologie de la femme ouvrière, *ibid.*, 19:503-533, 1946.
6. Nicolau, S., and Theodoresco, S. Considération sur l'état actuel des maladies vénériennes dans notre pays et sur leur prophylaxie, *ibid.*, 19:537-551, 1946.

ASSOCIATION NEWS

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

- Margaret E. N. Beaver, M.D., 618 Rood, Grand Junction, Colo., Director of Public Health, City of Grand Junction
- Aaron W. Christensen, M.D., District 9, U. S. Public Health Service, Box 1530, Dallas 1, Tex., Surgeon
- R. G. M. Ehlers, M.D., Box 712, Court House, Las Cruces, N. M., District Health Officer, Dona Ana County Health Dept.
- Edward C. Love, Jr., M.D., 320 N. Jackson St., Quincy, Fla., Director, Gadsden County Health Dept.
- Lad R. Mezera, M.D., 1539 W. Flower Circle S., Phoenix, Ariz., Asst. Director, Maricopa County Health Unit
- Israel Gitlitz, M.D., Pima Indian Hospital, Sacaton, Ariz., Medical Officer, U. S. Indian Service
- T. Everett Ross, 158 W. Main St., Somerville, N. J., Health Officer, Board of Health
- Elaine A. Schwinge, M.D., M.P.H., Alaska Dept. of Health, Box 960, Anchorage, Alaska, Field Physician
- Frank I. Shih, M.D., Ministry of Health, Republic of China, Wangpu Lu, Nanking, China, Quarantine Expert

Laboratory Section

- Antonio R. Monteiro Filho, M.D., D.P.H., Rua Assis Bueno 37, Rio de Janeiro, Brazil, S. A., Bacteriologist, Hospital de Pronto Socorro
- Ray R. Lowther, M.D., 945 Washington St., Denver 3, Colo., Bacteriologist, Denver General Hospital
- Richard P. Mason, M.D., 3017 S. Buchanan, Arlington, Va., Training in Virus Research, National Institutes of Health
- John C. Swartzwelder, Ph.D., 1542 Tulane Ave., New Orleans, La., Assoc. Professor of Medical Parasitology, Louisiana State Univ., School of Medicine

Vital Statistics Section

- Eva Balamuth, 255 W. 23rd St., New York 11, N. Y., Asst. Research Statistician, New York Heart Assn.

- Archie Blake, Ph.D., 223 N. George Mason Drive, Arlington, Va., Medical Statistician, Office of the Surgeon General, U. S. Army
- Agnes W. Brewster, 4 Burning Tree Court, Bethesda 14, Md., Biometrician, Special Projects Section, Office of Field Studies, Tuberculosis Control Division, U.S.P.H.S.
- Charles R. Council, State Board of Health, Raleigh, N. C., Senior Statistician
- Gertrude M. Cox, M.S., Raleigh, N. C., Director, Institute of Statistics, Univ. of North Carolina
- Margaret E. Drolette, 55 Shattuck St., Boston, Mass., Statistician, Harvard School of Public Health
- J. Harold Furlong, City Hall, Room 14, Schenectady 5, N. Y., Registrar of Vital Statistics
- Thomas V. Gardner, 1943 N. 4th St., Harrisburg, Pa., Head Statistical Accountant, State Dept. of Health
- Virginia C. Gary, 1583 Massachusetts Ave., Cambridge, Mass., Record Consultant, U.S. P.H.S., Tuberculosis Control Division
- Thomas N. E. Greville, Ph.D., P. O. Box 7363, Washington 4, D. C., Principal Actuarial Mathematician, National Office of Vital Statistics, U.S.P.H.S., Federal Security Agency
- Maude M. Holmes, R.R.L., 914 Poplar Blvd., Jackson, Miss., Chief Medical Record Librarian, Mississippi Baptist Hospital
- Hilda LaRocca, 30 Magnolia Rd., Milton, Mass., Epidemiologist, State Dept of Public Health
- Sara A. Lewis, National Office of Vital Statistics, Washington 25, D. C., Biostatistician, U.S.P.H.S.
- Wilbur K. Morris, 1224 Loretta Ave., Columbus, Ohio, Field Representative, Division of Vital Statistics, State Dept. of Health
- Anne V. Murray, 2421 Lavin Court, Troy, N. Y., Statistician, Rensselaer County Dept. of Health
- Dorothy S. Oliver, 4505 West Virginia Ave., Bethesda 14, Md., Biostatistician, U.S.P.H.S.
- Beatrice Pearson, 240 East Madison St., Louisville 2, Ky., Statistician, Louisville and Jefferson County Board of Health

- Sol Z. Rosenbaum, 797 N. VanBuren St., Milwaukee 2, Wis., Research Sec., Milwaukee County Community Fund and Council
 Mary E. Rumpf, 10 Third Place, Garden City, N. Y., Public Health Statistician, Nassau County Health Dept.
 I. I. Warran, 1332 Belmont St., Washington 9, D. C., Biostatistician, U.S.P.H.S.

Engineering Section

- Arthur C. Eldred, 571 S. Coronado St., Los Angeles 5, Calif., Asst. Supervisor, Sanitation and Housing, City Health Dept.
 Prof. Lucas Nogueiro Garcez, Univ. de Sao Paulo, Praca Cel. Fernando, Prestes 74, Sao Paulo, Brazil, S. A., Professor of Hydraulics and Sanitary Engineering, Escola Politecnica and Escola de Saude Publica
 Arthur H. Johnson, M.P.H., 1165 Oakley, Topeka, Kan., Supervisor Fly Control Work, U.S.P.H.S.
 Jim S. Noel, M.P.H., City Hall, 2nd Floor, Sikeston, Mo., District Public Health Engineer, State Division of Health

Food and Nutrition Section

- Gertrude E. Austin, M.S., 5740 Kenwood Ave., Chicago 14, Ill., Director, Nutrition Education, American Institute of Baking
 Hilda Kreigenhofer, M.A., 313 W. 19th St., New York, N. Y., Nutritionist, New York City Dept. of Health
 Agnes R. O'Donnell, G. Hqs., S.C.A.P., PH&WS, APO 500 San Francisco, Calif., Nutrition Consultant, Medical Services Division, Dept. of the U. S. Army
 Harriet A. Stevens, M.S., State Dept of Health, Albany, N. Y., Nutritionist
 Carl E. Von Hoover, D.Sc., Ph.D., 838 Hot Wells Blvd., San Antonio 10, Tex., Consulting Chemist

Maternal and Child Health Section

- Carl L. Anderson, Ph.D., 832 U. S. Customhouse, Chicago 7, Ill., Consultant in Clinical Psychology, U.S.P.H.S.
 Marian M. Crane, M.D., U. S. Children's Bureau, Federal Security Agency, Washington 25, D. C., Asst. Director, Division of Research in Child Development

Public Health Education Section

- John E. Baker, Jr., M.P.H., 712 W. Palmetto St., Florence, S. C., Health Educator, Florence County Health Dept.
 Allen M. A. Buckingham, 1915 Sacramento St., Berkeley 2, Calif., Student, Univ. of California
 Adolph G. Franksen, 1806 Maple Ave., Evanston, Ill., Chief Sanitarian, Dept. of Health

- Herbert R. Glen, M.D., 3 Old Main Bldg., State College, Pa., Director, College Health Service, Pennsylvania State College
 Donald P. Hurd, 9 Park St., Boston 8, Mass., State Relations Officer, American National Red Cross
 Nelson R. Kraemer, M.A., 880 Bergen Ave., Jersey City, N. J., Exec. Director, Hudson County Tuberculosis League
 Raymond C. Lewis, M.A., 47 Beaver St., New York, N. Y., Asst. Director, Lay Education and Consultant in Health Education, American Cancer Society
 Sister Mary Magdala, R.R.L., St. Francis Hospital, 45th St., Pittsburgh 1, Pa., Medical Record Librarian
 J. Clark Sudduth, 2310 Baldwin St., Houston 6, Tex., Director of Public Relations, American Cancer Society, Texas Division
 Dorothy Ury, M.S.P.H., 223 Chestnut St., S. W., Atlanta, Ga., Consultant, State Health Education for Georgia Schools, State Dept. of Public Health

Public Health Nursing Section

- Ruth Bishop, M.N., 410 N. State St., Ann Arbor, Mich., Resident Lecturer, Public Health Nursing, Univ. of Michigan
 Mary M. Dawes, R.N., 6628 San Bonita, Clayton 5, Mo., Director of Public Health Nursing Services, St. Louis County Health Dept.
 Florence A. Twaddle, R.N., Elkhart County Tuberculosis Assn., Goshen, Ind., Exec. Secy.
 Winefred A. Erickson, 121 Collins St., Joliet, Ill., Staff Nurse, Will County Health Dept.

Epidemiology Section

- Commander William J. Dougherty, M.C., 9211 Long Branch Parkway, Silver Springs, Md., Navy Dept. Bureau of Medicine and Surgery, Preventive Medicine Division, Venereal Disease Control
 Leonard T. Kurland, M.D., M.P.H., U.S. P.H.S., Washington 25, D. C., Epidemiologist, Field Studies in Mental Hygiene
 Cid Ferreira Lopes, M.D., 923 Rua Piaui, Belo Horizonte, Minas Gerais, Brazil, S. A., Director, da Escola de Saude Publica
 Bernice C. Utterback, 650 Blvd., N. E., Atlanta Ga., Statistician, U.S.P.H.S., Communicable Disease Center

School Health Section

- Olive S. Barnett, R.N., 1131 Greenfield Ave., Pittsburgh, Pa., School Nurse, West Mifflin Borough Schools
 Leah Lillywhite, M.S., 519 N. Oakland St., Arlington, Va., Asst., Child Health Education, D. C. Tuberculosis Assn.

Helen T. Rogers, R.N., State Dept. of Education, Hartford, Conn., School Health Consultant

Dental Health Section

Alvin F. Gardner, D.D.S., Suite 908-9 Congress Bldg., Miami, Fla., Pedodontist

Unaffiliated

Aaron Appleby, D.V.M., 526 Saw Mill River Road, Yonkers, N. Y., Supervising Milk and Food Sanitarian, Yonkers Dept. of Public Health

Jerome T. Bieter, Rhode Island Hospital, Providence, R. I., Administrative Interne

George A. W. Currie, M.D., Colorado General Hospital, Denver, Colo., Administrator of Hospitals, Univ. of Colorado, Medical Centre

Frederic P. G. Lattner, LL.B., Liberty Bldg., Des Moines, Iowa, Exec. Director, Hospital Service Inc. of Iowa

Edmund Mattos, R.N., Massachusetts General Hospital, Boston 14, Mass., Administrative Interne

Elizabeth P. Rice, M.S., 55 Shattuck St., Boston, Mass., Asst. Professor of Medical Social Work, Harvard School of Public Health

Robert J. Thomas, 75 E. Lancaster Ave., Ardmore, Pa., Health Officer, Lower Merion Township, Board of Health

Charles F. Wilkinson, Jr., M.D., W. K. Kellogg Foundation, Battle Creek, Mich., Assoc. Director, Medical Division

Walter J. Wolpert, 4324 Winthrop, Indianapolis, Ind., Personnel Director and Administrative Assistant, State Board of Health

SUSTAINING MEMBERS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

American Bottlers of Carbonated Beverages, Washington, D. C.

Ames Company, Inc., Elkhart, Ind.

Association for the Aid of Crippled Children, New York, N. Y.

Borden Company, New York, N. Y.

Chlorine Institute, Inc., New York, N. Y.

Difco Laboratories, Inc., Detroit, Mich.

Diversey Corporation, Chicago, Ill.

Equitable Life Assurance Society of the United States, New York, N. Y.

John Hancock Mutual Life Insurance Company, Boston, Mass.

Hoffman-La Roche, Inc., Nutley, N. J.

Holland-Rantos Company, Inc., New York, N. Y.

International Association of Ice Cream Manufacturers, Washington, D. C.

International Equipment Company, Boston, Mass.

Josam Manufacturing Company, Cleveland, Ohio

Lederle Laboratories Division, American Cyanamid Co., New York, N. Y.

Liberty Mutual Insurance Company, Boston, Mass.

Life Insurance Co. of Virginia, Richmond, Va.

Macmillan Company, New York, N. Y.

George W. Merck, Rahway, N. J.

Metropolitan Life Insurance Company, New York, N. Y.

National Life Insurance Co., Montpelier, Vt.

Oval Wood Dish Corp., Tupper Lake, N. Y.

Prudential Insurance Company of America, Newark, N. J.

Sealright Company, Inc., Fulton, N. Y.

Sharp and Dohme, Inc., Glenolden, Pa.

E. R. Squibb and Sons, New York, N. Y.

Sun Life Insurance Company, Baltimore, Md.

Travelers Insurance Company, Hartford, Conn.

Union Central Life Insurance Company, Cincinnati, Ohio.

Upjohn Company, Kalamazoo, Mich.

West Disinfecting Co., Long Island City, N. Y.

Western and Southern Life Insurance Company, Cincinnati, Ohio.

Winthrop-Stearns, Inc., New York, N. Y.

Wyeth, Inc., Philadelphia, Pa.

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

(Supplemental to list in October Journal)

POSITIONS AVAILABLE

Director for the Alcoholic Clinic of the D. C. Health Department. Salary range \$8,179-\$9,376 per annum. Male, graduate of grade A medical school, preferably diplomate of the American Board of Psychiatry and Neurology with broad and progressive professional and medical experience including four years in psychiatry. Ability in organization and direction and coordination of medical activities. Should have had at least one year's experience in the handling of alcoholic patients either in a mental hospital, city general hospital, sanatorium, or in private practice. Must possess qualifications to obtain license to practise medicine in the District of Columbia. Excellent opportunity for applicant possessing necessary qualifications. Write: George C. Ruhland, M.D., Health Officer, Washington, D. C.

Public Health Nurse Supervisor with certificate or one year of graduate study in public health. Salary range \$3,336-\$3,816. Vacation, sick leave, retirement plan, 5 day week, permanent tenure. Car furnished. Write: Charles A. Neafie, M.D., Director, Department of Public Health, Pontiac 15, Mich.

Bacteriologist-Serologist. College degree, with experience in a public health laboratory. Salary \$270 to \$320. Retirement benefits, vacation, sick leave, permanency. Write: Charles A. Neafie, M.D., Director, Department of Public Health, Pontiac 15, Mich.

Chief Health Officer for city health department. M.D. preferably with public health training and experience. State experience and salary expected. Write: Acting City Manager, Bluefield, W. Va.

Public Health Nurses with experience for Deschutes, Hood River, and Grant Counties in Oregon. Salary open. Ample travel allowance in addition to salary. Permanent. Write: Dr. Harold M. Erickson, State Health Officer, 1022 S. W. 11th Avenue, Portland 5, Ore.

Public Health Nurses. Immediate openings available. Generalized public health nursing program. \$2,700 salary to start

or more depending on qualifications, plus \$700 travel allowance. Write: Director, Ottawa County Health Department, Grand Haven, Mich.

Public Health Nurse in small county near Portland, Ore. Salary \$250. Car and upkeep furnished for official work. Wire immediately Hood River County Health Association. Hood River, Ore.

Public Health Nurses needed in New York City Health Department. General service. Immediate appointment on provisional basis. Starting salary \$2,400, 35 hour week, liberal vacation allowance, in-service training. Write or come to the Bureau of Nursing, City Health Department, 125 Worth Street, New York 13, N. Y.

1. **Public Health Staff Nurse**, salary \$2,700 a year, plus \$600 travel.

2. **Assistant Sanitarian**, salary \$3,000 a year plus \$600 travel. Write: Emily R. Hautau, M.D., Midland City-County Health Department, Midland, Mich.

Health Educator for State Tuberculosis Association in New England. Duties include consultant work with affiliated associations throughout state to promote community organization for health education and public health action. Master's degree in public health and/or health education, plus two years' experience in health education work. Salary about \$3,000 depending on qualifications and experience. Write: Box A34, Employment Service, A.P.H.A.

Supervising Nurse and Two Public Health Nurses for generalized program in Colusa County in Northern California. Excellent opportunity for trained personnel to organize and operate a new, progressive public health program. Salaries, \$300 and \$325, 7 cents mileage, housing available, car can be purchased locally. Write: Colusa County Health Department, 215 Fifth Street, Colusa, Calif.

Assistant Health Officers: 1. Maternal and Child Health; 2. VD Control and Epidemiology. Public Health degree or

two years of public health experience. Salary \$7,140 to \$8,916 annually.

Public Health Nurses, generalized public health program throughout incorporated cities and county area. Retirement, automobile furnished. Salary range \$2,928 to \$3,660 annually.

Sanitarians, generalized program, 2 years or more of college with major in basic sciences. Salary range \$2,928 to \$3,660 annually. San Joaquin Valley, County population 250,000, civil service. Write: Fresno City-County Health Officer, 203 Court House, Fresno, Calif.

Orthopedic Nurse Consultant with the Florida Crippled Children's Commission. Qualifications must meet requirements established by this agency and include orthopedic training and experience in supervision and administration in public health. Write: Dr. L. J. Graves, Director of Services, P. O. Box 1028, Tallahassee, Fla.

Venereal Disease Control Physician Minimum three years' experience in V.D. control work. Graduate of approved medical school, plus one year rotating internship supplemented by one year of graduate training leading to M.P.H. degree. \$6,480 to start, advances to \$7,800. Permanent, civil service, retirement. Write: Harold M. Erickson, M.D., State Health Officer, Oregon State Board of Health, 1022 S. W. 11th Avenue, Portland 5, Ore.

Virologist: experience in performing diagnostic complement-fixation, agglutination, and neutralization tests, animal inoculations and research in virology. Teaching of medical students and technicians essential. Salary ranges from \$5,000 upward. Write: Director of Laboratory, Erie County Laboratory, 2100 City Hall, Buffalo 2, N. Y.

Qualified Health Officer with the Tri-County District Health Department. Salary \$8,000 annually plus travelling expenses. Applicant should possess adequate experience in directing a District Health Department. Write: Tri-County District Health Department, 4200 E. 9th Avenue, Denver, Colo.

Public Health Nurse with a Public Health Certificate or the equivalent and experience for employment with the Tri-County District Health Department. Starting salary \$230 per month plus travel at 7¢ per mile. Write: Tri-County District Health Department, 4200 East 9th Avenue, Denver, Colo.

Veterinary Bacteriologist, male, for mid-western department of agriculture; new laboratory; diagnostic tests, ordering of equipment, supplies, stocks, etc., liberal salary. Write: Box A-33, Employment Service, A.P.H.A.

Sanitarian with completed training course. Generalized sanitation program. County of 62,000 population. Car allowance; vacation; sick leave and retirement benefits. Beginning salary \$2,736 annually. Write: Department of Public Health, 842 Front Street, Santa Cruz, Calif.

Health Education Coördinator for generalized full-time program for County of 62,000 population on California sea coast. Salary \$3,600 with travel allowance. Must own car. Write: same as above.

Health Officer and Director of the Kansas City-Wyandotte County Health Department; Salary \$6,900 to \$8,400. M.D.; graduate work in public health and experience required. Duties varied. Write: Edward W. Becker, Commissioner of Finance, Health and Public Property, City Hall, Kansas City, Kan.

Opportunities in Indiana

The Indiana State Board of Health has positions available for Branch Public Health Directors, Public Health Nurses and Public Health Engineers. Liberal retirement system. Personnel are needed too, for newly established city and county health departments. Qualified public health personnel are needed as:

Branch Public Health Directors	\$6,600-8,100
Public Health Engineers IV	3,200-4,500
Public Health Nurses III	2,700-3,900
Public Health Nurses V	3,300-4,800

All applicants must have been graduated from a university of recognized standing. Write: Personnel Director, Indiana State Board of Health, 1098 W. Michigan Street, Indiana, Ind.

Fellowships

Postgraduate public health Fellowships—A limited number of fellowships are available to physicians for one year of postgraduate study leading to a Master of Public Health degree. This study requires one academic year at a school of public health

approved by the American Public Health Association, followed by 3 months of acceptable or approved field training. Awards are based on the individual need of each applicant. Fellowships may cover tuition, maintenance, and an allowance for books, if required. For further information write to: National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y.

Announcement

A competitive examination for appointment in the Regular Corps of the United States Public Health Service in the grades of Assistant Scientist and Senior Assistant Scientist will be held in the near future. Applicants for the Assistant Grade must be citizens of the United States, at least 21 years of age; possess a Doctor's degree in a natural or social science from a university of recognized standing, and have had seven years of educational and professional training and experience. Applicants for the Senior Assistant grade must meet the above requirements with ten years of educational and professional training. Entrance pay for the Assistant grade with dependents is \$3,811 per year and for the Senior Assistant grade with dependents \$4,351 per year. Application forms and additional information may be obtained from the Public Health Service Hospitals and District Offices or by writing to the Surgeon General, U. S. Public Health Service, Washington 25, D. C.

Public Health Nurse with Public Health Certificate. Beginning salary \$2,812 to maximum of \$3,208. Car furnished. Liberal vacation and sick leave allowance with pay; 41 hour week. Write: Civil Service Board, City Hall, Jackson, Mich.

Supervising Public Health Nurse. Present salary range \$259.25 to \$314.25, plus car allowance; automatic increases; cost-of-living salary adjustments semi-annually. Write: Personnel Division, City Hall, Madison 3, Wis.

Biochemist with Ph.D. degree with experience in metabolism and endocrinology. To act as director of laboratories and do research in methodology. Position requires occasional travel. Annual salary about \$5,200. Write Box A-35, Employment Service, A.P.H.A.

Nutrition Consultant—generalized public health nutrition program including consultation to institutions in a specified area. Salary \$2,640 plus \$180 cost of living with annual increment. Experience and training—not less than six years' employment as a nutritionist or dietitian in a social welfare or health agency, agricultural extension service, hospital, child caring institution, food clinic or nursery school, preferably with experience in group instruction, or as a teacher of home economics including nutrition, or graduation from college with major courses in foods and nutrition and two years' employment of the above type or an equivalent combination of experience and training. Write Box A-36, Employment Service, A.P.H.A.

POSITIONS WANTED

Chemist. Ten years in biochemistry, bacteriology, and five years in environmental sanitation wishes laboratory position in sanitary chemistry in western state. Write Box C-6, Employment Service, A.P.H.A.

Biological and Physical Chemist. Extensive experience research, development, control, manufacture of pharmaceuticals, biologicals, foods. University Professor, Ph.D., former head development department large drug manufacturer, 60 publi-

cations, books. References. Age 36, family. Seeks position of increased responsibility. New York metropolitan area preferred; South America assignments considered. Write: Box C-5, Employment Service, A.P.H.A.

Public Health Administrator and Medical Analyst; ten years' experience in public and private agencies, specialist medical care administration and analysis, M.P.H., available for executive or research position. Write Box C-7, Employment Service, A.P.H.A.

Advertisement

All communications should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

Opportunities Available

WANTED—(a) Director of health, municipal health department, city of 70,000, Southeast. (b) Chief of bureau of school medical inspection and, also, chief of department of epidemiology; former should be qualified in school health; municipal health department, eastern city, important university medical center. (c) Student health physician; coeducational college; present enrollment around 7,000; large outpatient department; well equipped infirmary; town of 70,000, Southwest; \$6,000–\$7,200. (d) Public health physician for important position with preventive medicine program of large industrial company; should have administrative ability; opportunity for working into key position in one of the country's most important companies in industry; New York. (e) Professor of preventive medicine; should be qualified to teach preventive medicine and public health with primary emphasis on preventive medical aspects; university medical school; East. (f) Branch public health director; state department of health; minimum three years' experience required; \$6,000–\$8,100. PH11-1

WANTED—(a) Health educator, county health department; preferably someone with several years' experience in education including public relations, radio work, etc., headquarters in town of 90,000; East; \$4,000–\$5,000. (b) Sanitary engineers, nutritionists and other public health trained personnel; new project, Southwest. (c) Health education coordinator; county health department; newly created position; Southern California. (d) Vital statistician to supervise and maintain system of

registration; degree with graduate training in public health or statistics required; state department of health; West; \$5,100. (e) Health educator; duties consist of working with all types of organized groups, promoting school health education; university medical center; New England. (f) Public health engineer; state department of health; considerable experience required; \$3,200–\$3,500. (g) Sanitary engineer; state department of health; \$4,500–\$4,800 including traveling expenses; Middle West. PH11-2

WANTED—(a) Public health nurse for appointment of educational director; visiting nurse association; Southeast. (b) Public health nurse for administrative position, state department of health; headquarters in university medical center; \$3,300–\$4,800. (c) Director of public health nursing; state department of health; generalized program; headquarters in college town of 20,000; West; \$3,700–\$4,000. (d) Public health nurse for teaching position with voluntary health agency offering bedside nursing care and family health service to large city and surrounding area; East; \$3,900–\$4,200. (e) Assistant professor of public health nursing; preferably one with Master's degree and supervisory experience; collegiate school; \$4,000–\$5,000, 10 month year; additional income for summer teaching. (f) Student health nurses; liberal arts college; co-educational; town of 40,000; Middle West. (g) Public health nurse to take charge of children's clinic, unit of university group; university medical center; Southwest. PH11-3

Advertisement

Opportunities Wanted

Woman physician well trained in internal medicine and public health; three years with health department of eastern city; four years, student health department, college for young women; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health dentist; B.S., D.D.S., eastern schools; Master's degree in Public Health Dentistry recently received; available immediately; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11.

Public health administrator; B.A., M.S., M.D., eastern schools; Master of Public Health, Johns Hopkins; several years director of public health program in foreign country; eight years, professor of preventive medicine and public health, uni-

versity school of medicine; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11.

Health educator; M.A. in Health and Physical Education; four years, instructor in physical education, liberal arts college; six years, assistant professor, physical education young woman's college; two years on administrative staff, large industrial company in charge of promotional program; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Sanitary engineer; Bachelor's degree; since 1940, department of public sanitation, municipal health department serving as chief chemist and director; for further information please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

NEWS FROM THE FIELD

THE NATION'S HEALTH, A TEN YEAR PROGRAM

Early in September the Federal Security Agency released a report to the President by Oscar R. Ewing, Federal Security Administrator, consisting of a 186 page summary of the present resources for health, proposed methods of meeting deficiencies, proposed financing of the health program, and various means of solving the health problems facing the nation.

This report takes as its frame of reference the material considered at the National Health Assembly in May, 1948, but the report is not limited to the conclusions of the Assembly, and the Administrator, on his own responsibility, has made bold recommendations beyond those agreed to by the Assembly and for the information of the President and the American people.

Chapter by chapter this report considers the health of the nation, maintaining that every year 325,000 persons die in the United States whom we have the knowledge and skills to save. Bad health, according to the report, accounts for more than 4,000,000 man-years of work lost, and \$27,000,000 in national wealth are lost through sickness, and through partial and total disability.

The report goes on to set a first health goal of increasing supplies of medical manpower until there is enough everywhere in the country to satisfy the health and medical needs of all the people. It is proposed to expand and establish medical schools, training schools, and teaching hospitals until by 1960 the annual production of medical manpower in all categories will have increased by 40 to 50 per cent. Targets for manpower are proposed in each state, based on

levels of medical manpower already attained in the twelve states most adequately supplied.

The second health goal seeks to assure that there are enough hospital beds of all kinds everywhere to meet the people's needs and to finance hospitals so that they may give the highest quality services. The total beds should be doubled, adding at least 600,000 beds by 1960. It is proposed that auxiliary health and community centers should be built, particularly in rural areas, and that hospitals and health centers should be united into regional chains so that the most remote regions will have full access to modern medicine.

The third health goal seeks to assure that every individual without regard to his economic status has full access to adequate medical services for the prevention of illness, the care and relief of sickness, and the promotion of a high level in physical and mental health. The conclusions of the planning committee of the Medical Care Section, National Health Assembly, are reproduced. A national plan of sickness insurance is proposed. This goes well beyond the area of agreement reached at the National Health Assembly.

The fourth health goal focuses attention on mental health as the leading area needing medical progress in the second half of the present century. Research in the field of psychiatry should be promoted, as well as in the mental-emotional aspects of physical illness. Manpower facilities for both preventive and curative work in mental health throughout the country should be expanded.

The fifth health goal proposes that everyone in the nation be enabled to enjoy a healthy, active, and productive

maturity. Chronic disease is presented as the greatest single barrier to achievement of this goal. The change in the age composition of our population is emphasized and the various causes of death from chronic diseases are presented.

The sixth health goal proposes to rehabilitate the 250,000 men and women who become disabled through illness or injury every year so that they can be restored to the most nearly normal life and work of which they are individually capable.

The seventh health goal seeks to assure to every child in the country the utmost degree of health, defined as a condition in which all his physical and mental powers are functioning at their best. It is proposed to do this through a national plan that will build progressively toward complete medical care and social, psychological and health services for all children and for mothers in childbirth.

The eighth health goal represents planning and action in every community in every state directed toward providing the best possible health conditions for all people by assuring adequate local supply of needed services and by organizing the local agencies of health, the doctors, hospitals, public health departments, and voluntary groups into effective teamwork for the welfare of the entire community.

The ninth health goal is to establish everywhere local health units with full-time qualified staffs adequate for the needs of the population; to increase and improve the training of public health workers to the end that their number shall be doubled as rapidly as feasible. An expansion of the present system of federal grants-in-aid through state health departments is proposed in the amount of an immediate increase to \$40,000,000 annually, which by 1953 should rise to \$53,000,000.

This report, attractively presented,

is available from the Superintendent of Documents in Washington at the price of \$1. It should be read in the original by every public health worker who will see goals toward which he has worked restated by a responsible federal official who has projected the entire public health program to a new level of public acceptance. Readers of the report may differ as to the advisability of means proposed but, with the exception of the methods advocated for sickness insurance, the means are in general in line with those proposed by the National Health Assembly.

REGIONAL OFFICES FOR FEDERAL SECURITY AGENCY

The ten regional offices for the Federal Security Agency, announced by Administrator Oscar Ewing in July, are now in operation. The field activities of all the units of FSA—U. S. Employment Service, Children's Bureau, Public Health Service, Office of Education, Food and Drug Administration, Office of Vocational Rehabilitation, and Bureau of Employee's, Compensation—will be coordinated in the agency regional offices. Heretofore, the various units established their own regional offices with varying boundaries.

In announcing the ten regions, Federal Security Administrator Ewing said, "The various programs of FSA form an integrated pattern for the nation's health, education, and social security. I hope that for the general public the regional offices will become widely known as a source of information about the many programs administered by FSA.

The regions, the states covered, the regional directors, and headquarters are as follows:

- I. Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island — John F. Hardy, Boston, Mass.
- II. New York, New Jersey, Pennsylvania, Delaware — Joseph B. O'Connor, New York, N. Y.

- III. Maryland, District of Columbia, Virginia, West Virginia, North Carolina—Erval R. Coffey, M.D., Washington, D. C.
- IV. Michigan, Ohio, Kentucky—J. Kimball Johnson, Cleveland, Ohio
- V. Minnesota, Wisconsin, Illinois, Indiana—Ed McDonald, Chicago, Ill.
- VI. Tennessee, Mississippi, Alabama, Florida, South Carolina, Georgia—Richard H. Lyle, Atlanta, Ga.
- VII. North Dakota, South Dakota, Nebraska, Kansas, Iowa, Missouri—James W. Doarn, Kansas City, Mo.
- VIII. Louisiana, Arkansas, Texas, Oklahoma, New Mexico—James H. Bond, Dallas, Tex.
- IX. Montana, Idaho, Wyoming, Utah, Colorado—Heber R. Harper, Denver, Colo.
- X. Washington, Oregon, California, Nevada, Arizona—Fay W. Hunter, San Francisco, Calif.

Each of these regional directors had previously served as a regional director in some unit of the Federal Security Agency. Dr. Coffey, the director of the new region III, is the only medical director of the former eight Public Health Service districts to become an FSA regional director.

AUSTRIAN PUBLIC HEALTH ASSOCIATION ORGANIZED

The Austrian Public Health Association, Vienna, has recently been established under the Presidency of Professor F. Reuter, Chief of the Public Health Office, Austrian Department of Social Welfare.

Principal among the purposes of the Association are improving the nutritional situation of the most vulnerable groups of the population, public health education, with special reference to foods, and focused on teachers, nurses, students, mothers, and housewives. Radio programs are also planned, together with health exhibits and motion pictures. Dr. Wilhelm Halden of Sanatorium Mariahilf, Klagenfurt, is the Secretary. The *American Journal of Public Health* for

the current year has been sent to the Austrian Public Health Association with the greetings of the American Public Health Association.

DR. JACKSON JOINS CANADIAN DEPARTMENT OF NATIONAL HEALTH AND WELFARE

Fred W. Jackson, M.D., D.P.H., of Winnipeg, Manitoba, who for the past 17 years has been Deputy Minister of Health and Public Welfare for the Province, has been appointed Director of Health Insurance Studies in the Department of National Health and Welfare, Ottawa. Dr. Jackson was one of the Canadian representatives at the fifth meeting of the Interim Commission of the World Health Organization, Geneva, and while overseas spent some time studying the United Kingdom's Health Insurance and Social Security plans. Since 1939 Dr. Jackson has been Professor of Preventive Medicine at the University of Manitoba, and for several years has been a lecturer at the School of Hygiene, University of Toronto.

The new provisions of federal grants-in-aid to the Canadian Provinces, according to the Prime Minister, represent a beginning of a complete health service for the Dominion of Canada. Dr. Jackson's work will be in the preparation of a health insurance plan for Canada.

ULSTER COUNTY (NEW YORK) PLANS TUMOR CLINIC

On September 10 the cornerstone of the Ulster County Tumor Clinic in Kingston was laid at ceremonies addressed by Dr. Morton L. Levin, Assistant State Commissioner of Health, Albany. The building is to cost \$300,000. This clinic, which has been designed for diagnosis, treatment, and research in cancer, is to be built with county funds set aside by the Ulster County Board of Supervisors for post-

war purposes. It is expected that the clinic will be opened in the summer of 1949.

In his address Dr. Levin said that a master plan for control of cancer is comprised of widespread public education, complete physician participation, tumor clinic facilities, detection center facilities, continued follow-up and after-care of cancer patients, and research.

DR. PARRAN RECEIVES DISTINGUISHED SERVICE MEDAL

On September 3, Kenneth C. Royall, Secretary of the Army, presented to Dr. Thomas Parran, former Surgeon General of the U. S. Public Health Service, the Distinguished Service Medal in recognition of Dr. Parran's aid and advice in developing the Army's war-time preventive medicine program.

DR. GARNIER APPOINTED LOUISIANA STATE HEALTH OFFICER

The appointment of W. V. Garnier, M.D., of Bastrop, as President of the Louisiana State Board of Health was announced on July 8. Dr. Garnier succeeds Waldo Treuting, M.D., M.P.H., who has joined the teaching staff of Tulane University School of Medicine, New Orleans, retaining a status as Consultant to the State Board of Health.

S. J. Phillips, M.D., M.P.H., has been appointed assistant to Dr. Garnier. Dr. Phillips, a native of Louisiana, has a degree in public health from the University of North Carolina.

PITTSBURGH'S NEW SCHOOL OF PUBLIC HEALTH

On September 22 it was announced that the University of Pittsburgh had received a grant of \$13,600,000 from the A. W. Mellon Educational and Charitable Trust for the establishment of a Graduate School of Public Health as a part of the university's Medical Center. Concurrently it was announced that the first Dean of the School would

be Dr. Thomas Parran, former Surgeon General of the U. S. Public Health Service for 12 years, and most recently Chairman of the U. S. Delegation to the First World Health Assembly in Geneva. Dr. Parran will also serve as consultant to Chancellor R. H. Fitzgerald of the university on the medical sciences.

In announcing the gift Paul Mellon, Trustee of the Mellon Trust, said, "The project is conceived as a nucleus from which, through extensive research and the association of others active in the field, there will evolve a great institute of preventive medicine for the betterment of health conditions of the people of Pittsburgh and similar urban industrial areas and also with benefits to the country at large and mankind in general. Careful studies of the Pittsburgh area convinced us that better health facilities are a vital need in the Pittsburgh area. Professional authorities told us that Pittsburgh's health needs can best be met through the training of professional leaders and the creation of facilities for research on urgent problems of public health."

Under the agreement with the university, the Mellon Trust has made available immediately an endowment of \$4,000,000 to enable the university to obtain outstanding men for the organization of the school and to assure adequate faculty and teaching facilities. An additional endowment of \$3,000,000 will be provided within 5 years when it appears that the school has developed into a successful undertaking. Five million dollars is allocated for the construction of school and laboratory buildings, and \$1,600,000 for developmental costs and operating and equipment costs during the first 5 years of operation.

The school will prepare students for the Master of Public Health and Doctor of Public Health degrees, both post-graduate to degrees in medicine, dentistry, sanitary engineering, nursing,

bacteriology, and allied sciences. There are 10 similar schools in the United States and Canada accredited by the American Public Health Association to grant these public health degrees. They are located at Harvard, Yale, Columbia, Johns Hopkins, Toronto, and Tulane Universities, the Universities of California, Michigan, Minnesota, and North Carolina. These grant public health graduate degrees to between 500 and 600 students annually, a number far short of that needed to man existing health services. Mr. Mellon said in announcing the gift, "This School will serve not only Pittsburgh and Pennsylvania, but its goal will be to attain world leadership in industrial and occupational health and in other fields of preventive medicine."

Dr. Parran has been full time in Pittsburgh since he returned from Mexico City early in October, where he attended a meeting of the Pan American Sanitary Bureau. He predicted that the new school would open its doors to students in 1950, since it would take that long for buildings to be constructed and a "key faculty" to be selected. The school's success, he said, will be measured by the quality rather than the number of students, and "quality" students depend on "quality" faculty.

PROGRESS IN PUBLIC HEALTH SPECIALTY BOARD

The first regular meeting of the members and Trustees of the American Board of Preventive Medicine and Public Health, Inc., was held in Chicago September 26 with the following persons present:

Floyd C. Beelman, M.D., Topeka, Kan.
 Walter L. Bierring, M.D., Des Moines, Iowa
 Richard F. Boyd, M.D., Washington, D. C.
 William P. Shepard, M.D., San Francisco, Calif.
 Ernest L. Stebbins, M.D., Baltimore, Md.
 Felix J. Underwood, M.D., Jackson, Miss.
 V. A. Van Volkenburgh, M.D., Albany, N. Y.

Eustace W. Tomlinson, New York—Attorney for the Board
 Gaylord W. Anderson, M.D., Minneapolis, Minn.
 Reginald M. Atwater, M.D., New York, N. Y.

It will be recalled that the Board was duly incorporated in July, 1948, under the laws of Delaware (*A.J.P.H.*, Sept., 1948, p. 1348). The By-Laws of the Board were adopted as approved by the incorporators after minor changes.

The following officers of the Board were elected to serve until the 1949 Annual Meeting of the Board:

Chairman: Walter L. Bierring, M.D.
Vice-Chairman: Felix J. Underwood, M.D.
Secretary-Treasurer: Ernest L. Stebbins, M.D.

The Board adopted the form of application for certification of physicians having special knowledge of preventive medicine and public health.

The Board discussed at length the accreditation of field training areas where residency experience could be obtained and counselled with Dr. Gaylord W. Anderson, *Chairman* of the Subcommittee on Field Training Areas, Committee on Professional Education, A.P.H.A.

Steps were taken to meet all the requirements of the Advisory Council on Medical Specialties for the recognition of the American Board of Preventive Medicine and Public Health as one of the official specialty boards.

The Board directed that it be made clear that the Board was not yet ready to receive applications from persons wishing to be accredited but that notice would be published in the *American Journal of Public Health* and other channels when that time comes.

It is expected that the Interim Board for Preventive Medicine and Public Health organized by the U. S. Army, Navy, and Public Health Service would be replaced by the American Board of Preventive Medicine and Public Health at an early date.

MEETING NEW PROBLEMS IN MILK SANITATION PROGRAMS

To meet the increasingly complex problem of milk control due to varied and often overlapping supervision by cities, increased milk production within the state and a demand for interstate shipment, and to the necessity for sanitation control of frozen desserts and other milk products plants, the Division of Health of Missouri has created a Milk Sanitary Advisory Council consisting of 9 members, 2 of them ex officio. Each, representing an official public health agency, is responsible for supervision of the milk sanitation program of his area. The Council will study current and special problems, and make recommendations to the Director of the Division of Health in an attempt to secure uniform application of procedures throughout the state. Council members are:

- I. H. Baird, D.V.M., Director of Milk Control, St. Joseph
- Raymond Bishop, Sanitary Inspector, Boonville
- Charles E. Carl, Public Health Engineer, State Division of Health
- W. J. Dixon, Director, Public Health Engineering, Kansas City Health Dept.
- M. R. Fisher, D.V.M., Director, Milk Control, St. Louis Division of Health
- L. W. Pickles, Director, Sanitation Section, St. Louis County Health Dept.
- Jack K. Smith, Public Health Engineer, Jackson County Health Dept.
- R. W. Hart, ex officio, U.S.P.H.S., Kansas City
- W. Scott Johnson, ex officio, Director of Environmental Sanitation, State Division of Health

BACTERICIDAL PROPERTIES OF CHLORAMINES AND FREE CHLORINE

IN WATER

A review by C. T. Butterfield, *Public Health Reports*, of July 16, 1948, presents various experiments to determine the relative effectiveness of chloramines as compared with free chlorine. The following primary factors are cited as governing the bactericidal efficiency

of free chlorine and the chloramines:

1. The longer the time of contact of organism and bactericidal agent, the more effective sterilization.
2. The lower the temperature of the water in which the contact is made, the less effective the sterilization.
3. The higher the pH of the water in which contact is made, the less effective the sterilization. Thus, when a combination of high pH and low temperature is encountered, poorest results are to be anticipated.

DR. HEUSTIS MICHIGAN HEALTH COMMISSIONER

Albert E. Heustis, M.D., Director of the Branch County (Mich.) Health Department and earlier of the Monroe County Health Department, was recently appointed Health Commissioner of Michigan by Governor Kim Zigler. Since the resignation of William DeKleine, M.D., as Commissioner early in the year, Michigan has had two acting commissioners, first John K. Altland, M.D., Director of the Bureau of Local Health Services, and later George D. Cummings, M.D., Director of the Bureau of Laboratories. Each will continue in his regular post under the new commissioner.

Dr. Heustis who holds an M.P.H. degree from the Johns Hopkins School of Public Health is a non-resident lecturer in public health at the University of Michigan School of Public Health, a Trustee of the Michigan Hospital Association and Vice President and a member of the Board of Directors of the Southwestern Michigan Hospital Council.

THE ARTHRITIS AND RHEUMATISM FOUNDATION

Dr. W. Paul Holbrook, Tucson, Ariz., president, has announced the formation of this foundation to promote the study of arthritis and other rheumatic conditions with which it is estimated

7,500,000 persons in the United States are afflicted. The new foundation is sponsored by the American Rheumatism Association in coöperation with the National Arthritis Research Foundation, the Detroit Fund for Crippling Diseases, and others. The medical policies and activities are under the direction of a medical and scientific committee.

The main objectives include a nation-wide survey of what can be done to combat arthritis. It expects to: (1) develop, with the aid of the National Research Council, a research program designed to mobilize facilities of the nation's medical schools and of the basic sciences, in the search to discover the cause and methods for the prevention and cure of rheumatic diseases; (2) establish fellowships designed to increase the number of men qualified to conduct research and to specialize in the treatment of these diseases; (3) develop key centers throughout the country devoted to research, teaching, and treatment, coördinated with medical schools; (4) promote a program of medical education to increase the appreciation of the profession as a whole of what can and should be done to bring effective treatment to patients with rheumatism; (5) foster the development throughout the nation of more adequate provision for patients with rheumatism, particularly in connection with the work of general hospitals.

Local chapters numbering 38 throughout the nation will help to integrate programs of investigation within their areas as well as raise funds for the purpose of financing such local programs and providing an equitable share of the funds needed to promote the national program of research as well as general educational and planning activities designed to support and increase the effectiveness of local efforts.

The chairman of the board of direc-

tors is Floyd B. Odium, Indio, Calif., president of the Atlas Corporation. Members of the Medical and Scientific Committee are:

Guy A. Caldwell, M.D., Professor of Clinical Orthopedics, School of Medicine, Tulane University of Louisiana

Russell L. Cecil, M.D., Professor of Clinical Medicine, Cornell University Medical College

Robley D. Evans, Professor of Physics, Massachusetts Institute of Technology

Morris Fishbein, M.D., Chicago, Editor, *Journal of the American Medical Association*

Philip S. Hench, M.D., Rochester, Minn., Professor of Medicine (Mayo Foundation), University of Minnesota Medical School

Andrew C. Ivy, Vice-President in charge of the Chicago Professional Colleges, University of Illinois

Karl F. Meyer, M.D., Director, the Hooper Foundation, University of California

Currier McEwen, M.D., Dean, New York University College of Medicine

Walter W. Palmer, M.D., Director, William Hallock Park Laboratories, Public Health Research Institute of the City of New York, Inc.

Howard A. Rusk, M.D., Professor of Rehabilitation, New York University College of Medicine.

COURSE IN LABORATORY DIAGNOSIS OF RABIES

A one week course in the Laboratory Diagnosis of Rabies, open to all grades of employed laboratory personnel, will be offered December 6 through December 10, 1948, at the laboratories of the U. S. Public Health Service's Communicable Disease Center in Atlanta, Ga.

Given primarily for laboratories of state and local public health departments and other official agencies responsible for the diagnosis of rabies, applicants from hospitals and private laboratories will be considered when vacancies occur. There is no tuition or laboratory fee, but travel and living expenses must be paid for by the individual or his employer.

Applications for the courses should be made as far in advance as possible

to Ernest S. Tierkel, Assistant Chief, Veterinary Public Health Division, Communicable Disease Center, 605 Volunteer Building, Atlanta 3, Ga.

NATIONAL HEART INSTITUTE ESTABLISHED

The National Heart Institute as a part of the National Institutes of Health, U. S. Public Health Service, was established in August in accordance with the National Heart Act of June, 1948. Its Director is C. J. Van Slyke, M.D., who was formerly director of the Research Grants and Fellowships Division of the National Institutes.

The first meeting of the National Advisory Council was held on September 8. Its membership of 12 appointive and 4 ex officio members is drawn from leaders in scientific research, medicine, education, and public affairs, and serves as the advisory body to the Public Health Service in administering the Heart Institute.

The members of the Advisory Council are:

James S. Adams, Lazard, Freres & Co., New York, N. Y.

Dr. C. A. Elvehjem, Dean, Graduate Schools, University of Wisconsin, Madison, Wis.

Maurice Goldblatt, Chicago, Ill.

Tinsley Harrison, M.D., Southwestern Medical College, Dallas, Tex.

T. Duckett Jones, M.D., Medical Director, Helen Hay Whitney Foundation, New York, N. Y.

Mrs. Albert D. Lasker, New York, N. Y.

Ernst Mahler, Kimberly-Clark Corporation, Neenah, Wis.

E. B. McNaughton, President, Oregonian Publishing Co., Portland, Ore.

Irvine H. Page, Director, Research Division, Cleveland Clinic Foundation, Cleveland, Ohio

B. O. Raulston, M.D., Dean, Medical School, University of Southern California, Los Angeles, Calif.

Paul D. White, M.D., Massachusetts General Hospital, Boston, Mass.

Albert J. Wolf, President, Board of Trustees, Touro Infirmary, New Orleans, La.

Colonel James S. Taylor (Army), Chief, Cardiovascular-Renal Section, Walter Reed General Hospital, Washington, D. C.

Leonard A. Scheele, M.D., Surgeon General, U. S. Public Health Service, Washington, D. C.

E. H. Cushing, M.D., Department of Medicine and Surgery, Veterans Administration, Washington, D. C.

Commdr. R. C. Parker, Jr., U. S. Naval Hospital, National Naval Medical Center, Bethesda, Md.

DIABETES DETECTION DRIVE

The American Diabetes Association, Inc., Brooklyn, N. Y., has announced the appointment of a Committee on Diabetes Detection with the aim to arouse interest among doctors generally and health agencies, in the problem of the earlier discovery and treatment of diabetes. Special programs have been planned in communities across the country during Diabetes Week, December 6-12, for the purpose of explaining this effort and initiating a continuing program. Charles H. Best, M.D., Toronto, is President and George E. Anderson, M.D., Brooklyn, Secretary of the Association. The Committee on Diabetes Detection is under the Chairmanship of Howard F. Root, M.D., Boston, Mass., and includes H. L. C. Wilkerson, M.D., of the staff of the U. S. Public Health Service, Boston.

PASTEURIZATION OF ALL MARKET MILK AND CREAM RECOMMENDED

In early June, 1948, a conference of interested officials, called by the U. S. Department of Agriculture, was held in Chicago to discuss methods for the control of brucellosis. Joel I. Connolly, M.S., Assistant to the President, Chicago Board of Health, represented the A.P.H.A. One of the recommendations made by the subcommittee on Laws, Regulations and Appropriations was "that state laws require the pasteurization of all market milk and cream." Among the other recommendations was one which called for a special brucellosis eradication program for each state, to be started not later than 1949. To effect a control program, it was

recommended that a state director for the program be appointed in each state, and that in each county a disease control board for the eradication of brucellosis should be organized.

AMERICAN SOCIAL HYGIENE ASSOCIATION IN NATIONAL DEFENSE PROGRAM

The Board of Directors of the American Social Hygiene Association on June 8, 1948, authorized the reestablishment of the Committee on National Defense Activities. The committee has received a special grant from the United Service Organizations to carry out its program. As a first step in the program the association has reestablished a Washington Office at 1424 K St., N.W., Washington, with Eleanor Shenehon, formerly Director of Public Information and Extension, in charge.

The Defense Activities Committee is made up of Philip R. Mather, Chairman, George Baehr, M.D., Mrs. Dwight S. Perrin, Major General Irving J. Phillipson, Rtd., William F. Snow, M.D., and Ray Lyman Wilbur, M.D.

The U. S. Interdepartmental Venereal Disease Control Committee, representing the Army, Navy, Air Force, Public Health Service, and other federal agencies, through its Chairman, Oscar F. Ewing, has asked A.S.H.A. for the following services:

To act as adviser to Central Armed Forces Disciplinary Control Board of the National Defense Establishments in matters pertaining to civilian community education and the repression of prostitution.

To continue and expand services to supply confidential data regarding prostitution conditions in the environs of military establishments.

To give consideration to performing the functions of the Federal Social Protection Division, which no longer exists.

To make available to the Armed Forces, on request, educational material and advisory services.

To bring citizen support to good law enforcement, social treatment, and individual health education through the home, the church, and the school.

DR. HELMHOLZ REPORTS ON BCG INOCULATIONS IN EUROPE

In September, Henry F. Helmholtz, M.D., chief pediatrician, Mayo Clinic, returned from Europe after serving a year as chief medical consultant for the United Nations International Children's Emergency Fund. He reported that tuberculosis in Europe is likely to be reduced drastically through the largest BCG mass immunization campaign ever undertaken, in which 15,000,000 children and adolescents were inoculated within a year and a half.

The BCG vaccine for Europe is prepared in the Serum Institute in Copenhagen and flown to other countries. The head of the Institute is Johannes Holm who has been in charge of the inoculation program since early summer. In September, two tuberculosis experts of the U. S. Public Health Service, Carrol Palmer, M.D., and Lydia Edwards, M.D., left for Copenhagen to begin work at the Institute on research involved in the program through which it is expected that approximately 50,000,000 children will be tested.

MODEL HEALTH CENTER FOR MEXICO CITY

The Institute of Inter-American Affairs has signed an agreement with the Ministry of Health in Mexico to construct a model health center in Mexico City, located in one of the poorest and most densely populated parts of the city. The health center will provide services for half of the district's population: clinics for venereal diseases, tuberculosis, acute communicable diseases, maternal and infant hygiene, mental and dental hygiene, a laboratory and facilities for health education, sanitary engineering and inspection, and a milk distribution center.

CALIFORNIA HAS DENTAL HEALTH BUREAU

A Bureau of Dental Health has been

established in the California State Department of Public Health, with Hugo M. Kulstad, D.D.S., as chief. The new unit will promote dental health education, give consultation service to local health departments and practising physicians, and conduct studies of dental disease incidence and preventive measures. Dr. Kulstad is chairman of the Council on Dental Health of the American Dental Association, past president of the Los Angeles Dental Society, director and past president of the American Society of Dentistry for Children, and a member of the executive council of the Southern California Dental Association.

DANISH HEALTH LAWS

Available in English translations are abstracts of a number of Danish public health laws. These are: The Combating of Venereal Diseases, Pregnancy Hygiene, Prevention of Morbidity and Mortality among children in the First Postnatal Year, School Medical Service, and Medical Examination of Children. Available from National Health Service, Copenhagen, Denmark.

Also available from the Danish Information Office, 15 Moore St., New York 4, are a series of pamphlets in English summarizing some of Denmark's social legislation. They are: Health Insurance and Hospitals in Denmark, Danish Maternity and Child Welfare, Care of the Aged in Denmark, and Danish People's Holidays.

DIRECTORY OF TUBERCULOSIS SANATORIUM BEDS

The National Tuberculosis Association has issued its 1948 *Tuberculosis Sanatorium Directory*, the first since 1942. It lists 830 institutions with 120,496 beds for patients with tuberculosis. Of the total, 17 institutions with 2,940 beds are in Alaska, Hawaii, and Puerto Rico. The number of beds has increased less than 2 per cent since

1942. The *Directory* is available from the National Tuberculosis Association, 1790 Broadway, New York 19.

WHO EXECUTIVE BOARD

The World Health Organization, permanently organized in Geneva at the first World Health Assembly June 24 to July 24 (*A.J.P.H.*, 38, 9:1347 (Sept.), 1948), was the ninth of the specialized agencies to be set up within the United Nations. Its Executive Board is made up of the representatives of 18 nations whose terms were assigned by lot. Future elections will be for a three year term. The countries and their representatives are shown below. Figures in parentheses indicate the length of their terms.

Australia: Dr. G. M. Redshaw (1)
 Brazil: Dr. G. H. dePaula Souza (2)
 Byelorussian S.S.R.: Dr. N. Evstaviev (3)
 Ceylon: Dr. S. F. Chellappah (1)
 China: Dr. W. W. Yung (2)
 Egypt: Sir Aly Tewfik Shousha, Pasha (2),
 Chairman
 France: Professor J. Parisot (2)
 India: Colonel C. Mani (3)
 Iran: Dr. M. H. Hafezi (1)
 Mexico: Dr. J. Zozaya (2)
 Netherlands: Dr. C. van den Berg (3)
 Norway: Dr. K. Evang (1)
 Poland: Dr. B. Kozusznik (3)
 Union of South Africa: Dr. A. J. van der
 Spuy (3)
 U.S.S.R.: Dr. N. A. Vinogradov (2)
 United Kingdom: Dr. M. Mackenzie (1)
 United States: Dr. H. Van Zile Hyde (1)
 Yugoslavia: Dr. Andrija Stamber (3)

INTERNATIONAL HOSPITAL ASSOCIATION PROPOSED

At the 50th annual meeting of the American Hospital Association in Atlantic City in September, Thomas Parran, M.D., former Surgeon General of the U. S. Public Health Service and dean of the new school of public health being organized at the University of Pittsburgh, proposed a strong international hospital association with regional branches in areas having common

interests, to work with a world health organization.

At this meeting Joseph G. Norby, Superintendent of Columbia Hospital, Milwaukee, was inducted as president of the Association succeeding Graham Davis, Director of the Division of Hospitals, W. K. Kellogg Foundation. John Hatfield, of the Pennsylvania Hospital, Philadelphia, was chosen president-elect.

MUTUAL LIFE OFFERS RADIO SCRIPTS ON HEALTH

An educational series of 15 minute radio scripts, dramatizing public health problems, was made available in September by The Mutual Life Insurance Company of New York. The scripts will be offered without charge on a monthly basis through May as an educational service to teachers, librarians, club leaders, and radio stations. Gretta Baker, script writer and former member of the New York University faculty, is writing the series under the guidance of the company's medical department. In discussing the series, Miss Baker said: "The scripts can be used on or off the air. They are simply written, easy to produce, and make fascinating program material for club meetings, school assemblies, radio workshops, little theaters, and other community groups."

Free copies from the Public Relations Division, The Mutual Life Insurance Company of New York, 34 Nassau Street, New York 5.

MORE HELP FOR THE CEREBRAL PALSID

The National Association of American Business Clubs adopted cerebral palsy as a national project in 1947. At its annual meeting in 1948, it undertook to raise by the end of the year \$25,000 for production of an educational film on this disease. The funds raised will be turned over to the National Society for Crippled Children and

Adults which will make the film. It is designed as a popular movie to tell the story of the treatment and training required to rehabilitate cerebral palsied persons.

PUBLIC HEALTH IN INDIA

The August Bulletin of the Government of India Information Services (2111 Massachusetts Avenue, N.W., Washington 8, D. C.) is devoted to India's efforts for public health. This is a good source of information on health education, training programs, medical research, refugee camp sanitation, and many other health matters in India, including the goals of the Ministry of Health.

FURTHER STUDY OF CHILD FEEDING

The Department of Nutrition of the Harvard School of Public Health, whose Chairman is Fredrick J. Stare, M.D., has been conducting a three year experiment in the teaching of good eating habits to children in the Newton (Mass.) schools. Through a grant from Swift and Co., and an additional grant from the Nutrition Foundation, which sponsored the first study, the experiment will be continued for another three years and will be extended to include a typical school in the South. The Newton research project involves a study of the problem of fitting nutrition education into regular school study courses, measuring the effectiveness of such education as a logical beginning for other health education and preparing teaching aids on nutrition.

75 YEARS OF AMERICAN NURSING

The Diamond Jubilee of Nursing in the United States is being celebrated by the American Nurses' Association in 1948. The purpose of the Jubilee is "to focus public attention on the extension and improvement of nursing service to all through the improvement of schools of nursing, economic security

for all nurses, adequate licensure laws, and more effective counselling and placement of both prospective students and graduate nurses" according to Pearl McIver, A.N.A. President.

As a feature of the celebration, November 14 to 20 is designated Nursing Progress Week. A Linda Richards Banquet will be held in New York on November 16 to memorialize the first professional nurse in the United States, graduated from the New England Hospital for Women and Children in 1873. The September, 1948, *American Journal of Nursing* contains a summary of Miss Richards's life and her contributions to the nursing profession in which she was an active practitioner until 1911 at the age of 70.

FORTIFYING ALASKA'S PUBLIC HEALTH

The U. S. Department of the Interior and the Federal Security Agency have awarded contracts for a 400 bed, \$6,000,000 hospital at Anchorage, Alaska. Of the total, 300 beds will be reserved for tuberculosis, 100 for general medical or surgical cases.

In addition, the U. S. Public Health Service has established a field station in Anchorage as the nucleus of an Arctic Institute of Health, as recommended by American Medical Association—Department of the Interior survey of a year ago. Jack C. Haldeman, M.D., formerly Medical Consultant, U.S.P.H.S. in New Orleans, is in charge of the field station which began operation on October 1.

TUBERCULOSIS DIVISION IN MONTREAL HEALTH DEPARTMENT

The Montreal Health Department has created an independent division of tuberculosis from what has been, since 1938, a tuberculosis section of the communicable diseases division. The new division was created "because of the proportions taken by the fight against tuberculosis in the 10 years since 1937;

the magnitude of the problem in the city, and the increase in the budget attributed to this branch of the work."

In 1937, when the tuberculosis section was developed, the tuberculosis death rate in Montreal was 82.2; in 1938 it was 74.8; in 1947 it had dropped 25 per cent to 56.4, and in the first six months of 1948, to 55.4.

THREE CHEMISTRY AWARDS

Dr. Dilworth Wayne Woolley, 34, of the Rockefeller Institute for Medical Research, New York, at the meeting of the American Chemical Society on August 30, in Washington, D. C., received the \$1,000 Eli Lilly & Co. prize in biological chemistry for his studies of problems relating to vitamins and anti-vitamins.

Another \$1,000 award—the Paul-Lewis Laboratories award in enzyme chemistry—went to Dr. Albert L. Lehninger, 31, Assistant Professor of Biochemistry in the University of Chicago departments of surgery and biochemistry and metabolism of fatty acids.

Dr. Gerty T. Cori of the Washington University School of Medicine, St. Louis, a 1947 Nobel Prize winner, for her work in biochemistry, received the Francis P. Garvan Medal honoring women in chemistry.

CANCER NURSING IN-SERVICE PROGRAM

A two week In-service Program for public health nurses on the clinical aspects of cancer was held in September at the Western Reserve University School of Nursing under the sponsorship of the Ohio State Health Department and with the coöperation of the University's School of Medicine, University Hospitals of Cleveland, and the Ohio Division of the American Cancer Society. Thirty-five nurse directors and supervisors of the Ohio Department of Health attended the institute.

TWO CALIFORNIA COUNTIES JOIN FORCES

Humboldt and Del Norte Counties in California have joined forces to form the second bi-county health department now operating in the state. The combined population of the two counties in 1946 was about 55,000. Boards of supervisors of the two counties agreed to a contract extending the services of the established Humboldt County Health Department over the entire area. Kenneth Haworth, M.D., is Health Officer.

MORE ABOUT "SCHOLARS IN MEDICAL SCIENCE"

In preparation for the selection of a second group of candidates in the Markle Foundation's program of grants for "Scholars in Medical Science" (see *Journal*, May, 1948, p. 755), the Foundation has published a booklet that describes the purposes of the grants to guide medical schools in making nominations for the coming year. It also lists the 16 scholars who are currently studying under the grants.

In this program, which the Foundation has substituted for its former medical research grants, only schools of medicine are permitted to nominate candidates. Nominations should be made by December 1, 1948, for the academic year 1949-1950. The booklet is available from The John and Mary R. Markle Foundation, 14 Wall Street, New York 5.

SEMINARS FOR MARYLAND HEALTH OFFICERS

A series of quarterly seminars in local health administration are being conducted by Ernest L. Stebbins, M.D., director of The Johns Hopkins School of Hygiene and Public Health, and Allen W. Freeman, M.D., consultant in public health administration to the State Board of Health, to provide regular opportunity for county health

officers in Maryland to discuss their problems. The seminars will be held in four districts into which the counties have been grouped. The program for each session will be formulated by a health officer designated in advance of the meeting, who will prepare an outline of the problems to be discussed.

BABE RUTH FOUNDATION

The Babe Ruth Foundation has been organized to develop a program to help the "kids of America." Among its activities is the Babe Ruth Cancer Fund which received an initial gift of \$100,000 from the Revere Camera Company of Chicago in September. The Cancer Fund will be administered by the American Cancer Society, with special emphasis on the problem of cancer among children.

The Babe Ruth Foundation will also aid in promoting the recreation and leisure time interests of children, and assist work aimed at the control and prevention of delinquency. Director of the Foundation is Shelby Harrison who retired as General Director of the Russell Sage Foundation about a year ago. Headquarters are in the Russell Sage Building, 122 East 22nd Street, New York.

VERMONT CANCER SOCIETY FORMED

The Vermont Cancer Society, Inc., was organized last spring as a division of the American Cancer Society, under the sponsorship of the Vermont State Medical Society, with Dr. Benjamin F. Cook, Rutland, as President and John W. Brownlee, Rutland, Secretary.

SCIENCE WRITING AWARDS

The George Westinghouse Science Writing Awards of \$1,000 each were presented by the American Association for the Advancement of Science at its recent annual meeting to Frank Carey, science reporter in the Washington Bureau of the Associated Press, for the

best newspaper science writing for a four part series on "Newest Wonder Drug Conquers Dread Scrub Typhus," distributed by the Associated Press; and to Florence Moog, Ph.D., Assistant Professor of Zoölogy at Washington University, St. Louis, for the best magazine science writing for an article on "The Biology of Old Age," which appeared in the June issue of *Scientific American*.

BOSTON IS BEING SURVEYED

Two preliminary reports have been published concerning the Greater Boston Survey of Social and Health Needs and Services, which has been in progress since 1947. Called "the most inclusive (study) ever made in Greater Boston of total income and total expenditures for all social and health agencies," the study grew out of skyrocketing agency operating costs and deficits. Its purpose "is to make sure that the charitable dollar annually raised in Greater Boston does the greatest good for the greatest number in the most economical, effective way."

The two preliminary reports available thus far are reprinted respectively from the January, 1948, *Boston Business*, monthly publication of the Boston Chamber of Commerce, and June-July, 1948, *Bulletin of the Greater Boston Community Council*.

Director of the Survey is Robert P. Lane who was for 12 years director of the Welfare Council of New York. The five divisions of the Survey and their directors are: *Public Health*—Ira V. Hiscock, Sc.D., Chairman, Department of Public Health, Yale University, and Hugh Leavell, M.D., Dr.P.H., Professor of Public Health Practice, Harvard University School of Public Health; *Hospitals*—Basil C. MacLean, M.D., Director, Strong Memorial Hospital; The University of Rochester, and Albert W. Snoke, M.D., Director, Grace-New Haven Community Hospital,

Group Work and Recreation—Lewis R. Barrett, Recreation Consultant, New York City; *Voluntary Casework*—Frederick I. Daniels, Executive Director, Brooklyn Bureau of Social Service, and Frank T. Greving, Executive Director, New York City Veterans Service Center; *Public Welfare and Statistics*—R. Clyde White, Ph.D., Professor of Public Welfare, School of Applied Social Sciences, Western Reserve University, and Genevieve C. Weeks, Director, Research Bureau, Greater Boston Community Council.

In addition, a division of planning and finance will be set up later, the work to be done by a panel of three members—a business man with experience in fund work and budgeting, a Fund Executive, and a Council Executive. The Chairman of this panel is Herman D. Smith of the Chicago office of Marsh and McKennan, Inc., and former President and now Vice President of the Chicago Community Council.

NEW HEALTH LAWS IN JAPAN

The Japanese Diet in July passed two health reforms, the Venereal Disease Prevention Law and the Preventive Vaccination Law. The first provides that all pregnant women are to have a health examination to determine the presence or absence of venereal disease; and all persons entering into marriage are to obtain certificates showing that they are free from venereal disease. Compulsory examination may now be performed on persons in whom there is reasonable evidence to suspect venereal disease, but if they claim there is not reasonable evidence they may appeal to a court for withdrawal of the order for a venereal disease examination. The law further requires that doctors give instruction to patients with venereal disease on how to protect others from their diseases and also as to treatment to be followed. Doctors must report to

health authorities the names and addresses of contacts and of those patients who fail to follow instructions pertaining to treatment and preventive measures. The law requires that all such information be kept confidential.

Until the Preventive Vaccination law was passed, compulsory vaccination was required only for smallpox; it is now required also for typhoid, paratyphoid, whooping cough, tuberculosis and diphtheria.

OHIO HAS BRUCELLOSIS CAMPAIGN

A campaign has been undertaken in Ohio jointly between the Ohio State Medical Association, the State Veterinary Medical Association, and the Department of Agriculture to attack the problem of brucellosis in Ohio. The State Medical Association has produced a pamphlet entitled "Mr. Farmer, Protect Your Family from the Advancing Menace." Similar folders were prepared by the State Veterinary Medical Association and the Department of Agriculture. An active radio publicity program was developed with broadcasts over four stations and an exhibit was set up at the State Fair as well as at other farm events. Joint committees coöperated with farm organizations, home demonstration leaders, 4-H Clubs, rural physicians and veterinarians, future farmers, and county health officials.

PERSONALS

WILLIAM H. ADOLPH, who has been serving as Professor of Biochemistry and Acting President of Yenching University in Peiping, China, has been appointed Professor of Biochemistry at the Peiping Union Medical College.

H. V. BARRETT, M.D.,† has resigned as Director of the Montgomery County

(Kansas) Health Department to become Assistant Health Officer and Epidemiologist with the Topeka City-Shawnee County Health Department.

REAR ADMIRAL THOMAS CARLYLE ANDERSON, M.C., U.S.N., is on indefinite loan from the Navy to be in charge of a unit dealing with medical and related man power in the Medical Division of the National Security Resources Board.

ALASKA

ARNE BULKELEY, LILY HAGERMAN,* and MARIAN OYSTER, have been added to the nursing staff of the Alaska Department of Health, to serve respectively in the Wrangell office, as Nursing Educational Director in Juneau, and in Anchorage. Miss Bulkeley was most recently a county public health nurse in Georgia and has Army Nurse Corps and New York City Visiting Nurse Service experience. Miss Hagerman has been for 5 years Nursing Consultant and Nurse Consultant in Mental Hygiene with the U. S. Public Health Service and for 5 years previously Director of Public Health Nursing in the Utah State Health Department. Miss Oyster has just received her B.S. degree from Western Reserve University with a Major in public health nursing.

GEORGE F. CAMPANA, M.D.,* formerly State Health Officer of North Dakota and more recently in charge of communicable disease control work of the New Hampshire State Department of Health, has been appointed Worcester district health officer for the State Department of Health, Mass. He succeeds PAUL RICHMOND, M.D.,† who resigned to head the student health service at Tufts College, Medford, Mass.

LEWIS CLARK, D.D.S., has resigned as Dental Health Director, Florida State Board of Health, to enter private practice in Winter Haven, Fla.

* Fellow A.P.H.A.

† Member A.P.H.A.

ANGIE CONNOR, M.D., is the new Clinical Pediatrician in the Bureau of Maternal and Child Health and Crippled Children, Hawaii Health Department. Dr. Connor served with the U. S. Army for over 2 years and was recently associated with the Children's Heart Association in Cincinnati, Ohio.

CLARA E. COUNCELL, Ph.D.,* has been named head of a new unit in the Children's Bureau, Washington, D. C., which will be a clearinghouse for information on medical and other types of research in the field of child health and welfare.

JAMES M. CUNNINGHAM, M.D.,† Director of the Connecticut State Health Department's Bureau of Mental Hygiene since 1935, on August 1 became Director of the Detroit Children's center, recently created by a merger of the Wayne County Child Guidance Clinic and the Children's Center of the Children's Fund of Michigan. It is to render clinical service and serve as a training and research center for psychiatric social work students interested in clinical psychology and for fellows in child psychiatry.

WARREN F. DRAPER, M.D.,* formerly Deputy Surgeon General, U. S. Public Health Service, and most recently on the staff of the American National Red Cross, Washington, has been appointed executive officer of the Medical and Hospitalization Service of the Welfare and Retirement Fund, United Mine Workers of America, 907 15th Street, N. W., Washington 5, D. C.

BION, R. EAST, D.D.S.,* who has been Professor of Dentistry at Columbia University, New York, has been appointed Chief of the Veterans Administration Dental Services effective August 4.

FRED T. FOARD, M.D.,* who has served as Director of the U. S. Public Health Service District 6 in Puerto Rico and the Virgin Islands, has been appointed Director of Health of the Bureau of Indian Affairs, Washington, D. C., effective in September.

RUTH FREEMAN, R.N.,* has been granted a 3 months' leave of absence from her work as Administrator of Nursing Services, American National Red Cross, to head the nursing section of the medical Branch, National Security Resources Board.

JOHN T. FULTON, D.D.S.,* was appointed as the new president of the American Association of Public Health Dentists. He is dental adviser of the Children's Bureau, Federal Security Agency, Washington, D. C.

EDMUND C. GARTHE,* has been appointed to head the Land and Air Carrier Section of the Sanitary Engineering Division of the Public Health Service, Washington, D. C., succeeding H. NORMAN OLD,† who has been assigned to the Bureau of Medical Services. Mr. Garthe has been with the Public Health Service since 1936, beginning as Junior Sanitary Engineer. In 1944 he became District Engineer in the New York District and in 1945 District Engineer of the Chicago District.

E. T. GERTSON, M.D., Atwood, Kan., has been appointed Health Officer of Rawlins County, succeeding JOHN C. CONROY, M.D., also of Atwood.

ALEXANDER G. GILLIAM, M.D.,* has been appointed head of the Epidemiology Section of the Cancer Control Branch, National Cancer Institute, Washington, D. C. Joining the Public Health Service in July, 1934, Dr. Gilliam has devoted his full-time services to epidemiological work in the United States and abroad. For 8 years he worked at the National Institute of Health on epidemiology of

* Fellow A.P.H.A.

† Member A.P.H.A.

poliomyelitis, diphtheria, mumps, and other infectious diseases. As the first epidemiologist of American Typhus Commission, he conducted typhus fever surveys among U. S. troops in Egypt, Tripoli, India, China, and Burma, for which he was awarded the Typhus Commission medal. For the last 2 years, Dr. Gilliam has conducted field investigations, laboratory and statistical studies on poliomyelitis, at the University of Michigan School of Public Health, teaching also in the University Department of Epidemiology.

O. R. GREGG, M.D.,† was transferred from his position as Director of Choctaw-McCurtain Counties Health Department in Oklahoma to the same position in Cleveland County.

FLORIDA

JAMES B. HALL, M.D., former Director, Cancer Control Division, Florida State Board of Health, is studying for his master's degree in public health at the University of California; ELIZABETH REED,† Acting Director, Health Information, for a bachelor of science degree in supervision in public health nursing at Teachers College, Columbia University, New York City; JOSEPH M. BOSTOWISH, JR., M.D., Alachua County Health Department, for his master's degree in public health at Johns Hopkins; JOHN WAKEFIELD,† sanitary engineer is doing graduate work in sanitary engineering at Harvard University; ANGELINE WARD, nurse, Escambia County Health Department is studying public health administration at the University of North Carolina; IRENE FITZGERALD, nurse, Manatee County Health Department, is studying public health nursing at the University of Colorado.

REBA F. HARRIS,* has accepted the position of Chief of the Public Health Education Unit, Ohio Department of Health, Columbus, effective August 1.

R. H. HAZEMANN, M.D., M.P.H.,† Director of the Department of Health of the Seine and Oise, Versailles, France, has been elected Officer of the Legion of Honor.

HAROLD R. HENNESSY, M.D.,* who has been associated with the American Medical Association's Council on Industrial Health since February, 1946, has been appointed to the newly-created office of Secretary of the Council on National Emergency Medical Service of the Association. JAMES C. SARGENT, M.D., Milwaukee, Wis., is chairman of the council, which was formed in 1947 to coördinate medical efforts associated with a national emergency. Dr. Hennessey, who received his M.D. degree from the University of Minnesota, held various assignments during the war years, his last being that of head of the Public Health Section in the Office of the Surgeon, Fifteenth U. S. Army. He received several military decorations, including the Order of Orange-Nassau Degree of Officer with Swords from the Netherlands government.

A. PARKER HITCHENS, M.D.,* who retired in May as Health Officer of Wilmington, Del., has been appointed Director of the Bureau of Laboratories of the Pennsylvania State Department of Health, Philadelphia succeeding CLAUDE BROWN, M.D.,* retired.

M. C. IGLOE, M.D., M.P.H.,† who has been serving with the Veterans Administration in Chicago, has resigned to accept the position of Chief District Health Officer with the Chicago Department of Health. He will be in charge of the First District Health Center, Chicago, including a population of about 175,000, which will be used as a teaching center for the students of the medical college of the University of Illinois.

HOLLIS S. INGRAHAM, M.D.,* Director of the Bureau of Communicable Dis-

ease Control, has been appointed as a Deputy Commissioner of the New York State Department of Health, effective August 1.

WILSON W. KNOWLTON, M.D.,† has been appointed Superintendent of Westfield State Sanatorium at Westfield, Mass., the cancer-tuberculosis hospital operated by the State Department of Health. He was formerly Assistant Director of the State Division of Tuberculosis, and succeeds DONALD A. MARTIN, M.D., who resigned to accept the superintendency of the Plymouth County Sanatorium at South Hanson.

ROBERT F. KORNS, M.D.,* has been promoted from Assistant Director, a position he has held since 1945, to Director of the Bureau of Communicable Disease Control of the New York State Department of Health, Albany. In the department since 1939, he has served both as assistant district state health officer and as epidemiologist in the Division of Communicable Diseases.

GEORGE KRAUS, M.D.,† was appointed the first full-time Health Officer for the Town of Fairfield, Conn., effective July 1, 1948, thus increasing the number of full-time local health officer positions in Connecticut. In the Army Medical Corps from 1946 to 1948, Dr. Kraus's duties were largely public health in character. He plans to enter Yale University, Department of Public Health, as a candidate for a graduate degree in public health.

VINCENT B. LAMOUREUX† is in charge of the sanitary engineering aspects of national security, having been loaned by the Public Health Service to the Medical Division, National Security Resources Board.

H. WALLACE LANE, M.D., has been appointed Director and Health Officer of the Butler County (Kansas) Health Department.

EDWARD C. LOVE, JR., M.D., has been

appointed Health Officer of the Gadsden, Liberty, and Calhoun Counties Health Department with headquarters at Quincy, Fla.

RICHARD P. McKNIGHT, M.D., has been appointed Director of the new Division of Hospitals in the Massachusetts State Department of Health. Since 1942 he has headed the Bureau of Hospital Inspection in the department.

BERTRAM E. MARKS, M.D.,† was appointed Health Officer of Middletown, Conn., effective July 1, 1948. After 5 years of service, Dr. Marks retired from the Army Medical Corps in 1946, with the rank of lieutenant-colonel. He then did graduate study in hospital and health administration at Bellevue Hospital and in public health at Columbia University.

ALBERT S. McCOWN, M.D., Dr.P.H.* has been named Director of the Bureau of Communicable Disease Control, Virginia State Health Department, to succeed W. A. BROWNE, M.D.,* resigned.

PEARL McIVER,* President of the American Nurses' Association and Chief of the Office of Public Health Nursing, U. S. Public Health Service, attended a biennial meeting in London of the Board of Directors of the International Council of Nurses, September 16 to 21, serving as official United States delegate, representing 166,000 registered professional nurses in the American Nurses' Association. Miss McIVER was joined in London by KATHARINE J. DENSFORD, Director of the University of Minnesota School of Nursing and second vice president of the International Council, and ELLA BEST, executive Secretary of the ANA, who served as an official observer at the International Council sessions.

JULIE E. MIALE, R.N., has resigned

* Fellow A.P.H.A.

† Member A.P.H.A.

after 3 years as Associate, Program Development Service, National Tuberculosis Association. She is the author of the NTA pamphlet, *Tuberculosis—Industrial Nursing and Mass Radiography*, published in 1946. FRANCES W. GREENE,† Associate, Health Education Service, National Tuberculosis Association, has resigned to join the Texas Tuberculosis Association.

CHARLES O. PARKER, JR., M.D., has been appointed Health Officer of Lake County (Florida) Health Department with headquarters at Tavares, Fla. He succeeds R. J. DALTON, M.D.,† resigned.

RUTH PARMELEE, M.D., M.P.H.,* after 5 years' work during the war in the Near East and Greece in medical relief, has returned to Greece as Health Adviser for Pierce College, Elliniko (Glyphada), Greece.

W. W. PETER, M.D., DR.P.H.,* formerly Chief, Training Section, Health and Sanitation Division, Institute of Inter-American Affairs, Washington, D. C., has been named Chief, Medical Section, succeeding CLARK H. YEAGER, M.D., DR.P.H.,* following a merging of the two sections into one.

JOHN J. POUTAS, M.D.,* Assistant Medical Director and Chief of Professional Services in the New England office of the Veterans Administration, was recently appointed as Medical Director of Lever Brothers Company, Cambridge, Mass. Dr. Poutas will direct the health and medical services, including clinics in all plants, for the 6,000 employees of the company.

BERYL J. ROBERTS,† has resigned as Director of Health Education of the Massachusetts Tuberculosis League, Inc. She has accepted a part-time post as Associate in Health Education in the Department of Public Health Practice, Harvard School of Public Health, and will head the health education work of the Massachusetts

division of the American Cancer Society.

LOUIS SCHWARTZ, M.D.,* formerly Chief, Section of Dermatology, U. S. Public Health Service, has opened an office for private practice in Occupational and Other Contact Dermatoses in Washington, D. C.

RICHARD E. SHOPE, M.D., currently on the staff of the Rockefeller Institute for Medical Research, in the spring of 1949 will become Associate Director of the Merck Institute for Therapeutic Research, Rahway, N. J. At that time a new building will have been completed providing facilities for Dr. Shope to study animal pathology.

GUSTAV I. STEFFEN, PH.D.,† has been named as Director of the Bureau of Laboratories, New York City Department of Health to succeed RALPH MUCKENFUSS, M.D.,* appointed First Deputy Commissioner. Dr. Steffen has been Assistant Director of the Bureau since 1940.

DONALD E. UPP, M.D., is the newly appointed Health Officer of Cowley County, Kansas. He is replacing THOMAS R. HOOD, M.D.,† who has been granted educational leave to study for his master's degree in public health at Harvard University.

GRAHAM WALTON, PH.D.,† has been transferred from the Bureau of Prisons, U. S. Department of Justice, Washington, D. C., to the Water & Sanitation Investigations of the U. S. Public Health Service, where his headquarters will be in Cincinnati, Ohio.

ADOLPH WEINZIRL, M.D.,* Professor and Head of the Department of Public Health and Preventive Medicine at the University of Oregon Medical School, Portland, has retired as Director of the E. C. Brown Trust, Portland, which was concerned with social hygiene, assuming the position as consultant. He has been succeeded by CURTIS AVERY who assumed his new duties September 1.

ALBERTA B. WILSON, R.N.,* has resigned as Assistant Director, National Organization for Public Health Nursing, New York City, to become Assistant Professor of Nursing, University of Minnesota School of Public Health, Minneapolis.

YAN TIM WONG, M.D., has been appointed Assistant Chief and Child Psychiatrist with the Hawaii Department of Health.

LEWIS A. YOUNG* has been appointed Director of the Division of Sanitation, Colorado Department of Public Health. For the past 6 years Mr. Young has been Chief Engineer and Associate Chief of the Colombian Field Party, Division of Health and Sanitation, Institute of Inter-American Affairs.

Deaths

FRANCIS PARKMAN DENNY, M.D.,* retired physician and Brookline, Massachusetts Health Officer for more than 40 years, died September 6 at the age of 79. Dr. Denny was a Charter Fellow and a 40 year member of the A.P.H.A. (Health Officers Section).

ANDREW G. DUMEZ, PH.D.,† Dean of the School of Pharmacy, University of Maryland, and Secretary of the American Council on Pharmaceutical Education, died suddenly on September 27 at the age of 64 (Unaffiliated).

PHILIP K. GILMAN, M.D., Clinical Professor Emeritus of Surgery at Stanford University Medical School, and chief of the Bureau of Hospitals of the State Department of Public Health, died at his home in San Anselmo, Calif., on September 7 at the age of 69.

THOMAS J. LEBLANC,† Head of the Department of Preventive Medicine at the University of Cincinnati, died September 9 after an illness of several

months, at the age of 54. Dr. LeBlanc was formerly a research fellow with the Rockefeller Institute and a special staff member of the Rockefeller Foundation. He also had been statistician with the U. S. Public Health Service in Washington (Unaffiliated).

DWIGHT MILTON LEWIS, M.D.,* Director of Communicable Diseases in the New Haven, Conn., City Health Department, until his retirement 2 years ago, died on August 31 in New Haven Hospital at the age of 73 (Health Officers Section).

JAMES ALEXANDER MILLER, M.D., one of the founders of the National Tuberculosis Association and NTA president 1921-1922, died on July 29, after a brief illness.

BERTHOLD S. POLLAK, M.D.,† Medical Director of the Berthold S. Pollak Hospital for Chest Diseases at Jersey City, died June 27 after a brief illness. He was 75 years old (Unaffiliated).

THOMAS T. SHEPPARD, M.D.,† Chief, Medical Staff, Western Pennsylvania Hospital, Pittsburgh. Elected Member 1946 (Vital Statistics Section).

B. H. VOLLERTSEN, M.D.,† Medical Department, E. I. du Pont de Nemours & Co., Penns Grove, N. J. Elected Member 1937 (Industrial Hygiene Section).

JOHN HAMILTON WATKINS, PH.D.,* Associate Professor of Public Health at Yale University, died suddenly on September 24 at the age of 47. Professor Watkins, an expert in the field of vital statistics and a Lieutenant Colonel in World War II, was an instructor in Bacteriology at Iowa from 1925 to 1927, and was employed by the sanitary district of Chicago from 1927 to 1928. He went to Yale as an assistant in public health in 1928 and received his Ph.D. degree in 1931. In 1936 he was made an assistant professor and in 1941 an associate professor (Vital Statistics Section).

* Fellow A.P.H.A.

† Member A.P.H.A.

American Journal of Public Health and THE NATION'S HEALTH

Volume 38

December, 1948

Number 12

A Centennial of Public Health*

LOUIS I. DUBLIN, PH.D., F.A.P.H.A.

Second Vice-President and Statistician

Metropolitan Life Insurance Company, New York, N. Y.

THE year 1948 marks the centennial of the movement for effective public sanitation and organized health protection. Just a hundred years ago, thanks to the perseverance of a small group of public spirited men, the first Public Health Act became law and the first General Board of Health was established in London. From these beginnings have come the extraordinary developments of sanitary and hygienic services which have made life for all much safer and happier. The past century may properly be called the era of public health and medical advancement, with what this implies for the general welfare.

Prior to the passage of these laws, there had been no central authority responsible for the sanitation of London or of other large cities. As a consequence, the state of public health in these places had become a disgrace to the English people. Travelers' accounts of their observations in cities on the continent disclose conditions not much better. It is difficult for our generation to conceive how so many survived this period of filth, squalor, and disease.

This was the time of the industrial revolution, when hordes of men, women, and children flocked to the cities seeking employment in the new factories. The cities, utterly unprepared to meet the influx, had no means of housing the newcomers except in areas where living conditions were already wretched. To make matters worse, flimsy tenements without proper provision for ventilation, light, water and waste disposal were improvised. Streets were dark, narrow, and barely passable owing to filth, stagnant pools, and the stench. Inevitably, the drinking water became contaminated and as a result, typhoid fever, dysentery, and cholera took a large toll of lives. The factories were equally abominable. Lack of sanitation, long working hours, and starvation wages completed the lot of the poor. Disease and disability were the order of the day.

The situation in American towns was hardly better. They were even less prepared than were the older British cities to accommodate the masses of poor immigrants that swarmed to our shores from the famine and poverty stricken areas of Europe. There followed a mushroom growth with no forethought or plan for the future. The pestilent state of American cities closely resembled

* Presented before the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

that abroad. They suffered from periodic visitations of smallpox, typhus, typhoid fever, cholera, and yellow fever. A classic description of sanitary conditions in New York City has come down to us from the pen of the great Stephen Smith, the first President of the American Public Health Association.

New York was in the grip of the deadly typhus. "I noticed," he writes, "that patients were continually admitted from a single building in East Twenty-second Street. . . . I visited the tenement and was not surprised at the large number of cases of fever which it furnished our hospital. The building was in an extreme state of dilapidation generally; the doors and windows were broken; the cellar was partly filled with filthy sewage; the floors were littered with decomposing straw, which the occupants used for bedding; every available place, from cellar to garret, was crowded with immigrants—men, women and children. The whole establishment was reeking with filth, and the atmosphere was heavy with the sickening odor of the deadly typhus, which reigned supreme in every room."

Similar conditions existed in most other rapidly growing towns to which immigrants flocked. One would think that the municipal authorities would have welcomed any proposal which promised relief from a situation that threatened the very existence of the cities. But constant familiarity with these conditions seems to have produced the proverbial contempt; for it is a matter of record that few reform movements have met with more violent opposition than those directed at the improvement of the public health.

It was in England that the greatest concern was shown. Social reform was in full swing. In the health field, the leader of the British movement was Edwin Chadwick, a man endowed with inexhaustible energy and the zeal of

the crusader. Having made noteworthy contributions to social welfare by overhauling the archaic Poor Law and exposing the shocking conditions in factories, he later concentrated on the problem of the public health. His efforts led in 1843 to the appointment of a new Royal Commission for the Study of Health in Towns and Populous Places, the findings of which were so conclusive that Parliament could no longer ignore the evidence. In 1848, the first Public Health Act was passed. By this Act, a General Board of Health was created composed of three members of whom Chadwick was the vital force and driving power. Here was the beginning of the modern movement for the protection of the public health. Chadwick thus helped to establish an effective instrument through which the increasing knowledge of environmental sanitation and the natural history of disease, coupled with the spirit of social betterment, could be put to work in the public interest.

Unfortunately, Chadwick was a born bureaucrat. In his zeal to put his plans into operation as speedily as possible, he was often impatient of slow democratic processes. His arbitrary ways and intolerance of opposition consolidated a powerful reaction and so irritated Parliament that the Board was abolished after seven hectic years of controversy and confusion. Chadwick was forced out of public life.

His work, however, was ably carried on by a man no less effective but more diplomatic in achieving his ends. John Simon, who was appointed Medical Officer of the Crown in 1855 following the dissolution of the General Board of Health, led and largely determined the course of public health reform between 1855 and 1876, when he retired. In his annual reports and other writings, he laid down principles that have been the foundation of nearly all subsequent work in public health. In the educa-

tional phase of his work, Simon owed much to the coöperation of William Farr of the General Register Office, whose reports are classic examples of how the dry facts of vital statistics can be utilized to advance human health and welfare. Although Farr was a pioneer in this field, his numerous interpretive studies of statistical data have seldom been surpassed either for their scope and originality or for their practical applicability to the solution of public health problems.

It would have been very strange indeed if all this activity across the seas had failed to rouse the interest of at least a few kindred spirits in America. The first to respond to the new viewpoint on the communal responsibility for disease control was Lemuel Shattuck of Boston. In the course of a laborious study on the "Vital Statistics of Boston," completed in 1841, he discovered the gross deficiencies of the registration system and the urgent need for reforms. Accordingly in the following year, he was the prime mover in the passage of the first law regulating the registration of births, deaths, and marriages throughout the State of Massachusetts. This law was closely patterned after the British Births and Deaths Registration Act of 1836 and, in turn, became the model for most laws of this nature to be enacted by the various states.

In 1849, the year after the establishment of the General Board of Health in England, Shattuck was appointed a member of a commission to conduct a "Sanitary Survey of the State of Massachusetts." Shattuck resembled Chadwick in his boundless energy, his insight into the essential elements of a problem, and in his influence with his fellow commissioners. The report that followed in 1850 was chiefly the product of his mind. This remarkable document, a classic of its kind, outlined the essentials for an effective State Board of Health.

Unfortunately, the plan was too far-reaching and too revolutionary for its time. When in 1853 the Legislature was petitioned to establish a State Health Department based on the findings of the survey, it refused to act. It was difficult to convince the average legislator of that day of his power to regulate conditions affecting the public health. Massachusetts had to wait until 1869 before it had a State Health Department modeled substantially on the lines suggested by Shattuck. This was the first attempt to foster public health on a state-wide basis. So well conceived was the law that it became the model for other state health departments. Following the lead of Shattuck in Massachusetts, Stephen Smith in New York and others in Pennsylvania were disclosing the unsatisfactory state of the public health in their areas.

In the meanwhile, the most significant discoveries in the history of medicine were being made. Pasteur in France and a little later Koch and others in Germany were demonstrating once and for all the rôle of bacteria in the causation of disease. A new era in hygiene was thus ushered in. Exact methods of medical research were established. Medical education, especially in Germany, was revolutionized. In the newly established laboratories, the great leaders supported by a host of skilled associates and eager students from all over the world were turning up the causative agents of one disease after another. The effect of these discoveries on public health work was epoch-making. The health program, which earlier consisted of little more than the eradication of filth and the control of other public nuisances, was gradually widened to include active preventive measures against the infections. In Berlin, in Munich, in London, and later in New York, health departments were translating the discoveries of the laboratories into effective practices in the newer public health work.

I should refer here to the pioneer work of a few American leaders in the last decades of the century. Dr. Henry Baker was responsible for the establishment of the State Board of Health in Michigan and his influence was felt widely in the setting up of other state health departments. Dr. William T. Sedgwick was a great power in developing the techniques for the control of environmental sanitation and in training a large circle of effective health workers. Hermann M. Biggs, helped to establish the Health Department of New York City on scientific lines. William H. Welch, first in New York and later at Johns Hopkins, developed national leadership in medicine and in public health, and was foremost in establishing the principle that public health work was an essential branch of medicine.

By 1900, the modern phase of the public health movement was well under way. As the result of the work of the leaders, the people of America, Great Britain, and western Europe came to realize that the preservation and advancement of the public health were functions not only proper to the State but essential to its survival under modern conditions. The first efforts were directed at the control of such infections as typhoid fever, tuberculosis, the communicable diseases of childhood, yellow fever, and that scourge of infants, diarrhea and enteritis. In this short article, it is obviously impossible to outline the steps in this extraordinary development. It is sufficient to say that out of these several efforts a new discipline of public health work was created covering a wide variety of specialties, including administrators, epidemiologists, bacteriologists, sanitarians, health educators, vital statisticians, and a host of physicians and nurses particularly skilled in applying the advances in medicine to the protection of the public health, be it in mother and child clinics,

in tuberculosis dispensaries, or the other services of the official health agencies. As more and more technically qualified men and women became available, health departments were strengthened. The dead hand of politics was gradually lifted. Health education and public interest increased and, at long last, funds became available to do the job in a workmanlike manner. In this wise, in spite of many vicissitudes, including two World Wars, the last fifty years have seen a steady expansion of the public health program and an achievement recorded never imagined by its founders.

It will now be well to see what has actually been accomplished during the course of the last century. I shall speak primarily of the achievement in our own country. But much the same story can be told of many others, especially the Scandinavian, the Netherlands, and Great Britain and her dominions. To be sure, it is somewhat difficult to make reliable comparisons of the mortality records of today with those of 1848 because of the differences in the classification of disease. Nevertheless, the following table will give a fair idea of what has been accomplished not only in the mortality as a whole but in some of the more important diseases which since the days of Chadwick, Farr, and Shattuck have received the concentrated effort of the leaders of medicine and of public health.

The earliest figures available for Massachusetts which have merit are for the period 1856-1865. The rates for 1848 would probably be somewhat higher and those for the larger American cities would be much higher. But comparing the earliest reliable figures for Massachusetts with those of 1945, we find a reduction in mortality of about 32 per cent for all causes combined. In England and Wales, the improvement was somewhat greater, namely, 43 per cent. More interesting are some of the details. Thus, infant mortality was re-

Comparative Death Rates (per 100,000) from Certain Causes of Death, Massachusetts, 1945, and 1856-1865, and England and Wales, 1945 and 1851-1860

	Massachusetts			England and Wales		
	1945	1856-1865	Per cent Decline	1945	1851-1860	Per cent Decline
All Causes	1,222.3	1,795.0	31.9	1,261.3	2,222.0	43.2
Infant Mortality per 1,000 Live Births	31.6	174.4	81.9	46.0	154.0	70.1
Typhoid Fever and Paratyphoid	0.1	92.5	99.9	0.1	57.0	99.8
Diphtheria and Croup	0.3	86.1	99.7	1.8	52.0	96.5
Measles	0.2	17.1	98.8	1.9	41.0	95.4
Scarlet Fever	0.2	101.3	99.8	0.2	80.0	99.8
Whooping Cough	0.5	23.8	97.9	1.8	50.5	96.4
Smallpox	0.0	11.0	100.0	0.0	22.0	100.0
Diarrhea and Enteritis	4.3	166.0 *	97.4	†	†	...
Tuberculosis (all forms)	39.3	446.4	91.2	61.5	347.6	82.3
Pneumonia (all forms)	48.7	107.4	54.7	†	†	...

* 1856-1860

† Comparable data not available

SOURCE: Data for Massachusetts for 1856-1865 abstracted from *The Diseases of the Inhabitants of the Commonwealth*, by Henry D. Chadwick, M.D., *New England Journal of Medicine*, June 10, 1937, pp. 1010 and 1013. Data for England and Wales 1851-1860 from *The Registrar General's Statistical Review*, 1923, p. 35, and England and Wales, *Annual Report of Births, Deaths and Marriages* 1920, p. 35.

duced 82 per cent in Massachusetts and 70 per cent in Britain. Typhoid fever has been virtually eliminated, the reduction in mortality being 99.9 per cent, and the same is true of diphtheria, measles, scarlet fever, whooping cough, diarrhea and enteritis, and smallpox. Great gains have also been made against tuberculosis. In Shattuck's day, the death rate in Massachusetts was close to 450 per 100,000; now it is less than 40 per 100,000. The reduction has been over 90 per cent. This disease was the first cause of death in the earlier period as well as an important cause of poverty and misery. It is now well on its way toward elimination. Pneumonia has shown phenomenal improvement in recent years. I could add quite a number of additional items to this table but enough have been listed to confirm the extraordinary value of the work launched by Chadwick and Simon and by their followers in various parts of the world. From the health standpoint, the world today is a very different place from that one hundred years ago.

Another way to gauge what has been accomplished is to compare the average length of life or the expectation of life

at birth at the beginning and at the end of this memorable century. In 1850, the expectation of life of a male at birth was 38.3 years in Massachusetts; in 1940, the expectation was 63.3 years. For white females, the figure in 1850 was 40.5; in 1940, it was 67.6 years. Because there has been some added improvement in the course of the last decade, we can safely say that between 1848 and 1948 there has been a gain of more than 25 years in the average length of life for males and of about 28 years for females. This improvement has, of course, been largely concentrated at the younger ages because the diseases which have been most reduced had their chief incidence in infancy and childhood. But we must not minimize the gains in early and middle adult life.

As a result of these gains, millions of people have been saved from premature death. The duration of the working period of life has been greatly extended, making possible increased production and a higher standard of living for all. Huge numbers have been enabled to reach the older ages, having enjoyed a full life freed, for the most part, from the heavy impact of the diseases which

plagued the population a hundred years ago. These advances have kept families intact and have, in fact, produced a very different atmosphere in which the average family can live. Widowhood and orphanhood, which produced enormous demands on our charities and welfare services, have been greatly reduced. Social service workers no longer need concentrate their energies on patching up the maladjustments that result from the premature death of a breadwinner but can now use their skills on positive programs to help people enjoy a rich and full life. It is not an exaggeration to claim that the current prosperity and leadership of the United States in world affairs flow in good part from the achievements of the last century in the field of medicine and its auxiliary health services.

The public health movement on its centenary is a full-grown development, not only in our country but throughout the civilized world. Here we have at last developed a large corps of well trained professionals who in their various specialties render an effective public service. In the states, we now have organized health departments manned, for the most part, with efficient, skilled personnel. Our larger municipalities and county jurisdictions are increasingly being served in this way. Not less important has been the growth of our federal health department. In spite of the limitations of our administrative system, it has served exceedingly well in stimulating the state and local official health agencies, in arousing public interest, in demonstrating the feasibility of certain health operations, and through public grants, has made local health services increasingly effective. In its ever-growing scope and function, the Service has demonstrated and justified the theory of governmental responsibility for the health of the people.

Supplementing the ever-expanding operations of the official health depart-

ments are those of the voluntary health agencies. This has been a singularly American contribution. Nowhere else in the world have these nonofficial agencies developed to such an extent or in such variety. Beginning early in the century, they have grown to include something like 20,000 separate organizations operating on the national, state and local levels and are concerned with virtually every phase of the public health program. Their function has been, on the whole to pioneer in demonstrating the activities necessary to attack one or another of the public health problems. In this connection, I am proud to mention the constructive rôle of the life insurance companies.

One of them has over a 40 year period developed a well rounded health program for its many policy holders. In coöperation with the National Tuberculosis Association, it helped to demonstrate how a community could bring tuberculosis under control. Other insurance companies have aided in the control of accidents. The philanthropic Foundations have played an important part in financing the training of health officers, in medical research, and in improving health administration. The voluntary health agencies often goaded the official departments to greater effort. Primarily, they have served to educate the American people with respect to public health and to make them aware of the services offered by the health departments.

In pausing to take stock of the public health movement at the close of a century, we may also venture an opinion on the future course of the program. We have still a long way to go before we have implemented and utilized our public health and medical knowledge to the full. The next decade or two will, I am sure, see an increasing development of official health service to cover every major unit of our population. The trend is clearly in the direc-

tion of making available to every community full-time, trained public health servants, more adequately supported to do essential health work. This, together with the advances being made in the organization of medical care, in the extension of our hospital facilities, and in the health education of the people, should result in such material achievements as the virtual eradication of tuberculosis and in further reducing the incidence of the infections.

Other areas of the public health, heretofore neglected, will certainly receive more concentrated attention in the future. The gains in longevity of which we are so proud have greatly increased the numbers of older persons in the population and have given greater emphasis to the diseases of middle life and old age, such as heart disease, arteriosclerosis, cancer, and arthritis. We have been prone to consider these conditions the inevitable consequence of the aging process and as such beyond preventive or remedial measures. This view has been shortsighted and not at all in line with the most recent developments in medicine. But we have at last awakened to the urgency of the situation, and a vast amount of research is now going on to discover the causes of cancer and of the other degenerative processes. With all this activity, it is only a question of time before their vital secrets will be revealed. Once they are known, it should be possible to determine the measures best adapted to counteract, or at least to postpone, the afflictions of old age. These activities will loom large in the health program of the immediate future.

Another field that must receive more concerted attention from the public health profession is mental hygiene. Mental disorders constitute a major problem in our complex civilization. Fortunately, there are indications that we now appreciate the gravity of the problem and are beginning to prepare

more trained people for this field of work. Our children will be better prepared for a healthy and normal life when such workers become generally part of the regular staff of our schools and colleges.

Much has yet to be accomplished in the reduction of accidents. Health officers have shied away from this field, and yet it is one in which they can play a very useful part. Accidents constitute the leading cause of death of children and young people and lend themselves to control, provided the necessary educational work is done. The public health profession is in a peculiarly favorable position to do it.

While the services of public health workers in the next century may not be as spectacular as in the past, they will be equally useful. It will all depend on the degree to which objectives will be reoriented and the necessary personnel trained to cope with the new problems which demand attention. Health officers will need to know more of mental hygiene, of social services, and of effective community organization. More and more, we shall count on them to organize the health services of the community, especially for older people. The aim will be not only to control disease but also to build up a population sound in mind and body—an objective in which all the civic agencies and the professional personnel, particularly the private medical practitioners of the community, can participate. We have the resources; we have the necessary local organizations. If health officers and their associates will step into the breach and make their office the center of health service in the truest sense of the word, those who summarize the record of the next century will have an equally inspiring story to tell. The public health profession will, I am sure, broaden its outlook. Through the World Health Organization we have joined hands with most other countries to raise the level of health on a global

scale. There are few forces which can exert greater influence to insure world happiness and world peace than uniting in this common cause.

In closing, I must extol the rôle of our own society in the extraordinary health developments of the last century. The American Public Health Association early took leadership and gave direction to the public health movement. The first officers of the Association were the outstanding physicians and sanitarians of their day, including, among others, Stephen Smith, Elisha Harris, and E. M. Snow of Providence. They helped to write the necessary legislation which led to the creation of state and local health departments. They set up standards of practice. The annual meetings of the Association gave opportunity for stocktaking, for vital discussions, and for the development of plans. A succession of truly great health administrators and teachers took their place

in the Association—Baker, Sedgwick, Frankel, Ravenel, Rosenau, Frost, Freeman, Winslow and many others. In good time, our *Journal* was issued. The Committee on Administrative Practice began its operations and for nearly 30 years has helped to establish the guiding principles which have raised the level of health work throughout the country. In numberless ways, our society has been in the forefront in health education, in setting standards of training of health personnel, and in developing the necessary leadership. Our society on this occasion can be very proud of the part it has played in the history of the public health movement in America. It is particularly appropriate that we meet in Boston on this occasion, when our President and our President-Elect are both good and tried Bostonians who have given many years to the betterment of health in their city and in the nation.

A New National Health Program for Canada*

G. D. W. CAMERON, M.D., D.P.H., F.A.P.H.A.

*Deputy Minister of National Health, Department of National Health and Welfare,
Ottawa, Canada*

ONE of the most important milestones in the history of health planning in Canada was passed in May of this year, with the announcement by the Prime Minister of the new National Health Program. Designed to effect general improvement in the nation's health services, and to prepare the way for a national scheme of health insurance, the program commits the federal government to an additional annual expenditure on health of more than \$30,000,000, through grants-in-aid to the provinces.

The new program continues the progressive extension of social security measures that has taken place in Canada during the war and post-war years. In 1940 the Unemployment Insurance Act was passed, followed by the National Physical Fitness Act of 1943, the Family Allowances Act of 1944, and the 1947 amendment to the Old Age Pensions Act which raised pensions for the aged and blind and increased the number to whom they might be paid. Comprehensive provision for the needs of veterans has also been made through development of the outstanding medical care and rehabilitation services administered by the Department of Veterans Affairs and by the increased veterans' disability and survivors' pensions which became effective in 1947. The same progressive trend has charac-

terized provincial legislation; there has been a general expansion and strengthening of health and welfare activities in all provinces.

An important factor in this many-sided development was the establishment, in 1944, of the Department of National Health and Welfare to take over the general health functions of the former Department of Pensions and National Health and to assume the leading federal role in welfare activity. One of the principal responsibilities of the department is the advisory, coördinating and assistance service it renders to the provinces in health and welfare matters which, for the most part, are placed under provincial jurisdiction by the British North America Act of 1867.

In health matters, the department, which will administer the new program, works in close coöperation with the Dominion Council of Health, the principal advisory body to the Minister of National Health and Welfare. As the membership of the Council, which meets under the chairmanship of the Deputy Minister of National Health, includes the chief health officers of all provinces, the provincial health departments have been able to participate actively in the planning of the grants and in the administrative policies governing their distribution.

The new program is designed to assist the provinces in a number of fields. It consists of three parts: the first a health survey grant; the second a group

* Presented before the Health Officers Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 12, 1943.

of grants covering general public health, tuberculosis, venereal disease and cancer control, mental health, crippling conditions in children, professional training and public health research; and the third, a grant to assist in the provision of hospital accommodation of all kinds. The program covers all areas of Canada with the exception of the Yukon and Northwest Territories where health services are a direct responsibility of the federal government. The extent and variety of the assistance it provides are indicated in Table 1, where the amount made available under each grant is shown.

Perhaps the significance of these figures may be most easily assessed when they are considered in relation to previous federal expenditures on health, and to annual amounts spent by provincial governments in the past. Under the new program additional annual federal expenditure on health and hospital services will be almost as great as

the total expenditure of the Health Branch of the Department during the previous 28 years of its existence, and more than twice the total of all government health expenditure of 20 years ago. Provincial expenditures on health and hospital services which in 1926 totalled \$10,600,000, or \$1.12 per capita, had climbed to \$40,000,000, or \$3.31 per capita, by 1945, the last year for which official figures are available, and to an estimated \$63,400,000, or \$5.05 per capita, by 1947.* This steady rise in provincial expenditure indicates why some kind of federal financial support has become essential if the level of services provided by the provinces is to be maintained and developed. Since the grants must be expended on new services, or matched by provincial funds, a guarantee is provided that this new program will mean an overall increase in total health services.

* Based on *Statistical Summary*, Bank of Canada, Aug.-Sept., 1947.

TABLE 1

Annual Amounts Made Available to the Provinces by the Federal Government under the New National Health Program

Grant	Total Amount	Per Capita Amount ^a
Health Survey	\$625,000 ^b	\$0.05
Health Grants		
Public Health	4,395,300 ^c	0.35
Tuberculosis Control	3,000,000 ^d	0.24
Mental Health	4,000,000 ^e	0.32
Venereal Disease Control	500,000 ^f	0.04
Crippled Children	500,000	0.04
Cancer Control	3,500,000	0.28
Professional Training	500,000	0.04
Public Health Research	100,000 ^g	0.01
Hospital Construction	13,000,000 ^h	1.04
Total:	\$30,120,300	\$2.40

^a Based on intercensal estimate of population for 1947.

^b Non-recurring, but amounts not expended in the fiscal year will be made available in following years.

^c Based on payment of 35 cents per capita, and rising 5 cents per capita each year until a maximum of 50 cents is reached.

^d At the end of 2 years a supplementary grant of \$1,000,000 annually will be made available for 10 years to provincial governments able to make use of it.

^e Increased to \$5,000,000 at the end of 2 years; to \$6,000,000 at the end of 4 years and to \$7,000,000 at the end of six years.

^f An annual grant of \$225,000 was in existence prior to commencement of the program, so that this figure represents an additional grant of \$275,000.

^g Increased by \$100,000 annually, until the grant reaches \$500,000 per annum

^h To be reviewed at the end of 5 years, with possible reduction by half at that time

Comparison between the new program and the well established American grant system is perhaps inevitable. Both represent the extension of federal financial resources to provincial and state governments as a means of strengthening and developing widely diversified public health services. Both have as a basic consideration the necessity for retaining local autonomy and are directed against the same problems, though the older and more diversified American system includes grants not made in Canada, and an overall view of expenditures by the two federal governments would have to take into account the greater variety of methods used in the United States for the support of measures provided for in Canada by straight grants to the provinces.

The Canadian appropriations may at first sight appear to be relatively small when compared to the corresponding annual federal expenditure in the United States of close to \$120,000,000. However, when the populations of the two countries are compared, it is apparent that the Canadian program has been generously and boldly conceived. While, on a per capita basis, the individual Canadian grants for venereal disease control, crippled children, and public health research are slightly less than their American counterparts, the remaining grants all provide for substantially higher amounts.

The many similarities between the two programs are evidence of the attention that has been paid in Canada to American pioneering in the use of the grant-in-aid as a general health measure. The different health fields in which the grants are paid, and the amounts to be expended on each, were decided upon after extensive study of conditions and administrative methods both in Canada and abroad. The program itself grows out of the Dominion Government Proposals, made at the Dominion-Provincial Conference in

1945, which envisaged the establishment of a complete national system of health insurance as well as the strengthening of the nation's health services. Because agreement was not reached between the federal government and all provinces, the full proposals have never been implemented, but it was decided to go forward with the health grants as a logical program which stands on its own merits.

The amount to be distributed under each grant was calculated as closely as possible to meet estimated national requirements in each health field. In those grants where it is anticipated that the provinces will be able to absorb additional sums when the program has been under way for a period of time, provision is made for a progressive increase in the amount to be made available, as in the public health, tuberculosis control, mental health, and public health research grants.

The grants are for the most part distributed on a per capita basis, with special provision being made so that the smaller provinces will not be penalized by their lesser financial resources, and by the higher relative cost of the services they require.

Where, if distribution were made on a straight population basis, the smaller provinces would not receive sufficient funds for their needs, a fixed amount of the grant is paid to each province, with the balance being distributed on the basis of population. For example, under the Mental Health Grant, each province is first given \$25,000, with the remaining \$3,775,000 divided on a population basis; in the Venereal Disease Control, Crippled Children, and Professional Training Grants each province is similarly allocated \$4,000 before the remainder is divided. For the Tuberculosis Control, Health Survey, and Public Health Research Grants the distribution is somewhat different; for

tuberculosis control a basic \$25,000 is paid to each province, with half the balance allocated on the basis of population figures and half on the average number of tuberculosis deaths over the last 5 years; in the Health Survey Grant, Prince Edward Island is given \$15,000 and the other provinces each \$5,000, with the remaining \$570,000 divided according to population; the Public Health Research Grant is distributed on the basis of projects recommended by the Dominion Council of Health. The remaining grants are made on a straight population basis. The resulting distribution of the total grants between provinces is as shown in Table 2, which illustrates the greater per capita amounts payable to the smaller provinces under this arrangement.

TABLE 2

*Amounts Made Available to Provinces
under National Health Program,*

Province	1948	Per Capita Amount ^a
	Total Amount (000)	
P.E.I.	\$294	\$3.13
N.S.	1,542	2.48
N.B.	1,226	2.50
Que.	8,985	2.42
Ont.	9,668	2.31
Man.	1,806	2.43
Sask.	2,002	2.38
Alta.	1,968	2.39
B.C.	2,529	2.42
Total	\$30,020 ^b	\$2.39

^a Based on intercensal estimate of population for 1947.

^b Exclusive of Public Health Research Grant which is not allocated on a per capita basis.

The provinces are allowed wide discretion in the manner in which the grants may be employed. As in the United States, there is a great variation between the kind and quality of services offered, both between different provinces and between areas in any province. These differences, apart from the problem they present through the necessity of bringing badly serviced areas up to the general level, preclude any strict uniformity in the manner of

expenditure of the grants. It is recognized that different approaches to particular problems are essential, and will inevitably lead to the trial and exploration which are necessary if the best long-range results are to be obtained.

THE HEALTH SURVEY GRANT

In order that the provinces themselves may be able to survey their problems, and to insure that they be given all possible assistance in drawing up an integrated program of development and extension, the first of the new grants is devoted entirely to enabling them to determine existing needs, and the priority with which they should be met.

Through the Health Survey Grant \$625,000 is made available for distribution among the provincial governments, so that they may establish planning staffs, calling in outside help where necessary, to study and report on provincial requirements.

The conditions governing distribution of the grant do not rigidly limit the use to which it may be put. Its main purpose is to assist each province in the preparation of an overall appraisal of needs, which will serve as a guide in the future development of the total provincial health program.

Within this framework specific attention is being concentrated on planning for the utilization of the health grants themselves and on a survey of hospital facilities which will be used as a guide in the administration of the Hospital Construction Grant. In addition to providing for an inventory of existing facilities to be used as a basis for the determination of future needs, it is hoped that the grant will make possible their development in a coördinated and integrated fashion so that the most effective use may be made of funds available from other grants, and so that the provinces, with it, will be enabled to lay the groundwork for hospital and medical care insurance.

GENERAL PUBLIC HEALTH

The General Public Health Grant, which totals \$3,395,300 in 1948, is calculated on the basis of 35 cents per capita and will be increased by 5 cents per capita each year until a total annual per capita payment of 50 cents is reached.

The grant is intended for the strengthening and extension of public health services in those places where the provincial health departments feel the need to be greatest. It will enable the provinces to enter and explore fields of activity which have hitherto been inaccessible to them because of budget limitations. The creation of additional county and district health units, the expansion of existing units, and the development of public health education programs will all be encouraged, together with the strengthening of other aspects of the provincial services not covered by specific grants, such as the development or extension of programs in child and maternal health, blindness, arthritis and rheumatism, and communicable disease control.

TUBERCULOSIS CONTROL

The Tuberculosis Control Grant of \$3,000,000 is intended to enable the provinces to complete the task of obtaining control over tuberculosis and to assist them to provide free treatment for all sectors of the population. To insure that these objectives are reached, a supplementary grant of \$1,000,000 annually, beginning in the third year of the program, will be made available for distribution among those provinces able to make effective use of it.

The record of the provinces in the fight against tuberculosis has been generally very good, and outstanding work has been done in this field by the Canadian Tuberculosis Association. The progress that has been achieved is indicated by the fall in death rate from

200 per 100,000 in 1900 to 47.2, or below 40 if Indian deaths are excluded, in 1946 when the death rate in Saskatchewan was only 17.5.¹ An important contribution to the reduction of the overall death rate is being made by the Department of National Health and Welfare through the extension of the treatment and care of tuberculous Indians of whom less than 100 were under treatment in all parts of Canada in 1937, while over 1,200 are receiving treatment today.

Free treatment was given to 96 per cent of all patients in Canada in 1947, as compared to 73.4 per cent in 1938¹; all patients are now treated free by statute in Alberta, Saskatchewan, Manitoba, New Brunswick, and Nova Scotia; and in the other four provinces only a small number are required to pay any portion of treatment cost.

During the last ten years there has been a great increase in treatment and diagnostic facilities. Since 1938, almost 5,000 new beds have been provided for tuberculous patients and another 1,500 are under construction, and the number of persons examined at clinics has risen from about 166,000 to more than 444,000 in addition to the more than a million persons examined by mass surveys.

There has been great improvement also in the interest shown in rehabilitation of the tuberculous patient, which was pioneered by the Rehabilitation Service of the Sanatorium Board of Manitoba. Similar services are now being organized in Alberta, Ontario, New Brunswick, and in British Columbia, which also provides for tuberculous families. Such services as these should all be extended with the aid given through the new grant.

MENTAL HEALTH

As in other countries, the problems arising from mental illness are particu-

larly acute in Canada, and are complicated by serious shortages of all types of trained personnel and facilities for institutional care. It is estimated that, on the basis of requirements per 1,000 of the population of 4 beds for the mentally ill, 1.5 beds for mentally deficient persons, and 0.25 beds for epileptics, there is a shortage of almost 27,000 beds; if requirements are met on the basis of 5 beds per 1,000 there is a shortage of 17,000 beds for these cases. At the same time, on the basis of one mental health clinic for every 100,000 of the population, more than a hundred clinics are still required to meet the need of the provinces.

Because of the seriousness of the problem, as compared to tuberculosis, the formula for the mental health grant goes much beyond that for tuberculosis control, providing first for a higher initial amount of \$4,000,000 and, in addition, for three increases of \$1,000,000 each at 2 year intervals, as the provincial programs are able to absorb more money.

The grant is intended to supplement existing provincial and municipal services in every possible respect, with special emphasis on the development of clinical and preventive services. It may also be used for extending areas of free treatment, where no progress has been made in any way comparable to that for tuberculosis care.

The two most immediate problems which must be faced, however, are the provision of additional beds and the training of psychiatric and other staffs. While the Hospital Construction Grant will do much to assist the provinces in building the necessary extensions to their accommodations, a considerable part of the Mental Health Grant will be required to train the large number of qualified personnel that will be required before these new facilities can be made available.

CANCER CONTROL

The Cancer Control Grant of \$3,500,000 is the only grant included in the program which was not mentioned in the 1945 Proposals. At that time provision for cancer was made indirectly and for an unspecified amount, through the Public Health Grant. A separate grant to provide additional funds was decided upon in view of cancer's importance as the second greatest cause of death in Canada. The grant is intended to stimulate provincial action in the building up of a concerted, well planned and organized drive on cancer, including active diagnostic and treatment services, and to open the way toward free diagnosis and treatment in all provinces.

There is great variation in provincial cancer control programs. In some provinces services are relatively undeveloped, in others free diagnostic services are provided, while in Saskatchewan a complete free diagnostic and treatment service has been established. There are a dozen or more organizations active in cancer work, including the Canadian Cancer Society, which, with its provincial branches, carries on an extensive educational and fund-raising campaign, and the newly organized National Cancer Institute with which the Society is affiliated and which has as its principal function the stimulation and development of an intensive research program. Through the Institute it is hoped that all cancer research will be coördinated and integrated into a well planned and uniform pattern, regardless of the auspices under which the research projects themselves may be undertaken.

The new program complements but in no way supplants the work that is now being done; the larger part of the grant will be used for the establishment of clinics and facilities for diagnosis and treatment. It is estimated that the cost of complete cancer diag-

nostic and treatment facilities for all in Canada would be in the neighborhood of \$7,000,000 annually. The federal grant provides half this sum, and is conditional upon federal grants being matched by the provinces to provide the full amount required. The Cancer Grant thus differs from the other health grants in two ways—through the matching condition and because the provinces are not obliged to employ it on increased services.

VENEREAL DISEASE CONTROL

Under the new program the existing Venereal Disease Control Grant of \$225,000 is raised to \$500,000 annually. As free treatment is largely available in Canada, the increased grant is intended to extend the number of active clinics, to increase the number of persons engaged in preventive work, to develop rehabilitation programs where possible, to increase provision for drugs where necessary, and to extend educational work.

Federal participation in venereal disease control work began in 1919 when, on the recommendation of the Dominion Council of Health, \$200,000 was voted for control work. The amount voted was progressively decreased until, in the fiscal year 1932–1933, the grant was discontinued in spite of the contrary recommendation of the Dominion Council. Commencing in 1938, \$50,000 was again voted annually for the distribution of arsenical preparations. In 1943 this amount was increased by an additional \$175,000. The basis on which the grant was distributed was amended by Order-in-Council in 1945 to provide each province with a straight \$4,000, with the remainder apportioned on the basis of population, 85 per cent being allocated in cash and the remainder in educational and other material. The new grant allows for substantial increases in programs begun and maintained with the help of this grant.

CRIPPLED CHILDREN

The Crippled Children's Grant of \$500,000 is intended to assist the provinces in the development of programs for the prevention and correction of crippling conditions in children, and for the rehabilitation and training of crippled children.

Much work remains to be done in this field. The Canadian Council for Crippled Children, the Ontario and Quebec Societies for Crippled Children, the Junior Red Cross, and the service clubs of Canada have all performed valuable services; there are hospitals for crippled children in most of the principal cities, and some provinces have directed particular attention to poliomyelitis. But no well rounded program has yet been developed under provincial auspices. As a result of the increased assistance now being made available through federal funds it is anticipated that all provinces should be able to develop programs on a broad and comprehensive basis instead of, as in the past, confining themselves to one or two specific diseases or to particular areas.

In the development of the program, close attention is being given to all aspects of this type of work in both Great Britain and the United States. As plans develop it is hoped to draw upon the experience of the Children's Bureau of the Federal Security Agency whose coöperation and experience have proved invaluable to Canadian efforts in this field.

PROFESSIONAL TRAINING

The Professional Training Grant is intended to assist the provinces in the recruitment and training of the additional health personnel required to meet both existing shortages and those that will develop as the program proceeds. Because of the urgent nature of these personnel problems the amount made available annually under the

grant has been set at \$500,000, or twice the sum included in the 1945 Proposals.

Shortages of public health personnel of all kinds are as acute in Canada as in the United States. More public health doctors, public health nurses, sanitary engineers, inspectors, public health dentists and dental hygienists, trained mental health personnel, together with all other types of public health staff, are urgently required. The shortage of nurses is a very serious problem which will undoubtedly become more acute as the hospital construction program progresses. It is anticipated that a substantial portion of the grant will be required to increase the existing number of trained nurses, and it is hoped particularly that the provinces will utilize the grants not merely for the recruitment and training of nurses in accordance with traditional methods but also to explore new methods of nurse training and for the provision of other classes of hospital staff. A particularly interesting experiment is being carried out in Windsor, Ontario, at the present time, under which it is hoped to develop a training program which will produce a fully qualified nurse at the end of a 2 year period. Special attention is also being given to the training of nurses' aides in some provinces.

It is also hoped that, in the use of the funds being made available to the provinces through this grant, some method will be found for the pooling of resources, so that two or more provinces may unite in the financing or developing of common training programs to supply specific needs in different fields.

While the grant would be inadequate to provide for all training required by the provinces, the training of personnel for work in mental health, cancer, tuberculosis, and other fields covered by special grants may be financed through these grants. The Professional Training Grant, like the Public Health and

Public Health Research Grants, is intended in part to meet residual needs not specifically provided for in other ways.

PUBLIC HEALTH RESEARCH

The Public Health Research Grant is intended for the stimulation and development of public health research. The grant is limited to \$100,000 for the current fiscal year, but will increase by an additional \$100,000 annually, until it reaches a maximum of \$500,000. For the first year at least it will be administered as a separately operated fund of the Department of National Health and Welfare, to be expended on projects requested by the provinces and recommended by the Dominion Council of Health.

As with the Professional Training Grant, two or more provinces may combine in a research project or in subsidizing research. Expenditure for research in fields covered by other grants may also be charged against those grants.

The Public Health Research Grant is in addition to the amounts already being made available for pure medical research through the National Research Council, which appropriates some \$300,000 annually for this purpose. The grant will be used in a somewhat more flexible manner, for projects which seem promising but which for one reason or another may not come within the terms of reference of the Medical Research Committee of the National Research Council. Attention will be concentrated primarily on public health investigation as contrasted to medical research in the narrower sense, close coöperation being maintained with the National Research Council as well as with the National Cancer Institute, the Canadian Rheumatism and Arthritis Society, the provincial, university, and hospital research departments and laboratories, and with other research foun-

dations and organizations engaged in public health research.

HOSPITAL CONSTRUCTION

The \$13,000,000 Hospital Construction Grant is designed to remove the estimated shortage of more than 60,000 hospital beds in Canada, and emphasizes proper geographical distribution and allocation by type of hospital. By bringing about a more satisfactory distribution of hospital facilities it is hoped that the program will contribute to better distribution of doctors and health personnel.

In the 1945 Proposals, low-cost loans only were put forward as an aid to hospital construction, but the demand for accommodation, which had been rising through the depression and war years, has now become so acute that it was not felt that it could be met adequately by any system of loans. Normal population growth, increased hospitalization of obstetrical cases, advances in coverage of hospital insurance plans, and a greater all-round use of hospitals arising from the financial ability of a larger sector of the population to pay for services, have all added to the problem. Hospital construction, which had been slowed down during the depression, was practically stopped in the early years of the war, through shortage of materials and skilled labor. These shortages, plus tremendously high post-war construction costs, have been effective in preventing any large-scale resumption of hospital building. The shortage of beds is particularly acute in rural areas, and one of the purposes of the program is to insure that adequate new construction will be provided for all parts of the country.

The grant is also designed to relieve the present use of acute hospital beds by chronic and convalescent patients. There is no doubt that much hospital congestion today is due to the occupation of acute disease beds by large num-

bers of these patients, who require relatively long periods of care and who, if it were available, could be equally well cared for in accommodation which is less costly to build and maintain. The program therefore gives priority to the building of chronic and convalescent beds, by larger grants to this type of accommodation.

The federal grants for hospital construction are conditional upon the provinces at least matching the federal contribution. The grants will amount to \$1,000 per bed for each active treatment bed or bed equivalent, and \$1,500 per bed for each chronic or convalescent bed, with mental and tuberculosis hospital beds considered as chronic beds for purposes of the grant. The federal contribution will not in any case exceed one-third of the total cost per bed or bed equivalent in any construction project. Thus, under the program, local hospital authorities will be assured of a subsidy from the federal and provincial governments of at least \$2,000 for each acute hospital bed and \$3,000 for each chronic or convalescent bed. For purposes of the grant, three bassinets are considered equivalent to one bed.

Certain communities are unable to support hospitals of a size and character consistent with efficient and economic operation but require facilities where ambulatory care and treatment can be given, together with a limited emergency hospital care. A grant on the basis of beds would not in many instances meet financial need for the construction of such facilities. Accordingly the program provides that each 500 square feet of interior floor space, exclusive of staff living quarters, in an outpost hospital, nursing station, or similar establishment which does not contain more than eight beds, may be considered as the equivalent of one active treatment bed.

The assistance to hospital construction through this grant is conceived as a 10 year program. As it is anticipated

that the major financial obstacles will be encountered in its first 5 years, the program will be reviewed at the end of that time and, if it is found that the full subsidy is no longer required, the grant will be reduced accordingly.

COMMENT

The total program has been enthusiastically received, and accepted by all provinces. To assure that federal leadership and assistance are organized on as strong a basis as possible, F. W. Jackson, M.D., former Deputy Minister of Health of Manitoba and one of the ablest of the provincial health officers, has been brought into the Department of National Health and Welfare as Director of Health Insurance Studies, in which capacity he will implement the program. His proven ability and long experience in provincial health work will be invaluable during the exploratory period that lies ahead, and form an effective guarantee that the viewpoint of the provinces will be strongly

represented in all federal planning.

We appreciate the many difficulties, both seen and unseen, that remain to be solved. As in the past, we will rely heavily on the experience and advice of the great voluntary agencies and associations of professional workers, and on the assistance that is always so generously given by the United States Public Health Service and the Federal Security Agency.

With this aid the success of the program should be assured. The foundation on which it has been built is strong and, we feel, well designed. The co-operative planning that is now going on not only between the federal and provincial departments but between the provinces and the voluntary agencies is encouraging evidence of the stimulation that has been provided to the whole structure of Canadian health services.

REFERENCE

1. Canadian Tuberculosis Association *Annual Report of Executive Office*, Mar. 31, 1948.

Resolution 21 Adopted at the 76th Annual Meeting of the American Public Health Association, November 10, 1948

RECOGNITION OF INCREASED FEDERAL APPROPRIATIONS FOR PUBLIC HEALTH IN CANADA

WHEREAS, the health of the Canadian people is of direct interest and vital concern to this Association and to the people of the United States, and

WHEREAS, federal grants-in-aid in the United States have constituted a device of proven value in extending public health services and stimulating planned hospital construction, at the same time equalizing the financial burden nationally, and

WHEREAS the Government of Canada has embarked on a generous and far-reaching program of grants-in-aid to the Provinces for health surveys, general public health purposes, tuberculosis control, mental health care, venereal disease control, crippled children, professional training, public health research, cancer control, and hospital construction, therefore be it

RESOLVED that the American Public Health Association extends its hearty congratulations to the Government and people of Canada for a step which makes the year 1948 memorable in the annals of public health on this continent.

Health Centers and the Hospital Survey and Construction Act

V. M. HOGE, M.D.

Medical Director, Chief, Division of Hospital Facilities, U. S. Public Health Service, Washington, D. C.

HEALTH centers and public health activities are in a sharply focused rôle today in the national economy. Since establishment of the first health center in 1912, there has evolved a fairly consistent pattern of programs, services, and facilities. In 1915 there were 14 counties having full-time professionally staffed health units. By 1935 this number had increased to 762. Then the Social Security Act made possible a rapidly expanding health service. In 1947 there were 1,874 counties, with a total of 113,501,778 population, having full-time local health departments. Included were 272 cities with a population of over 42,000,000 with such health services.

In 1946, \$67,952,036 was spent for local health services, exclusive of state administrative costs. Of this sum, \$5,761,058 were state funds, \$49,562,977 local, and \$11,833,062 federal funds.

Despite this growth and expenditure, only about 10 per cent of the population mentioned above benefits from local units fully meeting public health standards.

The "Hill-Burton Act," enacted in 1946 by the 79th Congress as Public Law 725, paved the way for the nation to build more and better health centers in the next 5 years than in any similar period in the past. It also brought into sharper focus than ever before the place of the health center in the nation's total health picture.

The purpose of the Law as stated in

its first section is to assist the states in determining needs and planning and building facilities which can be effectively and economically operated for furnishing adequate hospital, clinic, and similar services to all their people. Among these facilities, the health center has a key position.

Since the first health center was established, the term "public health center" has acquired a variety of meanings. Most of these are included, however, in the Law's definition of a public health center as "a publicly owned facility utilized by a local health unit for the provision of public health services, including related facilities such as laboratories, clinics, and administrative offices operated in connection with public health centers." In the Regulations under the Act, further clarification is provided in the definition of public health services as "services provided through organized community effort in the endeavor to prevent disease, prolong life, and maintain a high degree of physical and mental efficiency."

In its years of development, the health center has come to be the focal point around which revolve the activities of the departments of public health, primarily those dealing with the prevention of disease. Hospitals, on the other hand, generally have been regarded as places where acutely ill persons are taken for treatment. This sharp separation of preventive and curative programs has been recognized by the Commission on Hos-

pital Care¹ with the following recommendations in its report:

1. Hospitals and health departments should coördinate their efforts and integrate their functions.

2. There should be close relationship between hospital and public health department programs so that educational activities of the hospital can include training in public health work.

3. Unnecessary duplication of effort and equipment should be avoided whenever possible through joint use of facilities by hospitals and public health departments.

Dr. Dean F. Smiley, in the report on *health centers for the Council on Medical Service of the American Medical Association*,² lists among his conclusions:

"1. It is recommended that public health centers be established as needed and as close as is practicable to hospitals and medical schools (if any) in base hospital service areas, intermediate hospital service areas and rural hospital service areas and that they be integral parts of base medical centers, district medical centers and community medical centers. It is, however, recommended that at every level the public health center be kept administratively independent and that the differing needs of hospitals and public health centers for quiet and for accessibility be kept in mind.

"2. Public health centers to serve as headquarters for county and multicounty public health units are much more urgently needed than are rural public health centers serving as extensions of county and multicounty public health units.

"3. It is recommended that in rural communities of 4,000 to 18,000, in need of sick beds but not large enough to afford a 50 bed general hospital, 'community clinics' of 10 to 40 beds be provided by hospital authorities rather than 'public health and medical service centers' provided by public health authorities. However, administratively independent public health centers may sometimes be advantageously housed in the community hospital or community clinic. Such community clinics should be so organized and administered that they will not infringe on the private practice of medicine by physicians.

"4. In those rural communities where bed service is available from neighboring community hospitals and the urgent need is for facilities for public health and diagnostic facilities it is recommended that the public

health center shall provide facilities not only for the traditional six point public health service but also for clinical laboratory service and limited x-ray service. Offices for the part-time use of the practicing physicians of the community should also be included if the physicians so desire.

"5. In the interests of economy and administrative efficiency it would appear generally wise to avoid combining medical service functions, hospitalization functions, welfare and social service functions or recreational functions with public health functions in the public health centers projected under the terms of the Hospital Survey and Construction Act of 1946. The public health center should, however, include facilities for meeting effectively any responsibility laid on the public health department by the local community."

The American Hospital Association and the American Public Health Association through a joint committee on co-ordination of hospitals and health departments, strongly urge closer relationship between these activities.³

The Public Health Service is in hearty accord with these recommendations and is giving every assistance to the states in promoting such relationships.

When a state develops a long-range plan, as required under Public Law 725, to meet its needs for hospital, clinic, and similar services, the coördination and integration of such services become a most important consideration.

The Act also will help bring about the building of health centers structurally more suitable for their many activities and services. Traditionally, the health center is the headquarters for the local health unit which carries on communicable disease and immunization services, sanitation, maternal and child health, laboratory, vital statistics, health education, and other preventive medical services.

If the center is to provide these services effectively and attract full community support, it should be a model. It must set an example of civic cleanliness, attractiveness, and decency.

Not only will the health centers built under the Act be more suitable, both in

structure and in services provided, but they also will increase significantly in number. Perhaps most important of all, they will be built where they are needed—which has not always been true in the past.

Various estimates have been made from time to time of the need for public health centers. The Hospital Survey and Construction Act states that, "the number of public health centers and the general method of distribution of such centers throughout the state . . . shall not exceed one per 30,000 population, except that in States having less than twelve persons per square mile, it shall not exceed one per 20,000 population." It is pointed out that these are limits in which federal aid may be used. They are generalized assumptions of approximate needs and are subject to adaptation to specific local requirements.

These maximum ratios prescribed by law, when applied to July 1, 1947, estimates of civilian population, indicate that approximately 4,850 health centers are needed in the United States today. Yet on the basis of the approved state plans for hospital and health center construction under Public Law 725, only some 425 acceptable health centers now exist—or approximately 9 per cent of the maximum number required. These figures clearly reveal the acute need for many more health centers.

An examination of the health center program for these states indicates that serious thought has been given to planning for adequate health centers to serve the local health units and the people of the state. One section of the Regulations specifies that, "the general method of distribution of public health centers throughout the State shall conform to the plan of organization of local health units within the State." As the result, each state was divided into areas served by local health units. In some states, these areas are called public health districts; in others, they are called public

health areas. Regardless of the name designated, they are in all cases geographical areas served by existing or proposed local health units.

The size of the public health areas varies from state to state. Several states* have designated each county as a public health area or a district; other states have combined two or more counties to form public health areas.

The number of public health centers planned for each area depends on its population and the policy established by the state agency. Thus, in several states,† one public health center has been planned for each area; although in several areas additional centers could have been planned on the basis of the maximum ratios prescribed by law. In other states, the number of public health centers planned is determined on this basis.

The states apparently have attempted to plan sufficient public health centers to serve adequately all existing or proposed local health units. But the total number of centers proposed by a state, together with existing acceptable public health centers, does not necessarily equal the maximum number permitted, by simple mathematical calculation. The total number of proposed and existing centers amounts to approximately half of the total number as determined on the basis of the maximum ratios under the Law.

In addition to planning public health centers on a state-wide basis, considerable progress has been made in the submission and approval of applications for health centers. As of October 1, 1948, 91 initial applications for health centers have been approved. Twenty-four of these applications are for health

* Alabama, Arkansas, Delaware, Maryland, New Jersey, North Carolina, South Carolina, and Tennessee.

† Alabama, Arizona, Colorado, Florida, Georgia, Idaho, Iowa, Kentucky, Mississippi, Montana, New Mexico, North Dakota, Ohio, South Carolina, South Dakota, Texas, Vermont, West Virginia, and Wyoming.

centers included in general hospitals; 2 are for combined health centers and laboratories; and the remaining 65 are for public health centers only. The estimated total cost of these 65 health centers ranges from approximately \$6,000 to \$226,000, with an average cost of approximately \$74,000 per health center. These differences in costs are due to the variations in size and services planned.

The possibilities of the program are

challenges to leaders in the hospital and public health fields. Coördination of efforts in curative and preventive medicine is necessary for full realization of better national health.

REFERENCES

1. *Hospital Care in the United States*. The Commission on Hospital Care, The Commonwealth Fund, New York, 1947.
2. *Health Centers Under the Hospital Construction Act*. Prepared by Dr. Dean F. Smiley for the Council on Medical Services of the American Medical Association. *J.A.M.A.*, 134:1179-1181, (Aug. 2), 1947.
3. *Coördination of Hospitals and Health Departments*. *A.J.P.H.*, 38, 5:700-708, (May), 1948.

Orders Received for Manual of International Classification of Diseases, Injuries and Causes of Death

The World Health Assembly has adopted as part of its Nomenclature Regulations, 1948, the Sixth Decennial Revision of the *International Lists of Diseases and Causes of Death*. It will be published by the World Health Organization as its *Manual of International Classification of Diseases, Injuries and Causes of Death* at the end of this year. In the United States, the new Classification will go into effect on January 1, 1949.

The World Health Organization has no facilities for the distribution of the *Manual*. Therefore, the Council on Vital Records and Vital Statistics has agreed

to consolidate United States orders and to distribute the volumes when they are received from the World Health Organization. The price of the first printing of the new Classification is \$2.50 a set of two bound volumes, delivered to you. Orders should be placed as soon as possible to assure prompt delivery.

Orders should be sent and checks made payable to: Halbert L. Dunn, M.D., Secretary-Treasurer, Council on Vital Records and Vital Statistics, c/o National Office of Vital Statistics, Washington 25, D. C. Orders and checks should be sent to the Council by December 1 or shortly thereafter.

The Birth of a Section^{*}

H. E. KLEINSCHMIDT, M.D., F.A.P.H.A.

Medical Director, American Red Cross, North Atlantic Area, New York, N. Y.

OFFICIALLY, the Section on Public Health Education was born at the 52nd annual meeting of the American Public Health Association, held in Boston, November, 1923. Actually the birth took place in New York two years earlier at the Jubilee meeting of the Association—a propitious omen, borne out, thus far, by the successful career of the Section. Through the enterprise of Evart G. Routzahn, supported by William F. Snow and Lee K. Frankel, permission to form a provisional section on health education was granted by the Association's Governing Council, and two sessions were conducted under his leadership at the 1921 meeting. Good attendance and spontaneous interest persuaded the Council to continue the Section for another year, and, after an excellent showing of vitality at the 51st annual meeting held in Cleveland, the probationary period was again extended. At the 52nd meeting, held in Boston, the dynamic interest shown in the section could no longer be ignored by a seemingly reluctant Council, and the Section was ushered into the public health family as a full-fledged and legitimate member. Sturdy and strong today, this Section was born out of wedlock, so to speak, and spent its first two precarious years as a waif on the doorstep of the A.P.H.A.

It is true that the Section owes its existence to the foresight and labor of a few zealots. But its creation may be

considered also as one of the outgrowths of the turbulent times following World War I. What was the general political and social atmosphere like in the early 20's? Woodrow Wilson, frustrated and forsaken, sat hunched by the fireplace in his Washington apartment, broken in body and spirit. A war-weary nation was clamoring for "normalcy" under the presidency of the genial and reassuring Warren Gamaliel Harding. Scarcely had he died (August 3, 1923) of ptomaine poisoning, or a coronary occlusion, or phenobarbitol, or a broken heart—the public never really learned which—when the stench of the Teapot Dome scandal, which had been stewing for two years, polluted the air. The Prohibition Amendment, approved in 1919, was sowing the seeds of cynical lawlessness. The Ku Klux Klan was riding high. The Big Red Scare was slowly burning itself out. The Sacco and Vanzetti case was undermining our faith in the judiciary system. Radio broadcasting, not yet a year old in 1921, was already changing the social and economic pattern. The post-war business boom had encountered its first bust. Sex taboos were being demolished and a new but dubious "sex freedom" was screaming abroad in the land. Women's skirts were climbing to the knee. *Main Street* was a best seller; Mr. Babbitt was soon to become a national symbol.

These few highlights seen in present-day perspective, tell the story of a nation, which, having been keyed to a high, idealistic pitch by the war "to make the world safe for democracy," was, in the early 20's, nervous, fretful,

^{*} Presented before the Public Health Education Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

morally confused, spiritually exhausted, and struggling, oh, so yearningly, for stability and creature comforts.

This restless and groping state of mind of the nation had its influence, of course, on public health thinking. But on the whole, that thinking was definitely progressive. In fact, the period might be called one of renaissance of public health, in which the A.P.H.A. shared. For a half-century the Association had been a tightly knit group of staid health officers, sanitarians, engineers, and laboratory technicians. But during and immediately after the war the concept of public health broadened perceptibly. Workers in the fields of social welfare, education, and medicine demanded a place in the public health field. Public health workers were beginning to be interested in something more than vaccination, formaldehyde, and the cuspidor-in-railway-cars index. We catch some reflection of this new and aggressive spirit in the pages of the *American Journal of Public Health*. In the 1921 volume, for example, we find papers in abundance on sewage disposal, food protection, sanitation problems, and a 30 page symposium on smallpox, but we find also a score card for measuring the efficiency of local health departments, worked out by the U. S. Public Health Service. One of its 21 items was "Education of the Public," for which 80 points were allowed out of a total score of 1,000. In the October, 1922, issue is an editorial based on a survey summarizing "Public Health Education" from which we learn, that: "In 80 per cent of the larger cities of the United States health education is a very incidental part of the municipal health department. . . . In the majority of cities, the director (of health education) is the health officer. . . . Not more than 15 cities are really getting health information into the homes of their communities."

Such an expression of concern about

the need of informing the people was new. Although there have always been outstanding teachers in the ranks of public health the emphasis, 30 years ago, was on legal regulations, sanitary policing, and technical measures. The printed publications of health departments were, for the most part, poorly written, badly printed, and generally unattractive. On the shelves in the basement of almost any state house were usually to be found a miscellaneous assortment of dull cards and sleazy circulars bearing instructions for persons quarantined with a communicable disease, printed in crowded type on dark paper; as forbidding in phraseology as they were hard to read. When epidemics struck, the newspapers carried fearsome messages written in the technical language of the doctor. Publicity, the average health officer seemed to think, was at best, a necessary evil.

In this bleak setting individual gleams of light do stand out. Biggs, Fulton, Crumbine, Hurty, Evans were some of the luminaries who not only sensed the need of enlightening the public but also displayed genius in doing so. But the chancleer that really brought the sun up over the horizon early in this century, was undoubtedly the voluntary health movement. The Society for the Study and Prevention of Tuberculosis led the way by creating techniques of proclaiming its message to all people, and organizing them into crusading groups. Early in its career it conducted a traveling exhibit, piloted by an exuberant, resourceful young man, Evart G. Routzahn. Up and down the country it made its way, leaving behind threads firmly tied to a great idea that later wove themselves into a vast network which we now call the National Tuberculosis Association. Soon after, the American Social Hygiene Association set out to smash the "conspiracy of silence" against sex; and when the war came this organization was instrumental in persuading the

Army and the Navy to employ the same educational hammer to combat the venereal diseases—an innovation unheard of in the annals of military experience. The venereal disease educational program carried on in the training camps, on the ships, and overseas was an amazing performance and its influence carried over into peacetime projects of many kinds and many organizations.

In the post-war period the public health nurse movement was gaining momentum. By 1922 the Red Cross Nursing Service had been extended to more than half of the counties of the United States. Visiting nurse associations were everywhere being established, health departments were adding nurses to the staff, and boards of education were accepting the school nurse as a necessity. From the very beginning it was held that the public health nurse is essentially an educator. Whether she was dispatched to the bedside of a harassed mother, or to quarantine a case of communicable disease, or to consult with the parents of a pupil in need of glasses, she bore a cheerful message, interpreted the medical facts, and inspired her clients to reach for better health. Here was an army of professional workers whose chief function it was to teach, yet without real training in the art of transmitting knowledge. Oh yes! the job was done superbly but many a nurse sorely felt the need of a guiding hand—nursing, she knew, is a craft, the details of which she had learned from experienced instructors, but teaching is also a craft, and for this she had had no formal preparation.

Shortly before our Section was born the Child Health Organization came into being. Through the genius of Sally Lucas Jean it came like a fresh breeze to revive interest in child health. Its printed publications vied with the best of professional advertising. The dry dusty bones of physiology, traditionally

offered to children as health education, gave way to charming plays, the clowning of Cho Cho, merry jingles, and other fascinating devices that appealed to the child's heart. There was a new emphasis on the delights of healthful practices; a fresh approach to the emotions of the youngster, his parents, and teachers. The Child Health Organization set a pace which other organizations, official and nonofficial, strove to follow.

These few examples illustrate the widespread interest in education as a means of promoting health, both for the individual and the community. It was new. Thousands of health workers were engaged in public education and were in dire need of teaching skill and modern tools. For a half century lip service aplenty had been duly paid to the premise that public health progress is dependent upon the understanding support of the common man but somehow the conscious, directed effort to cultivate the skill of spreading knowledge seemed not to have captured the imagination of the public health profession. Obviously the time was ripe for the gathering and organization of these amorphous forces.

Another influence was at work. The war had destroyed the old complacency and challenged traditional values. The nation was introspective and health agencies, in similar mood, were probing deeply into themselves. They bravely questioned the value of their own methods and materials. They "ate of the fruit" and became conscious; not of their nakedness, but of their awkwardness in proclaiming their causes to a sophisticated people. So they labored earnestly to bring their methods and materials in line with modern advertising techniques and educational philosophies. One noteworthy study of the actual value of a given teaching device was that made by Lashley and Watson of the Psychological Laboratory of the Johns Hopkins University. The motion pic-

ture, "Fit to Win,"¹ dealing with venereal disease prevention in drama form, was shown under their direct supervision to about 4,800 people in audiences of various types, and followed up by questionnaires, reports from field workers and physicians, and personal interviews. They attempted to discover, not only what the individual learned by viewing the film, but also how long the knowledge gained had been retained, to what extent behavior had been influenced, and what deleterious effects, if any, were suffered by viewing the film. The study was carefully controlled and the findings were interpreted with scientific objectivity.

There were other studies of similar nature all inspired by a healthy skepticism concerning the real value of methods in common use. Illustrative of this spirit is the statement announcing the first session of the provisional Health Education Section, namely: "the aim will be to take some first steps toward frankly facing the practical problems which need to be solved in order to secure the results desired from the millions of pieces of printed matter that are being distributed, the great number of addresses, and the increasing use of a growing variety of educational material."

And while these efforts to sharpen the new tool of health education were under way certain other developments were causing the more conservative leaders to be apprehensive. Press agency was being carried too far, they feared, and was taking on a yellowish tinge. One ambitious commissioner, for example, caused a string of freight cars to be hauled through the countryside by a locomotive fired with dried milk instead of coal. This was supposed to prove to an indifferent public that milk is a source of energy; and it must be admitted that the story "made the headlines" from coast to coast. Slogans with a punch but of questionable verac-

ity, jingles with more rhyme than reason, stunts suggestive of the circus spieler, threatened to undermine public trust in the word of the public health leader.

Health expositions, promoted by commercial interests and space-selling entrepreneurs, sprang up like a rash. No matter what a dealer might have to sell—chewing gum, or soap powder, or perambulators—he managed somehow to tie his sales appeal to health. Sprinkled in with the hucksters' booths were the less exotic exhibits of health associations and departments which supposedly gave the whole an air of scientific respectability. Several health officers of unimpeachable reputation were so impressed with the health exposition and supported it so ably that the movement seemed at one time to be about to sweep the country. One such exposition was held in collaboration with our own Jubilee meeting—the year we were born—a huge, sprawling affair covering acres of floor space at the Grand Central Palace in New York.

In summary, one might say that the forces or factors that led to the formation of the Section were these:

1. The drive of the times.
2. The broadening of the concept of public health.
3. The apprehension that health education, being "nobody's business," might run rampant and impede sound public health progress.
4. The realization that health education is a specialized craft.
5. The yearning of an army of unclassified workers for a common fellowship.
6. The enterprise of a few leaders.

We are fortunate today that the pent up energy of that day was wisely mobilized and directed into its present channel. It might easily have been dissipated, for most of those who needed and wanted help were affiliated with a variety of other organizations not then identified closely with public health. It was the vision of Routzahn, Snow, Frankel, and a few other leaders that

made it possible to gather these forces under the banner of the A.P.H.A. Their efforts are all the more laudatory because little encouragement came from the inner circles of the Association. Some members, quite honestly, believed that the Association would be weakened by a multiplicity of sections and they resisted, not only the formation of this Section but also of others clamoring to be organized. There were, at the time, seven sections: Public Health Administration, Laboratory, Industrial Hygiene, Food and Drugs, Sanitary Engineering, Vital Statistics and Child Hygiene. Surely, it was argued, every member should find congenial companionship in one of these sections. The new member eager for a bit of help in health education, who might be told by the veteran Association officer with the raised eyebrows, that by shopping around among the programs of these six sections he would find all the nourishment he needed, was not satisfied—this was new wine, actively fermenting, and the old bottles would not do.

There were others who no doubt felt that the demand for a new section was but a passing fad and an offshoot of the raucous times. Still others, were perhaps secretly delighted to observe the new trend and, tongue in cheek, raised only mild objections for no other reason but to put the aspiring Section on its mettle. At any rate, the Governing Council did approve the permanent formation of the Section at the 52nd annual meeting of the Association, held in Boston, November, 1923.

Once created, the Section grew lustily and soon established certain distinguishing bench marks which deserve enumeration.

1. Its annual meeting sessions were characterized by unconventionality. Instead of trite papers there were demonstrations, impromptu discussions, and lively audience participation. Experts in fields other than public health, such as typography, cinematography, advertising, psychology, took part in its programs.

2. The "clinic" method of studying materials and techniques became a hall mark of the Section. Year after year this type of presentation maintained its popularity. The willingness of groping health educators to submit their products to searching, sometimes ruthless, scrutiny in public, testifies to their spirit of honest self-criticism.

3. The Section established "headquarters" in the annual exhibit of the Association. Here were to be found portfolios of printed matter, publicity devices, gadgets, catalogs of visual aid materials, and posters strung on a line like Monday's wash. It was the rallying place of all loyal members, and all found treasure there. This service is now being creditably rendered by the Social Work Publicity Council.

4. The Section supplied a department in the *Journal*. Other sections, too, conducted special departments but this one was unusual. It consisted usually of brief items collected by the editor, Mr. Routzahn, from the four corners of the world. It was an exchange of bits of information, offered usually without comment for what they might be worth, and reminded one of an old-fashioned experience meeting.

5. Early in its youth the Section felt that it was not enough merely to plan an annual program, but that it should develop a means of aiding its members to become better craftsmen in the art, technique, and philosophy of health education. Not a single school of public health had anything adequate of this kind to offer. At the same time the Section's membership included specialists in a variety of skills such as no university could then provide. Why not bring the two together—the novices in need of training and the experienced craftsmen willing to teach? That led to the development of the Health Education Institute which flourished from 1932 to 1943.² This was one of the distinguished services of the Section which brought it fame and at one time caused some to fear that the Institute threatened to outshine the annual meeting itself.

Such were the beginnings. Of the original 17 pioneers* who were active

* Records of the Association list the following persons as being "active" in the Section as of 1921-1923:

Dwight E. Breed
(deceased)
L. D. Bulkley
(deceased)
Walter Clarke
Marjorie Delavan
Ray Everett
John Hall
Ira V. Hiscock
H. E. Kleinschmidt

Benzion Liber
Harry H. Moore
Raymond S. Patterson
Phillip S. Platt
Burt R. Rickards
Evert G. Routzahn
(deceased)
John Sundwall
James A. Tobey
Claire E. Turner

in the Section as of 1921-1923, 3 have died, 2 are no longer associated with it, and the remaining 12 still maintain a lively interest in it. Now that the Section has reached adulthood, these first settlers are naturally proud of its sturdiness and also concerned with its future. They might be tempted to ask some searching questions concerning past mistakes, present weaknesses, and future challenges, but wisely refrain from doing so, knowing that the oncoming generation, indebted to, or burdened by, its heritage, is merely amused and not in-

structed by the traditions and experiences of its forebears. These oldsters, however, fondly hope that the present custodians of the Section's fortunes will strive as zestfully and happily to carry on as their antecedents were to get started.

REFERENCES

1. Lashley, Karl S., Ph.D., and Watson, John B., Ph.D. A Psychological Study of Motion Pictures in Relation to Venereal Disease Campaigns. *J. Social Hyg.*, VII, 2, (April), 1921.
2. Kleinschmidt, H. E. Early Days of the Public Health Education Section. *A.J.P.H.*, 34, 10:1058 (Oct.), 1944.

SUSTAINING MEMBERS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

American Bottlers of Carbonated Beverages,
Washington, D. C.

Ames Company, Inc., Elkhart, Ind.

Association for the Aid of Crippled Children,
New York, N. Y.

Borden Company, New York, N. Y.

Chlorine Institute, Inc., New York, N. Y.

Difco Laboratories, Inc., Detroit, Mich.

Diversey Corporation, Chicago, Ill.

Equitable Life Assurance Society of the United
States, New York, N. Y.

John Hancock Mutual Life Insurance Company,
Boston, Mass.

Hoffman-La Roche, Inc., Nutley, N. J.

Holland-Rantos Company, Inc., New York, N. Y.

International Association of Ice Cream Manu-
facturers, Washington, D. C.

International Equipment Company, Boston, Mass.

Josam Manufacturing Company, Cleveland, Ohio

Lederle Laboratories Division, American Cyana-
mid Co., New York, N. Y.

Liberty Mutual Insurance Company, Boston, Mass.

Life Insurance Co. of Virginia, Richmond, Va.
Macmillan Company, New York, N. Y.

George W. Merck, Rahway, N. J.

Metropolitan Life Insurance Company, New
York, N. Y.

National Life Insurance Co., Montpelier, Vt.

Oval Wood Dish Corp., Tupper Lake, N. Y.

Prudential Insurance Company of America
Newark, N. J.

Sealright Company, Inc., Fulton, N. Y.

Sharp and Dohme, Inc., Glenolden, Pa.

E. R. Squibb and Sons, New York, N. Y.

Sun Life Insurance Company, Baltimore, Md.

Travelers Insurance Company, Hartford, Conn.

Union Central Life Insurance Company, Cin-
cinnati, Ohio.

Upjohn Company, Kalamazoo, Mich.

West Disinfecting Co., Long Island City, N. Y.

Western and Southern Life Insurance Company,
Cincinnati, Ohio.

Winthrop-Stearns, Inc., New York, N. Y.

Wyeth, Inc., Philadelphia, Pa.

It Works in Seattle

Merged Official and Voluntary Public Health Nursing Agencies

EMIL E. PALMQUIST, M.D., M.P.H., F.A.P.H.A., AND
MARGUERITE PRINDIVILLE, R.N.

*Director of Public Health; and Director, Division of Nursing, Seattle & King
County Department of Public Health, Seattle, Wash.*

THE merger of the Seattle Visiting Nurse Service with the nursing services of the Health Department of the City of Seattle was accomplished in March, 1944. A report of this merger was published in the June, 1945, issue of the *Journal of Public Health Nursing*. Those who are concerned with this program in our community are still convinced that this merger is effective, is now on firm foundation, and is the most desirable way of operating a public health and visiting nurse program in our community, even though it is a large city. The idea of merger arose largely because of wartime and the resulting shortage of nurses. It became apparent to community leaders and to Dr. Ragnar T. Westman, Acting Commissioner of Health (new City Charter: Director of Public Health), that much duplication of effort between the two agencies could be eliminated by a merger. The same advantages now, in peacetime, are still present. Our experiences from the merger in our community have gained advantages we do not wish nor intend to lose.

Many inquiries have been directed to the authors and to the President of the Board of the Visiting Nurse Service about the merger during the past three years. The most frequently occurring question is, "What is the plan?" The "plan" is not peculiar to Seattle, and generally can apply to almost any community. It goes without saying, how-

ever, that every area and community differs in its historical pattern of community organizational makeup, which must be kept in mind, of course, in setting up a plan. In the early stages of the planning in Seattle and before the merger took place, much discussion and serious consideration of plans was given to every aspect, by both the public agency and the voluntary agency, before the merger occurred. It is essential, we believe, in the preparation of any plan, that it be worked out together. If the two groups are rather far apart in their thinking, then this situation should be realized and kept in mind. In our opinion, a merger should not begin until complete understanding occurs. A graphical plan of lines of administration should be drawn because this is an effective method of visualizing the organization in advance. A general agreement as to function should be noted in writing. Special city or county ordinance may be necessary.

Late in 1943, after general agreement between the agencies, which included the Seattle Visiting Nurse Service and the official agency as represented by the health officer, an ordinance was passed by the City Council and approved by the Mayor which provided the legal machinery for the merger and for the management and handling of the finances. In addition, a memorandum of agreement was prepared which is a working arrangement between the Board

of the Visiting Nurse Service and the Director of Public Health.

In the early planning stages of the merger in Seattle, a committee was created from the Board of the Visiting Nurse Service and from members of the City Council. This committee met several times. An attorney was present during the committee meetings for consultation. Many matters, of course, came up for discussion, one of which, for example, was the concern of the Board of the Seattle Visiting Nurse Service that the personnel of the nursing services should not be involved in any politics. Such fears were alleviated when it was pointed out that the personnel could be declared officially as city employees and be given civil service status. There have been three city elections since the merger, and the Health Department, including the personnel absorbed from the Visiting Nurse Service in the merger, has in no way been involved, nor been embarrassed in any way because of political considerations.

Many nursing agencies may hesitate to enter into an amalgamated or merged program for fear they will lose their identity. Members, particularly of the private agency, were pioneers in establishing its service in their community and have passed through many difficult situations and suffered many hardships in seeing it through. Naturally, when it comes to merging it and sharing it with some other agency, the fear arises that they lose control or, as stated above, "lose their identity." The way to solve this problem is to get together representatives of the private agency and of the official agency. There is nothing so good, we have found, as sitting around a table and talking things out. The experience we have had here has been a grand one. There is no risk in losing identity where there is understanding and vision for the common goal.

The Board of the Visiting Nurse Serv-

ice in this merger has remained a highly vital group and is enthusiastically interested in the overall public health nursing services. In addition, and because of the merger, the Board has also become interested in all phases of public health work because of their close association with the Health Department staff. The Board, in several instances, has been the vanguard of health information, interpretation, and other matters of public health importance in the community. The president of the Board is also a member of the Coordinating Committee of the Health Division of the Council of Social Agencies, which incidentally, is a long name for our Health Council. The Director of Public Health (Health Officer) is also a member. So, these two people not only work together under the merger within the Health Department, but also as members of the community health council.

It is also of interest that, since the merger, not one of the twelve committees of the Board of Seattle Visiting Nurse Service has ceased to function. Every committee has had its share in the broader vision of the merger. The Education Committee has found it a real challenge to orient new Board members, not only in the work of the Visiting Nurse Service but in the work of all of the Divisions of the Health Department. A one day institute for new Board and District Committee members this year included a visit to all Divisions of the Health Department. Public health nursing operating in every division, or its work being related to every division, has broadened its knowledge and increased its interest in the whole field. The Personnel Committee has now become familiar with civil service regulations, qualifications, limitations, etc. The Public Relations Committee now considers the entire Health Department and works with its health educators on publicity. The Budget Committee is familiar with the budget of the official

agency, as well as the budget of the private funds coming into the Nursing Division. The District Committees have helped to decorate and furnish the child health centers as well as the district nursing stations in the city. Its members also serve as volunteers in helping to conduct these clinics. The Medical Advisory Committee, consisting of private physicians appointed by the County Medical Society, meets with the Board of the Visiting Nurse Service, and also with the Director of Public Health. This committee is aware that the public health nurse serves the patient and family, and recognizes the public and private medical responsibilities involved. Members of the Medical Advisory Committee interpret the nursing service to the physicians who, thus, are made aware that there is no interference with the private conduct of cases and that the nurse can be depended upon to observe the proper ethics in care of their patients.

The Board of the Visiting Nurse Service participates in a democratic process as citizens and in no way interferes with the professional obligations of those whose responsibility it is to conduct the nursing program. The Board is fully aware of the need for the Director of Public Health to make all final decisions which he is authorized to do on matters concerning the Health Department and, of course, including public health nursing.

Inquiries are often made to the Director of the Division of Nursing as to how to differentiate and decide what to bring to the Board of the Visiting Nurse Service or what to bring to the Director of Public Health. She has found this no particular problem. It is, of course, not always possible for her to present problems to them simultaneously nor is it necessary. Who should be contacted first depends upon the situation. For example, anything dealing with civil service or a personnel problem would

first be taken up with the Director of Public Health and then reported to the Board. On the other hand, a situation dealing with the Community Chest would first be presented to the Board and then reported to the Director of Public Health. It is a matter of routine that the Director of the Division of Nursing reports monthly at the meeting of the Board of the Visiting Nurse Service. She also renders a monthly written narrative report as well as statistical report to the Director of Public Health. This is in addition to frequent conferences during the month with the Director of Public Health and the President of the Board of the Visiting Nurse Service. The important point is to keep both informed. If either one or both are involved in an important decision, the President of the Board or a committee of the Board will meet with the Director of Public Health and the problem will be worked out. The Director of the Division of Nursing, therefore, has the dual responsibility and task to feel the pulse of each, understand the philosophy of each, be aware of the responsibilities and interpret each to the other.

A frequent question asked of us is, "How is financing managed?" The money supplied to the Health Department by the city, including the Division of Nursing, is derived from tax funds. The money supplied to the Division of Nursing from the Seattle Visiting Nurse Service is received from the Community Chest fund on a deficit budget basis. Other funds received into the Visiting Nurse Service come from fees collected for morbidity bedside care service from those able to pay, from contracts with insurance companies, and from two voluntary health agencies: the local chapter of the National Infantile Paralysis Foundation and the local chapter of the Cancer Society.

All these private funds for the Nursing Division are handled through a Special Nursing Fund provided by city

ordinance in the office of the City Treasurer. All funds collected by the nurses are also deposited in this fund. A receipt for fees collected is made in triplicate by the public health nurse; one copy being given to the patient, a second to the office clerk in the local nursing center, and the third remaining in the receipt book to be reviewed by the state auditor annually. The clerk tabulates the fees, noting the nurse, the patient, and amount of fee on a special form. The total day's receipts are noted on another form. The receipts are delivered daily to the City Treasurer for deposit in the special nursing fund.

The money coming through the Seattle Visiting Nurse Service from the Community Chest is managed in this manner: Each month the Chief Clerk of the Health Department estimates the amount the Special Nursing Fund needs to meet the payroll for the number of personnel of the Division of Nursing budgeted for by the private agency, and he then sends the request to the Treasurer of the Board of the Visiting Nurse Service. Funds from the Visiting Nurse Service depository are, as requested by the Chief Clerk of the Health Department and as agreed upon by the budget for the merged program, then forwarded to the Special Nursing Fund of the City Treasury. The Treasurer of the Seattle Visiting Nurse Service, on the other hand, estimates the agency's own total needs, the greater part of which is its contribution to the Special Nursing Fund, as its part of the merger program. The Visiting Nurse Service in turn, requests the amount of the anticipated monthly budget deficit from the Community Chest between disbursements and receipts.

It is well to mention here that the Visiting Nurse Service, besides the money which it puts into the Special Nursing Fund as part of the merger, has a special expense account to cover its own needs, such as dues to the National

Organization for Public Health Nursing, for auditing of its private books, for convention expenses, printing, stationery, and other incidentals peculiar to the agency. It should also be noted that the Visiting Nurse Service accepts gifts and makes contracts with private companies and groups and receives money from foundations and individuals which goes into its treasury.

The Chief Clerk of the Health Department, at the time of his request to the Visiting Nurse Service for the needs of the Special Nursing Fund, renders a monthly statement of the money deposited in this fund from fees collected by the nurses for the preceding month and also the total up to the current month of the year. He also gives an accounting of the expenditures from the fund, as well as from the general fund of the city which goes into the Division of Nursing. A copy of this statement goes also to the Community Chest with an estimate of the needs for the succeeding month. A copy of the payroll from the Division of Nursing is also reviewed by the Finance Committee of the Board of the Visiting Nurse Service for their information.

Each year, at the appropriate budget preparation time, the Board of the Seattle Visiting Nurse Service and the Director of Public Health work out independent but integrated budgets. The Visiting Nurse Service works out its program share of the merger program and what will be needed from the Community Chest, etc. The Director of Public Health works out the budget for the Health Department, including, of course, the Division of Nursing. Since the Division of Nursing has the merged program, the budget prepared by the Visiting Nurse Service and this division's portion of the Health Department's budget must be integrated. Both of the budgets are presented to the City Council and also to the Community Chest so that each group, public and private, may

have a picture of the entire situation. The budget for the succeeding calendar year for the private agency is submitted in June and usually approved in July. The budget for the official agency is presented in July and not finally adopted until the first part of October. This difference in timing has led to some difficulty because of changes of salary schedule in the interim. This has necessitated a return to the Community Chest for adjustment of the private budget. There has, however, been good understanding, and the complication has been of little consequence.

It is assumed that payment for morbidity bedside care service on the basis of ability to pay, is a part of this program. It is interesting to note that full-pay service has increased as follows: 2,752 visits in 1942 (before the merger), 4,818 in 1945, and 5,615 visits in 1947. It is of interest to note also that calls from private physicians requesting nursing services have increased from 205 in 1942 to 526 in 1947.

We have found no difficulty in the collection of fees. No patient has ever questioned the nurse as to whether she is paid from tax funds or from private funds. As a matter of fact, the nurse would not be able to answer the question because she does not know. She does not need to be concerned with the administration of the merged service. The nurse need only, and rightfully, be concerned with the care of the patient.

Precautions are taken to avoid criticism that we charge for service to which the patient is already legally entitled. For example, in communicable disease control service, the first visit is always rendered without charge. Charges are made only for continued nursing care which would be beyond that offered by the Health Department in the past. The patient is asked to call in and request extended service and then may be billed for the nursing care.

Other questions sometimes put to us

concern the type of program. One, for example, "How do you differentiate between public health and visiting nurse service visits?" Briefly, we don't! Our conception of public health nursing includes morbidity bedside care. Besides, it is not important to differentiate unless division of financial support is assumed on this basis. A differentiation by us is almost impossible, and is impractical because there is a time element: who knows which services take longer unless a constant time study is done? Then, how can the fact be reconciled that all "visiting nurses" give an educational service and all "public health" nurses give some morbidity bedside nursing care? Both groups do a maternity program. Except for a few situations which are specifically noted by law or are accepted as a responsibility of the public agency, we have no clear line of duties. In Seattle, we do a family service, no matter what the purpose of the initial visit, and thus we do not question which service it was in relation to the old pattern. We believe that this gives the patients better service. This is especially desirable where case finding is a factor, such as in tuberculosis, orthopedic conditions, or cancer.

The need to maintain a balanced program is probably the most difficult problem we have to meet. The urgency of illness puts a strain on limiting morbidity service. The overwhelming desire of the staff to wipe out tuberculosis, on the other hand, makes us tend to throw great emphasis upon this part of the program. The less vocal and spectacular programs such as maternity and health education, could be neglected if ever-watchful supervisors and carefully interpreted statistics were not available.

The merged services provide a richer experience for the nurses. At the same time, our experience is that it takes a higher quality of staff person to carry on this type of program successfully. We

have found it necessary to carry on an intensive staff educational program. The nurse who has had both official and voluntary agency experience or that of a similar merged program is without doubt the best prepared for this type of program. It is especially important that the supervisors have an understanding of both types of programs. A supervisor must have an objective balance toward the responsibilities of both agencies and must impart to the staff a balanced selection of service.

We know that the attitude of some public health nurses has been that curative (morbidity bedside care) nursing is better done by less well prepared personnel than one who "graduates" into a purely educational program after serving a preliminary period in curative nursing. In the early days of Seattle's merged program a few nurses left the agency, or requested clinic positions at reduced pay, because of an unwillingness to participate in a curative nursing program. We believe that the combined or merged program is developing a new type of public health nurse who is more adaptable and better able to serve the family as a unit. The staff nurses find it a more satisfying experience to do everything for their families without any concern with the responsibilities of another agency. A number of well prepared public health nurses with vision have joined our staff because they wish to participate in a combined program.

It is difficult to prove that ours is a less-costly service. It seems obvious that with the use of the same administrative personnel and other avoidance of duplication, the expense must be less than if operating as separate agencies. The use of the same office space and office equipment, the same professional personnel, both staff and administrative, certainly results in less cost for the overall operation for the same amount of services rendered. It seems also evident that a public agency can operate

a fleet of automobiles cheaper than a private organization. The public agency also has the privilege of using public buildings for their offices at less cost. The public agency can often purchase its supplies through a central purchasing office as a part of the city government which can buy in larger quantities at reduced rates. Our experience has been that we have been able to render a better service, which means more for the money expended. Another advantage of the merged service is that the recipient does not have to analyze his problem and symptoms in order to conclude which of the various nursing agencies to call, because in Seattle the one office (merged service) is the only one available.

We reap the harvest every year of good work done a generation ago. We have a great responsibility to "sow well" for the future. In Seattle we believe that the interest and enthusiasm now shown will not burn out. Responsible leadership must be nurtured, not neglected.

Participation in the program is a democratic experience. For the nurse it is a richer, more stimulating experience; for the supervisors and the administrators it gives an opportunity to develop a nurse with a fine balance for selection of service and with broader vision. Financially, we are certain that the dollar goes farther, that more efficiency is rendered for the same amount of money expended, than would be possible with separately operating nursing agencies. The real value of the program is that the family which is served as a unit and which we wish to strengthen, finds a simpler and better way toward health for every one of its members through the more readily accessible and well prepared scientific worker and friend in the public health nurse. Well prepared and well informed leaders can surmount obstacles present in the old pattern without any serious conflicts if they have vision and the same high goal.

South Richmond Community Nursing Service

C. HOWE ELLER, M.D., DR.P.H., F.A.P.H.A., AND
CATHERINE L. AUSTIN, R.N.

*Director of Public Health, Richmond City Department of Health; and
Supervisor of the South Richmond Community Nursing Service,
Richmond, Va.*

FOR many years in Richmond, Va., as in many other cities, there have been three types of public health nursing carried out. As far back as 1900, the Instructive Visiting Nurse Association organized a bedside nursing program; in 1910 the Richmond City Health Department added public health nurses to its staff; and in 1911 the School Board began providing school nursing service. Since these three agencies were furnishing good and needed public health nursing services, they grew. Along with this growth, however, gaps and overlapping unavoidably developed.

By 1945 this problem, which had long troubled the administrators of the three public health nursing agencies, had become more and more obvious. As a result, the Richmond Area Community Council decided to provide for an analysis of all of the public health services of Richmond. A fact finding committee was appointed, and it was soon realized that there was need for a detailed and comprehensive study. Consequently, Nathan Sinai, Dr. P.H., Professor of Public Health Administration at the University of Michigan School of Public Health, and Alberta Wilson, R.N., staff member of the National Organization for Public Health Nursing, were invited to conduct a survey.

The survey was completed in January, 1946, and the findings and recommenda-

tions were made in the so-called Sinai Report. Those recommendations pertaining specifically to public health nursing were as follows:

1. That the three nursing services be integrated in a selected area of the City for a designated period of time as the first step in the ultimate amalgamation of these services.
2. That a committee be appointed by the three agencies to serve as a Committee on Public Health Nursing. Membership on this committee to include the following:
 - a. The Director of the City Department of Public Health.
 - b. The Director of Public Health Nursing, City Department of Public Health.
 - c. The Director of the Instructive Visiting Nurse Association.
 - d. The Director of the School Health Service.
 - e. The Director, Training Program, Public Health Nurses, Medical College of Virginia.

The first step taken in following the recommendations of the Sinai Report was the organization of an Interagency Public Health Nursing Committee. In addition to the membership listed specifically above, this committee has had additional representation from the District II Office of the U. S. Public Health Service, the Virginia State Department of Health, the Richmond Academy of Medicine, the Richmond Medical Society (Negro), the Board of the Instructive Visiting Nurse Association, the School Board, the Richmond Citizens Association, the Medical College of Virginia Hospital Division, and two mem-

bers at large. A smaller group of professional people, as recommended in the Sinai Report, has served as an administrative subcommittee of the Interagency Committee.

To assist the committees in making detailed plans for the proposed demonstration, the U. S. Public Health Service made available the services of Lillian Gardiner, R.N., through the State and City Health Departments. Eighteen months were spent in studying the programs, policies, and procedures of the agencies concerned; selecting the area for the demonstration; arranging the budget; selecting and assigning the staff; and preparing policies for the new service. Innumerable meetings of the two committees mentioned were held and in addition many conferences of working subcommittees on finance, records, personnel policies, publicity, and housing.

The Sinai Report had recommended that the three public health nursing agencies combine for the demonstration. The School Board, however, felt that the nurses under its jurisdiction should not participate at this time. Therefore, in order that the program would not be postponed indefinitely, it was decided to proceed with the Instructive Visiting Nurse Association and the Richmond City Department of Public Health participating. Representatives of the School Medical Service have continued to serve on the Interagency Committee and on the administrative subcommittee.

Official approval of the demonstration was given by the Richmond Area Community Council, the Richmond City Board of Health, and the Board of the Instructive Visiting Nurse Association. The understanding was that the period of trial would be approximately two years, at the end of which time it would be determined whether or not amalgamation would be spread to other parts of the city.

South Richmond was chosen as the area for the demonstration, which has since been called the South Richmond Community Nursing Service. This section of Richmond is separated neatly from the rest of the city by the James River, and the people in this area have a well developed sense of community responsibility. Furthermore, the population of about 30,000, including Negro and white, well-to-do and indigent, provides a representative cross-section of the City of Richmond.

The next step was the securing of a qualified supervisor who had had both nonofficial and official experience. The person selected spent about three months, before the actual inauguration of the service, becoming acquainted and putting into more final form a nursing procedure and personnel policy manual.

Another preliminary step was the preparation of the physicians, the public and special groups in South Richmond, for the new service. This was done by means of individual conferences, group meetings, and newspaper publicity.

December 1, 1947, almost two years after the Sinai Survey, the South Richmond Community Nursing Service began to function. It is jointly administered by the Instructive Visiting Nurse Association and the Richmond City Department of Public Health, through the administrative subcommittee of the Interagency Public Health Nursing Committee. Voting authority is limited to the directors of the two participating agencies and the chairman. All votes thus far have been unanimous.

The supervisor is directly responsible to the above committee. In addition to attending all of the Interagency Public Health Nursing Committee meetings, she also attends the meetings of the Board of Directors and the Nursing Committee of the Instructive Visiting Nurse Association. Twice monthly a conference is

held with the Directors of the Instructive Visiting Nurse Association and the Bureau of Public Health Nursing of the Richmond City Department of Public Health to discuss current problems of policy and administrative routine.

The budget for the South Richmond Community Nursing Service was drawn up to include both assigned personnel and cash contributions. The proportion to be forthcoming from each agency was determined on the basis of the total number of nurses on the entire staff of each agency. When either agency furnishes rent, materials, or services, proper credit is allowed. A bank account was set up in the name of the Service with funds advanced by the Instructive Visiting Nurse Association. The health department payments are made monthly on a reimbursement basis. One car, with necessary gas, oil, and maintenance, is furnished by each agency.

Four nurses from the health department and four from the Instructive Visiting Nurse Association volunteered, and with bags and basic equipment were assigned to the demonstration. This provides for essentially the same number of nurses as were assigned to the area by the two agencies before the beginning of the combined service.

One full-time secretary and a part-time clerk carry on the bookkeeping and clerical work.

Housing has proved to be a problem, since no available office space could be found in South Richmond. At present the City Department of Public Health furnishes the office headquarters in a building outside the area. Eventually it is hoped an office will be located in South Richmond itself.

The difficulties encountered in the actual rendering of the combined service were not too great. Each nurse was assigned to a district approximately half the size of the one she had originally covered. The staff nurses from each agency helped those from the other

agency to become acquainted with the policies and procedures with which they were less familiar. For a short period, field visits were made in pairs, and field supervision was afforded each nurse as rapidly as possible. Each staff nurse now has become identified as, and considers herself to be, a "community" nurse.

Of particular interest is the arrangement for the collection of fees for bedside nursing care. These are collected by the nurse giving the service, whether official or nonofficial. Special pads of numbered receipts are given to each nurse, and these state that the fees are being collected for the Instructive Visiting Nurse Association. After proper accounting, these are periodically turned over to this agency. This system was approved by the Richmond City Board of Health, in recognition of the fact that in an integrated service, while an official nurse may give bedside care, this is being compensated for by a voluntary nurse doing work that would have been rendered by the official nurse under prior circumstances.

The maternal and child health clinics in South Richmond have continued under the jurisdiction of the health department. Nursing personnel, however, is provided by the South Richmond Community Nursing Service, so that these services will fit into the generalized program.

A community nursing committee, which should be of invaluable help to the developing service, is still in the process of organization.

Although the South Richmond Community Nursing Service has been in operation only seven months, the expected advantages of integrated service are beginning to be apparent in several ways:

1. Quantitatively, both field services and clinic attendance have shown gradual, but steady increases.
2. Similarly, collections for bedside nursing have increased month by month.

3. The staff nurses are appreciating the advantages of smaller areas to cover, and of following through the families with all types of illnesses and health problems.

4. Better relationships with physicians are developing as they are beginning to realize that only one agency need be called. By offering needed service to the patients, a more co-operative attitude on the part of the physician toward preventive procedures is often achieved.

5. Slowly, the people themselves are beginning to realize that some of the past confusion, which resulted from the changing of nurses and agencies, is diminishing.

6. Improved interagency relationships, not limited to those primarily concerned, are resulting.

No fundamental unsoundness of the integration has become evident. There are, of course, certain administrative complications encountered in operating a joint service in only a portion of a city. Perhaps the greatest difficulties have been encountered in connection with record forms and personnel policies, in attempting to have them reasonably conform to the records and policies of both agencies. No attempt was made to achieve complete satisfaction at the beginning, and committees have continued to study and revise. Not only have improvements been made, but in many instances the participating agencies have adopted the newly prepared records and the revised personnel policies.

Actually there have been fewer com-

plications than anyone could have anticipated. This undoubtedly has been due mainly to two factors: first, the time and energy spent in planning the demonstration, and second and most important, the sincere desire on the part of all concerned really to make the plan work.

Even though complete integration has not been achieved as yet, in view of its fundamental soundness, eventual success would seem to be inevitable if all concerned will continue to keep the welfare of the community, rather than of the individual agency, as their main objective.

NOTE: Special credit should go to those listed, and many others who, unlike the authors, worked for the amalgamation from its inception:

Dr. W. A. Browne, Formerly Assistant Director of Public Health, Richmond City Department of Public Health; Virginia H. Campbell, Chief, Public Health Nursing, Richmond City Department of Public Health; C. Viola Hahn, Director of the School of Public Health Nursing, Medical College of Virginia; Dr. Charles L. Outland, Medical Director of the Richmond Public Schools; Dr. Jack B. Porterfield, Formerly Director of Public Health, Richmond City Department of Public Health; Eloise Robins, Secretary Health Section, Richmond Area Community Council; Julia D. Smith, Formerly Director of the Instructive Visiting Nurse Association; The Presidents and Board Members of the Instructive Visiting Nurse Association.

Comment of N.O.P.H.N. Field Staff on Seattle and Richmond Reports

HEDWIG COHEN, R.N., RUTH FISHER, R.N., AND
DOROTHY RUSBY, R.N., F.A.P.H.A.

*Assistant Director; Associate Director; and Assistant Director, National
Organization for Public Health Nursing, New York, N. Y.*

MEMBERS of the general field staff of the N.O.P.H.N. welcome this opportunity to comment on the successful experiments of combining official and voluntary nursing services in Richmond and in Seattle. Citizens and public health nurses in all sections of the country see in this type of community planning, and in this type of administration of public health nursing service, a practical present-day method of reaching the long sought goal of generalized nursing, in which one public health nurse, with adequate assistance from auxiliary workers and consultants in specialized fields, is responsible for the nursing care and health guidance of the entire family.

While it is true that each success story of the formation of a combination agency stimulates other communities to develop their services along similar lines, there are situations where the development of public health nursing services has not yet reached the stage where a combination agency is the best move. Therefore, we should like to emphasize the need for the local communities themselves to take full responsibility for study and development of nursing services in their own communities—using the experience of other communities as a guide. It will be noted that both Seattle and Richmond stress and stress again the importance of the *readiness* of the community to want to plan jointly. Since several patterns of or-

ganization are possible it is of first importance in joint planning to determine which pattern is best for the particular community.¹

It has been our task on occasion to discourage formation of a combination nursing service. One such instance occurred in a sizeable city that had never developed a service for the care of sick at home. In this community, until the full support of the medical profession and the full interest and financial support of the official agency could be secured, we recommended the development of a voluntary visiting nurse association which would serve as a demonstration to the people who use the service as well as to those responsible for its plan and administration.

We affirm our belief here that, when a community is ready, it is sound practice to combine public health nursing services in such a way that both governmental and voluntary agencies retain some financial and administrative responsibilities. As was pointed out in the study of combination agencies² such an organization may prove to be but an intermediate step in the transition from voluntary to governmental auspices, but it does preserve the vital and constructive assistance of the board of the voluntary agency as well as provide opportunities for further contributions of the lay public in the promotion of public health nursing and indeed of all phases of public health.

riers. Thus, these patients not only lived in a typhoid endemic area but were also exposed more or less constantly to reinfection. There were no important sex differences as to mental or physical condition.

Our study covers the period from January, 1942, until July, 1947. At the beginning date, 49, or 62 per cent, had been classified as carriers for 2 years. The 11, or 14 per cent of patients who were transferred, had been so classified for 3 months; and the remaining 19, or 24 per cent, were intermediate in duration. Forty-nine, or 62 per cent, of the 79 patients had positive bacteriological reports recorded in 1942, while 74, or 94 per cent, had positive reports in 1943. This apparent increase from 61 to 94 per cent was very probably due to the more thorough and complete examination of the carrier population in 1943.

During the 5.5 year period of the study an average of 30 cultures (S.D. ± 10) chiefly of feces and urine, were made on each patient, with an average interval of 2.2 months between cultures. *This represents the largest group of data obtained on a continuously observed group of typhoid carriers kept under relatively uniform conditions for so many years.*

OBSERVATIONS

Spontaneous Cures—Examination of the bacteriologic records of the currently negative patients shows that their feces and urine have been negative for a long period, although there was constant exposure to reinfection. In 19 cases the feces and urine have been negative for an average of 49 months, the range being 33 to 66 months. We believe that such patients may be referred to as spontaneously cured cases, and as refractory to reinfection. That is, 19, or 24 per cent, of the 79 cases became spontaneously cured during the 5.5 year period.

Seven of these patients have already (August, 1947) been officially released

as carriers. (In Illinois the criteria for official legal release are negative feces and urine at least 30 days apart for 8 consecutive months and two negative bile cultures 7 days apart, taken 30 days after the last negative feces examination.) Six additional patients are ready for release, terminal bile cultures having been completed, 3 others are ready for bile cultures.*

Currently Negative Cases—In 4 cases, from 3 to 5 bacteriologic examinations were made in 1947 and all reported negative. Because there were no cultures made on these cases in 1946 and few in 1945, the present status is not definite. It is probable that some or all of these cases would belong to the "cured" group if more data had been obtained.

Currently Positive Cases—In 56 patients positive cultures were obtained between January and July, 1947.

The Duration of the Carrier State in the Currently Negative or Spontaneously Cured Cases—The duration of the carrier state in the patients becoming rid of the organism ranged from 25 to 88 months, with an average of 48 months. Four of the 23 cases have been excluded because of uncertainty as to the dates on which they were declared carriers.

When the total number of cases spontaneously cured at a specified time is graphed, it is found that the total number of spontaneous cures varies almost directly with time.

The Sex Difference in the Incidence of Spontaneously Cured or Currently Negative Cases—A striking sex difference was noted in the incidence of spontaneous cures.

Of the total of 79 patients, 26, or 33 per cent, were males and *none* were currently negative. One male who had been negative for 4 years showed one posi-

* By March, 1948, all 19 of the cases which we call "spontaneous cures" and the 4 cases referred to as "currently negative" had been officially released as carriers by the above criteria.

tive feces test in May, 1947, and 2 negatives since. Of the 53 females, 23, or 43 per cent, are now negative by our definitions.

Rôle of Reinfection—No evidence has been found in the literature to prove whether the recurrence of positive feces or urine in a previously known carrier after an interval of 3 or more months is due to a reinfection or to the reappearance of the organisms from a latent focus of the original infection. In view of the incidence of spontaneous cures in this series (24 per cent) and the sex difference in their incidence, the matter of reinfection or recurrence was studied. For this purpose the terms reinfection or recurrence were employed synonymously to indicate the finding of one or more cultures positive for *Eberthella typhosa* following three satisfactory negative feces and urine reports, roughly at monthly intervals. We have included as recurrences those cases which have been negative for 6 or 8 months and then have shown a single positive feces examination followed by a series of negatives for several months. This may represent true intermittency of excretion. However, we suspect that such cases may be due either to an experimental error or to the patient ingesting infected food, the bacilli simply passing through as transients. For example, it has been shown¹⁵ that after the ingestion of dysentery bacilli there may be temporarily positive stool cultures without clinical evidence of infection.

Under the conditions defined, 38, or 48 per cent, of the 79 patients had 50 reinfections during the 5.5 years.

It was thought that periods of remissions and recurrences might be reflections of periods of increased and decreased activity of the laboratory. The statistical study of the data failed to show a significant correlation between the number of recurrences recorded and the number of examinations made. This

study also revealed that major epidemics of recurrences or exposure to reinfection did not occur during the 5.5 year period.

A significant difference in the sex incidence of recurrences was not found. Fifty-eight per cent of 26 males and 43 per cent of 53 females had recurrences. This is not a statistically significant difference, since it could occur by chance in 24 out of 100 similar instances.

The data were arranged to indicate the relation of the number of recurrences to the currently negative or positive state of the patient. In the males, no relation between present status and the number of recurrences exists. In the females, significantly more reinfections occurred in the patients who ultimately became negative ($\chi^2 = 5.04$; $p = 0.03$). However, this was not true of the group as a whole ($\chi^2 = 2.22$; $p = 0.16$).

Gall bladder function—Cholecystograms were made on 80 of the carriers in 1941 and on 60 in 1947–1948. We examined the x-ray films in 29 of the cases and compared them with films made in 1947. In 26 instances the films made on a given patient in 1941 were available for comparison with those made recently. In only one case was a definite change apparent, that being loss of the ability to concentrate dye (one test) in a male whose bacteriologic course was one of repeated brief recurrences.

The incidence of non-visualization was found to be higher among the currently positive females than among the currently negative females, but the difference was doubtfully significant (adjusted $\chi^2 = 2.36$, $p > 0.05$). It is interesting that the combined incidence of non-visualization in the cholecystograms taken in 1947–1948, namely 40, or 69 per cent, of 58 (excluding 2 "doubtfuls") approximates closely that incidence found by Saphir, *et al.*¹⁴ in films made in 1941, namely 57, or 71.3 per

cent, of 80 cases. Other comparisons were insignificant.

DISCUSSION

According to the observations, a spontaneous cure of the typhoid carrier state (2 year records) occurred in 36 per cent* of 53 females but in none of the males. This observation is most provocative.

For example, it is ordinarily reported that the incidence of typhoid fever is higher in males than females and that this has been changed by the vaccination of soldiers against typhoid.¹⁶

In studying carriers more than a year after the attack of typhoid fever most authors report finding 3 to 5 females for 1 male. None of these reports provide the number of acutely affected males and females from which the carrier males and females observed were derived. That is, the sex incidences of the carrier state which have been reported are not true sex incidences. This criticism does not apply to our data because the sex distribution in the Manteno State Hospital was equal and all typhoid carriers are sent to the cottage in Manteno. So the preponderance of females, namely 53, over males, namely 26, is viewed as a true sex incidence. It is necessary, however, to note that in the data of Schwob, *et al.*¹³ a sex difference in incidence of the carrier state in the cases at Manteno occurred only in the group having had clinical attacks of typhoid fever. There is no preponderance of females among those carriers detected by survey of the remainder of the hospital population.

Several explanations for the apparently greater incidence of chronic typhoid carriers among females have been offered, such as the greater frequency of gall bladder disease in women,¹⁷ lowered resistance due to menstrual loss of blood,¹ and "circulatory disturbances

incidental to pregnancies and household work."¹⁸ In view of the well known rôle that the gall bladder plays as a focus in the typhoid carrier state, the bacteriologic course of the carriers should possibly be correlated with disease of the gall bladder. It could be anticipated that in the patients becoming cured spontaneously the disease of the gall bladder underwent spontaneous improvement. Or, on the other hand, chronic inflammation and fibrosis of the gall bladder might possibly be expected to progress over a period of years to cause "functional cholecystectomy," such that the organ would be incapable of supporting bacterial growth. Our data, however, suggest but are not adequate to substantiate strikingly, that the ability to concentrate dye in the gall bladder is present to a greater extent in the currently negative females than in the other patients.

Analysis of recurrences in this study did not show a significant overall sex difference, but the females becoming negative did have more recurrences than either males or finally positive females. This would seem readily explained by the fact that in order to have reinfections it was necessary to have cleared up the original infection. *Because the negative cases were free of the organism for such a long period in the presence of exposure (average 49 months), they must have developed a true resistance to reinfection.* After once clearing up, it is possible that reexposure to infection induced a level of immunity high enough to provide successful resistance to the continuous exposure to the organisms during subsequent years. We can offer no explanation of the remarkable sex difference in the ability to develop such resistance.

SUMMARY AND CONCLUSIONS

1. The bacteriological records of 79 typhoid carriers, 26 males and 53 females, have been studied over a 5.5 year

* Cf. footnote, p. 1676.

period. They all lived in the same building and were fed from the same kitchen in which typhoid carriers were present. The exchange of food between patients occurred. In view of these facts all these patients were continuously exposed to reinfection to approximately an equal extent.

2. Nineteen of the 79 cases became spontaneously cured during the 5.5 year period within 33 to 66 months after having been designated chronic carriers approximately 3 to 12 months after the initial infections in 1939.

3. All those who manifested a spontaneous cure were females; that is 19, or 36 per cent, of the females were spontaneously cured.

4. Reinfections or recurrences were frequent, with no sex difference. More recurrences were noted in females becoming negative than in males or in currently positive females. Cases were classified as having recurrences when they showed one or more positive feces or urine examinations after a period of 3 or more months of negative feces examinations.

5. Cholecystograms taken before and after the 5.5 year period of observation revealed no significant changes to have occurred during that time. There was no apparent sex difference in the incidence of non-visualization at either time. There is a doubtfully significant difference between the spontaneously cured and the currently positive females.

REFERENCES

1. Prigge, F. Studien über Typhusbazillenträger. *Klin. Jahrb.*, 22:245, 1909.
2. Klinger. Epidemiologische Beobachtungen bei der Typhusbekämpfung im Südwesten des Reichs. *Arch. a. d. Kaiserl. Gesundh.*, 30:584, 1909.
3. Bumke, E. Beobachtungen an Bazillenträgern im Kriege. *Ztschr. f. Hyg. u. Infektionskr.*, 105:342, 1925.
4. Havens, L. C. *The Bacteriology of Typhoid, Salmonella, and Dysentery Infections and the Carrier States*. New York: The Commonwealth Fund, 1935.
5. Havens, L. C., and Dehler, S. A. Further Laboratory Investigations of Typhoid in Alabama. *J. Prev. Med.*, 1:359, 1927.
6. Browning, C. H. Chronic Enteric Carriers and their Treatment, Med. Res. Council, *Spec. Rep. Series*, No. 179, London, H. M. Sta. Off., 1933.
7. Garbat, A. L. Typhoid Carriers and Typhoid Immunity. *Monogr.* 16, Rockefeller Inst. Med. Res., 1922.
8. Ledingham, J. C. G., and Arkwright, J. A. *The Carrier Problem in Infectious Diseases*. London: E. Arnold, 1912.
9. Fornet, W. Beiträge zur Physiologie der Typhusverbreitung. *Ztschr. f. Hyg. u. Infektionskr.*, 64:365, 1909.
10. Thomson, T. The Enteric-fever Carrier. *Proc. Roy. Soc. Med.*, 4:1910, Part I, Epidem. Sect.
11. *Illinois Health Messenger*, 11:122, 1939.
12. *Ibid.*, p. 131.
13. Schwob, C. E., Eberhart, C. M., and Cross, R. R. *A Report on a Typhoid Fever Epidemic at Manteno State Hospital in 1939, State of Illinois*, Springfield, 1945.
14. Saphir, W., Baer, W. H., and Plotke, F. The Typhoid Carrier Problem. *J.A.M.A.*, 118:964, 1942.
15. Shaughnessy, H. J., Olsson, R., Bass, K., Friewer, F., and Levinson, S. O. Bacillary Dysentery in Human Volunteers. *Yale J. Biol. Med.*, 19:537, 1947.
16. Hahn, M. Mitteilungen zur Typhusepidemie in Hannover. *Med. Klin.*, 23:1009, 1927.
17. Forster, J. Ueber die Beziehungen des Typhus und Paratyphus zu den Gallewegen, *München. med. Wchnschr.*, 55:1, 1908.
18. Lentz, *Klin. Jahrb.*, 14:475, 1905, Cited by (8).
19. Krause, P. *Studien über Typhus- und Paratyphusbazillenausscheider*, Jena, Gustav Fischer, 1930.

NOTE: We are indebted to Dr. Otto Lohman, Public Health Officer at Manteno State Hospital for the preparation of many of the bacteriologic records.

Penicillin or Silver Nitrate as a Prophylactic Against Ophthalmia Neonatorum?

CONRAD BERENS, M.D., AND FRANKLIN M. FOOTE,
M.D., F.A.P.H.A.

*Vice-President and Executive Director, National Society for the Prevention of
Blindness, Inc., New York, N. Y.*

MANY have asked whether penicillin should replace silver nitrate as a prophylactic in ophthalmia neonatorum. Gonorrheal ophthalmia has been successfully treated with penicillin during the last few years; however, penicillin as a prophylactic agent is still in the experimental stage, despite recent reports in the lay press giving the impression that the value of penicillin for this purpose is proved.

The District of Columbia and all of the states except Utah have laws or regulations requiring the use of a prophylactic agent in the eyes of the newborn. In most instances the law either leaves to the discretion of the state health department the type of prophylactic agent to be used or specifies, "one per cent silver nitrate or equally effective agent."

The chief work reported on prophylaxis with penicillin has been carried on by H. C. Franklin of the U. S. Public Health Service, who first used four instillations of penicillin (2,500 units of the sodium salt per ml. of sterile isotonic sodium chloride) during the first three days of life,^{1,2} and later used a single instillation.³ In these combined studies a total of 2,138 infants were treated with penicillin as the prophylactic agent and no known case of conjunctivitis was caused by the gonococcus. In the group receiving a single in-

stillation, 1½ per cent of the infants exhibited pus in the eyes while in the nursery. The staphylococcus was found in cultures from the conjunctivae of 80 per cent of these infants. In his first study, Franklin used as controls 749 infants who received routine silver nitrate prophylaxis. Among these, one child developed gonorrheal ophthalmia. It is obvious that this result is not statistically significant, and Franklin stated: "That the *Neisseria* gonorrhea organism was found in one instance after silver nitrate prophylaxis, and in no instance after penicillin prophylaxis, is instructive but not conclusive."²

Recently silver nitrate has been attacked in the popular press as being ineffective and harmful. However, a report⁷ adopted in June, 1948, by the Council of the American Academy of Ophthalmology and Otolaryngology and by the Section on Ophthalmology of the American Medical Association referred to these allegations as preposterous.

It will be recalled that Credé turned to silver nitrate only after first trying prenatal treatment with vaginal douching at the time of delivery, and after experimenting with several other antiseptics as prophylactic agents in the eyes of the new-born. After adopting silver nitrate prophylaxis in addition to prenatal care the incidence of ophthalmia neonatorum in his clinic dropped

from 10.8 per cent to 0.2 per cent or less.⁴ In the period following Cr  d   these figures were confirmed by many other investigators. Lucien Howe summarized these, showing an incidence of 9.2 per cent of ophthalmia neonatorum among 17,767 births before use of the Cr  d   method, followed by an incidence of 0.65 per cent among 24,724 births after silver nitrate prophylaxis was adopted.⁵ Coincident with the increased use of silver nitrate as the preferred prophylactic agent in the United States, new admissions to schools for the blind from this cause have dropped from 28 per cent in 1908 to under 3 per cent for 1945-1946.

Regardless of the effectiveness of a prophylactic agent, it is inevitable that there will be cases of ophthalmia neonatorum for two reasons: (1) carelessness on the part of the attendant in instilling the agent; (2) introduction of infection some time after the agent has been instilled. Therefore the occurrence of rare cases of ophthalmia neonatorum may be expected as long as the infectious agents themselves are found in a community. Because of better prenatal care today, and improved methods and facilities for the treatment of gonorrhea as well as other infections producing ophthalmia neonatorum, it will require a far larger study now than in Cr  d  's time to establish the value of any new prophylactic agent.

The facts with regard to possible ill effects of silver nitrate are clear. There is no evidence that permanent damage results from the use of 1 or 2 per cent silver nitrate. Solutions left standing may reach a concentration as high as 50 per cent. For this reason, it has been suggested that silver acetate be substituted, since it appears equally effective but becomes saturated at 1.2 per cent. However, furnishing 1 per cent silver nitrate in paraffin-lined beeswax ampules, as supplied by most health departments, has overcome danger to

the eye from high concentration of the drug. A study by the National Society for the Prevention of Blindness in 1948, based on reports by 57 professors of obstetrics in approved United States medical schools, showed that 49 were using these ampules. These professors reported 112,035 live births in their services in 1947. They reported only 67 cases of ophthalmia neonatorum. Many of these cases were due to infections other than the gonococcus. Of the 67 cases 2 had some corneal damage. There was no damage from silver nitrate among the 112,035 live births.

If it should be established that penicillin or other antibiotic is as good as silver nitrate, it will be some time before the mode of administration, the strength of solution, and many other important factors are determined. For practical reasons, silver nitrate in paraffin-lined beeswax ampules is to be preferred at the present time for home deliveries.

Following several months' study, a subcommittee of the New York Academy of Medicine, on February 10, 1948, recommended, "that no change be made in the *Sanitary Code* to require the use of penicillin for the prophylaxis of ophthalmia neonatorum until there is more experience with its use."

On June 21, 1948, the trustees of the Association for Research in Ophthalmology adopted a resolution as follows:

It is resolved that at the present time the state of knowledge concerning prophylaxis of ophthalmia neonatorum is not sufficiently settled to permit a recommendation of any change in procedure, but instead research along this line should be encouraged.

On June 26, 1948, both the Council of the American Academy of Ophthalmology and Otolaryngology and the Section on Ophthalmology of the American Medical Association approved a report of a joint committee which concluded as follows:

In view of the incomplete present state

of our knowledge on this subject, your Committee deploras the recent article in . . . (popular magazine) . . . and is in full agreement with the conclusions and recommendations embraced in the report of the Sub-Committee of the New York Academy of Medicine—namely, that no changes be now recommended in the existing laws. It is the further opinion of your Committee that while it is possible, indeed even probable, that some form of antibiotic prophylaxis will eventually replace the present use of silver nitrate, that much further investigation of the matter is needed before any concrete recommendations can be made. Such investigations are now in progress in established clinics, and it is hoped that the answer may ultimately be forthcoming.

In conclusion, it is our opinion that no change concerning the use of prophylactic agents in the prevention of ophthalmia neonatorum should be recommended at the present time. However, carefully controlled research with silver nitrate, penicillin, and possibly

other antibiotic agents should be encouraged in institutions where such investigations can be carried out under strictly scientific conditions and with adequate controls.

REFERENCES

1. Franklin, H. C. Prophylaxis Against Ophthalmia Neonatorum, *J.A.M.A.*, 134:1230, (Aug. 9), 1947.
2. Franklin, H. C. A Bacteriological Comparison of Penicillin and Silver Nitrate for Prophylaxis Against Ophthalmia Neonatorum. *Mil. Surgeon*, 102:179, (Mar.), 1948.
3. Franklin, H. C. Penicillin in Drops for Prophylaxis Against Ophthalmia Neonatorum. *South. M. J.*, 41:320, (Apr.), 1948.
4. Credé, S. F. *Arch. f. Gyn.*, 21:179, 1883.
5. Howe, Lucien. Credé's Method for the Prevention of Purulent Ophthalmia of Infancy in Public Institutions. *Tr. 33 Ann. Meeting, Amer. Ophth. Soc.*, 8:52, 1897.
6. Report of the Subcommittee on Prophylaxis of Ophthalmia Neonatorum (Conrad Berens, M.D., Chairman) to the Committee on Public Health Relations of the New York Academy of Medicine, Feb. 10, 1948.
7. Report of the Joint Committee to Investigate Prophylaxis Against Ophthalmia Neonatorum (Alan C. Woods, M.D., Chairman) of the American Academy of Ophthalmology and Otolaryngology and the Section on Ophthalmology of the A.M.A., June 26, 1948, *Sight Saving Review*, 18:99 (Summer), 1948.

Age Distribution of Poliomyelitis in New York City in Relation to Previous Epidemics

ALFRED YANKAUER, JR., M.D., M.P.H., AND
HENRY P. GOLDBERG, M.D.

*Office of District Health Administration, New York City Department of Health,
and the Department of Public Health and Preventive Medicine, and the
Department of Pediatrics, Cornell University Medical College,
New York, N. Y.*

IT has been stated that the character of poliomyelitis in the United States has undergone a striking change in the last 50 to 60 years.¹ Although the disease had been observed for a long time it has only recently been described in epidemic form. This change has taken place during a period when other infectious diseases have been brought under control primarily by improvement of sanitary conditions.

In contrast to the development of epidemics in the United States epidemic poliomyelitis is much more rarely observed in regions such as China, the Philippines, and the Middle East, where sanitary conditions are generally primitive.² This seems surprising since it has been shown that the virus of poliomyelitis exists in feces³ and sewage⁴ and contaminated food.⁵ In addition there is evidence that the poliomyelitis virus does exist in these regions. Neutralization tests have revealed the presence of antibodies in 85 to 90 per cent of the population,¹ and American soldiers stationed in these areas have shown a markedly higher incidence of poliomyelitis than either the native population or the troops at home.²

These observations led Sabin to suggest that in regions such as those referred to, the virus was so widespread

that most children contracted the disease early in life.² He further suggested that during infancy infection with poliomyelitis virus might produce clinical disease infrequently but result in long-lasting immunity. The transfer of antibodies to the fetus from an immune mother might provide the mechanism for such a modification of the disease.⁶

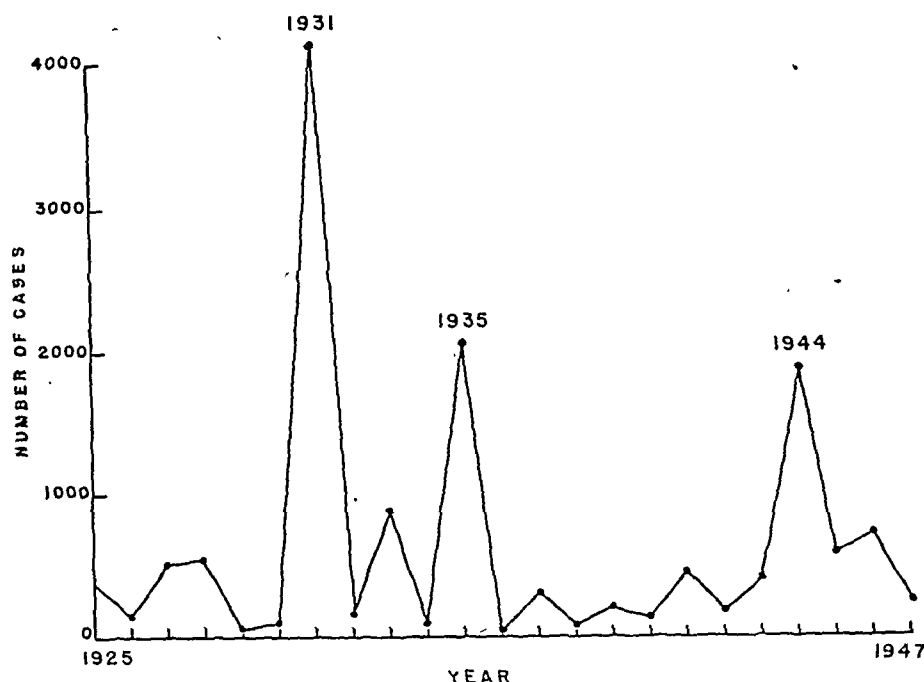
It was considered possible to examine this hypothesis by studying the age distribution of poliomyelitis in successive epidemics. If it is assumed that the virus becomes widespread during an epidemic a large number of passively immune infants might develop an active immunity from a modified form of the disease. This event might be reflected in a diminished incidence of poliomyelitis for this group in later epidemics.

MATERIAL AND METHOD

Epidemiologic data accumulated in New York City made it possible to investigate the hypothesis presented above. Well demarcated epidemics of poliomyelitis occurred in 1931, 1935, and 1944. As Figure 1 indicates, the intervening years were relatively free of the disease.

Every reported case of poliomyelitis in New York City was visited by a physician trained in the diagnosis of

FIGURE 1
POLIOMYELITIS CASES IN NEW YORK CITY 1925-1947



the disease. A form was completed summarizing the clinical, laboratory, and epidemiologic findings on the basis of which the diagnosis was confirmed or discarded. A follow-up visit was also made by a physician 6 months to 1 year after the case had been reported.

The material for this study consisted of the records of each individual case of poliomyelitis reported to the New York City Health Department in 1944, an epidemic year, and in 1940 through 1943, non-epidemic years. The following data were abstracted from each record: single year of age, sex, borough of residence, and clinical diagnosis. The diagnosis of cerebral or spinal poliomyelitis was made only on the basis of clinically demonstrated paralysis. The diagnosis of abortive poliomyelitis was made only on the basis of both abnormal spinal fluid findings and a positive history. The spinal fluid was considered abnormal if more than 10 white blood cells per cu. mm. were present with or without an increase in protein content.

The history was considered positive if stiff neck and/or muscle pains were present without clinically demonstrable paralysis. Other symptoms and signs usually found in poliomyelitis were not considered essential for the diagnosis.

Cases which did not fit these criteria were discarded for the purpose of this study. The vast majority of cases classified as cerebral or spinal poliomyelitis also had typical spinal fluid changes, but there were a few cases with paralysis in which a lumbar puncture was not performed. Almost every case was hospitalized.

RESULTS

The age distribution of poliomyelitis in New York City for 1940-1944 is presented in Table 1. It will be noted that the number of poliomyelitis cases in children who were under 1 year of age at the time of the 1931 and 1935 epidemics is not lower than might be expected.

Figure 2 gives a more complete break-

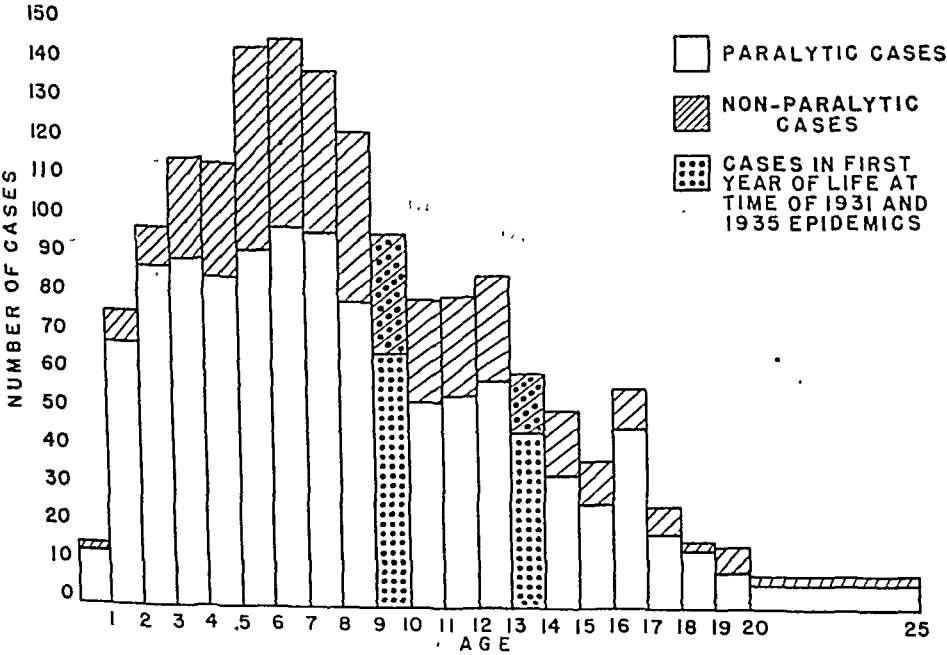
TABLE 1
Age Distribution of Poliomyelitis Cases in New York City, 1940-1944 *

Age (Years) at Time of Contracting Poliomyelitis	Year in Which Poliomyelitis Was Contracted †				1944	
	Number of Cases				Number of Cases	Per cent
	1940	1941	1942	1943		
Under 1	1	4	1	4	13	0.8
1	2	10	..	10	75	4.6
2	5	17	4	24	99	6.1
3	2	30	4	22	112	6.9
4	2	23	4	31	111	6.8
5	5	25	5	35	142	8.7
6	3	26	6	31	143	8.8
7	6	23	7	20	139	8.5
8	5	20	1	25	123	7.6
9	3	34	9	21	98	6.0
10	1	19	7	17	79	4.9
11	..	27	2	21	80	4.9
12	3	20	3	15	85	5.2
13	3	17	6	13	59	3.6
14	2	14	3	13	51	3.1
15	2	6	2	7	38	2.3
16	1	8	..	4	56	3.4
17	..	5	1	2	26	1.6
18	..	..	1	4	16	1.0
19	..	4	1	1	14	0.9
20-24	3	7	1	2	30	1.8
25-34	1	5	..	5	34	2.1
35-44	..	2	..	1	4	0.2
45 and over	..	..	..	..	3	0.2
Total	50	346	68	328	1,630	100.0

* Cases which would have been under 1 year of age at the time of the 1931 and 1935 epidemics are set in bold-face type.

† Includes both paralytic and non-paralytic cases.

FIGURE 2
AGE DISTRIBUTION OF POLIOMYELITIS CASES IN
1944 NEW YORK CITY EPIDEMIC



down of the 1944 epidemic. It is apparent that no correlation exists between the age at the time of previous epidemics and age at the time of the 1944 epidemic.

Additional analyses of the 1944 data were carried out. Cases were distributed by age, sex, and clinical diagnosis (cerebral, spinal and non-paralytic). In none of these classifications was it possible to demonstrate any decrease in the number of cases in relation to previous epidemics. A similar analysis was made for each of the five boroughs of New York City. No significant variations were observed.

COMMENT

A proper evaluation of the results requires careful consideration of certain aspects of the data.

All children whose ages were given as 9 and 13 at the time of contracting poliomyelitis in 1944 were considered to have been under 1 year of age at the time of the 1935 and 1931 epidemics, respectively. This assumption stems from the fact that the disease occurs in the main at the same time of the year in both epidemic and non-epidemic years. The peaks of the epidemics in New York City were reached in the first week of August in 1931 and in the last week of August in 1935 and 1944, and in all, over 90 per cent of the cases were reported between the last week in July and the first week in October. Thus the age given at the time of the 1944 epidemic permits an accurate estimate of age at the time of previous epidemics. The same principles with regard to age are applicable to all ages for every year studied.

The group of children who were considered under 1 year of age at the time of the 1931 and 1935 epidemic might have ranged from 1 day to 11 months. If they had been between 6 and 11 months old they would not have been expected to possess as much passive im-

munity as younger infants. It was possible to ascertain the exact birth date of 112 cases in the 9 and 13 year old groups of the 1944 epidemic. Of this random sample, 50 per cent were born in the 6 months prior to August 1, 1931 and 1935. Thus in the group of children under 1 year of age at the time of previous epidemics there was no preponderance of 6 to 11 month old infants.

In comparing numbers of cases in any one age group with those of another age group the population at risk may be of some importance. In the decade 1930-1939, the birth rate in New York City decreased quite regularly at an average annual rate of 2 per cent.⁷ For this reason it is believed that the factor of population at risk can be disregarded.

It is of importance for this study that children who developed poliomyelitis in 1944 should have been born in New York City and exposed to either the 1931 or 1935 epidemic. In addition the factor of migration itself might be large enough at all ages to influence the results. The exact birth place of 97 cases in the 9 and 13 year old groups of the 1944 epidemic was investigated. Of this random sample 2 cases were born outside of New York City, 4 cases could not be traced, and the remainder were born in New York City. Therefore, the factor of migration presumably did not affect the results. The results obtained in this study therefore do not seem to support the hypothesis that contact with the virus of poliomyelitis in the first year of life may produce long-lasting immunity in spite of the absence of clinical disease. This failure might stem from the following causes: exposure of infants during the previous epidemic may not have been widespread; epidemics may be caused by different strains of the virus which do not produce cross-immunity; immunity developing from contact with the virus of poliomyelitis may not be long-lasting; other factors

may be responsible for the epidemiologic patterns of the disease.⁹

There are many reasons for believing that the virus of poliomyelitis is widely distributed during an epidemic, but the exact extent of exposure is unknown. Several studies have indicated the widespread existence of minor illnesses suggestive of abortive poliomyelitis during an epidemic.^{8,9} The virus has been found in the pharynx and stools of asymptomatic contacts of patients with poliomyelitis.¹⁰⁻¹² Sewage during epidemics contains enormous quantities of the virus.⁴ In addition to the above evidence, the relatively high attack rate for the 1-2 year age group in urban epidemics⁶ makes it probable that infants are as likely to be exposed. However, this type of data supplies only circumstantial evidence of exposure during an epidemic, and the question remains an open one.

The existence of antigenically different strains of the virus has been made clear.^{2,14} However, it has not yet been shown that epidemics result from different strains.

The question of immunity after an attack of poliomyelitis has been recently discussed by Bridge.¹⁵ He and others¹⁶ have reported second attacks of the disease. However, such recurrences are apparently unusual and the general opinion is in favor of a long immunity following contact with the virus.

SUMMARY

The results of this study suggest that no immunity in excess of that in others was afforded to those individuals who

had been under 1 year of age at the time of previous epidemics.

REFERENCES

1. Rivers, T. M. Certain Public Health Aspects of Infectious Diseases. *New England J. Med.*, 238: 37-44, 1918.
2. Sabin, A. B. The Epidemiology of Poliomyelitis. *J. I.M.L.*, 138:749-756, 1947.
3. Horstmann, D. M., Ward, R., and Melnick, J. L. Persistence of Virus Excretion in the Stools of Poliomyelitis Patients. *J. I.M.L.*, 126:1061-1062, 1944.
4. Melnick, J. L. Poliomyelitis Virus in Urban Sewage in Epidemic and in Non-Epidemic Times. *Am. J. Hyg.*, 45:240-253, 1947.
5. Ward, R., Melnick, J. L., and Horstmann, D. M. Poliomyelitis Virus in Fly-contaminated Food Collected at an Epidemic. *Science*, 101:491-493, 1945.
6. Aycock, W. L., and Meadors, G. F. The Principles of Varioration as Exemplified by Subclinical Immunization of Poliomyelitis in Cooler and Warmer Climates. *Am. J. M. Sc.*, 215:296-316, 1948.
7. Summary of Vital Statistics, Dept. of Health, City of New York, 1946.
8. Cacy, A. E., Fishbein, W. I., and Bundesen, H. N. Transmission of Poliomyelitis by Patient to Patient Contact. *J. I.M.L.*, 129:1141-1145, 1945.
9. Bridge, E. M. The Diagnosis of Abortive Poliomyelitis. *J. Pediat.*, 29:597-608, 1946.
10. Howe, H. A., and Bodian, D. Isolation of Poliomyelitis Virus from the Throats of Symptomless Children. *Am. J. Hyg.*, 45:219-222, 1947.
11. Wenner, H. A., and Tanner, W. A. Widespread Distribution of Poliomyelitis in Households Attacked by the Disease. *Proc. Soc. Biol. & Med.*, 66:92-94, 1947.
12. Kramer, S. D., Gilliam, A. G., and Molner, J. G. Recovery of Virus of Poliomyelitis from the Stools of Healthy Contacts in an Institutional Outbreak. *Pub. Health Rep.*, 54:1914-1922, 1939.
13. Poliomyelitis, International Committee for the Study of Infantile Paralysis. Baltimore: Williams & Wilkins, 1932.
14. Howe, H. A., and Bodian, D. Second Attacks of Poliomyelitis, An Experimental Study. *J. Exper. Med.*, 74:145-165, 1941.
15. Bridge, E. M., and Clarke, G. H. Clinical Immunity in Poliomyelitis. *Am. J. Dis. Child.*, 72:501-509, 1946.
16. Top, F. H. Communicable Diseases. St. Louis: Mosby, 1947. 2nd ed.

NOTE: The authors are grateful to Dr. Morris Greenberg, Acting Director of the Bureau of Preventable Diseases, for making available the epidemiologic records of the New York City Department of Health.

Paper and Paper Board in the Food Industry—Public Health Aspects

FRED W. TANNER, PH.D., F.A.P.H.A.

Department of Bacteriology, University of Illinois, Urbana, Ill.

FORTUNATELY for the papermaker, the procedures which have been developed over many centuries, and which seem to be necessary for making paper as we know it today, are powerfully germicidal for microorganisms of public health significance and even for those which are not. The following brief outline lists some of them.

1. Pulping of the wood
 - a. Chemical pulping under pressure
 - b. Grinding hot, mechanical pulp
2. Bleaching with strong chlorine and hypochlorite
3. Drying on rolls of papermaking machines
4. Calender rolls
5. Wrapping for shipment

WOOD PULP

Wood pulp for papermaking is made in several ways from various woods, fir, hemlock, pine, spruce, poplar, and a few others. The wood may be pulped chemically or ground hot, which gives what is spoken of as chemical pulp or mechanical pulp. Sanborn¹¹ stated that "the preliminary treatment of pulp wood in the sulfite digesters exerts a definite sterilizing effect (140° to 145° C.) with a possible maximum of 155° to 160° C. (Johnsen⁶). Numbers of microorganisms are effectively reduced in ground wood pulp due to the high temperatures attained during grinding." Sanborn then stated that the temperature in the groundwood is usually in the vicinity of 85° which is insufficient to eliminate spore-bearing bacteria and mentions finding *Bacillus vulgatus* as

being isolated in pure culture from hot groundwood in one mill. This organism is a widely spread harmless saprophyte and is of no significance. Whether it would be advisable to heat at temperatures sufficient to remove organisms of this type is doubtful. Ubiquity of these bacteria in nature would make it easy for the pulp stream to be inoculated again. This might result from various foci in the mill system, from process water, and from the air. As Sanborn¹¹ stated, the diluted pulp at this stage is a good medium for bacteria, since it contains all of the constituents of the wood, important among which are wood sugars desired and easily utilized by bacteria. While the types of bacteria encountered here may cause trouble in the pulp and paper mill due to slime formation, they are not harmful to human health. The bacteriological purity of wood pulp is easily maintained by effective use of chlorine or chloramines and bleaching compounds.

Another factor which does much to keep the pulp in satisfactory condition is general "good housekeeping" in the mill. A strict regimen of sanitation has been found to be desirable and necessary in order to keep the mill free from colonization by troublesome bacteria. This is accomplished by proper construction of vats and pipe lines as well as by generous use of flushing water, thorough cleaning, and a constant residual of chlorine as mentioned above. Papermakers have long since learned that it

is better to prevent operating troubles and losses in the manufacturing process due to microorganisms than to cure them once they have appeared.

DILUTION OF WOOD PULP WITH WATER

The pulp which is to be made into paper is carried through the paper mill in water. Whether this process water needs to be of potable quality is open to question because any pathogenic bacteria which might be introduced are destroyed by subsequent steps in the mill. Introduction of the paper mill container made it seem desirable to exert greater effort to eliminate introduction of microorganisms which might cause economic losses, as well as to prevent entrance of those of sanitary significance, even though it has been known that such types would be entirely destroyed in the papermaking process. Contaminated stream waters are easily treated by settling if necessary, and by chlorination which reduces the viable bacteria to practically zero and eliminates all coliform bacteria which are the accepted indicators of pollution. There is no problem in securing a plant water from which objectionable bacteria would be absent. Any which would survive would be harmless spore-formers. A residual of chlorine is maintained, the effect of which is evident well through the mill system. Where mills re-use water which is chlorinated heavily, this water may be added to fresh water to secure sufficient safe water for the mill system.

STARCH IN PAPER MAKING

Starch is used for sizing paper and at times has been a source of microorganisms. Frieden⁵ stated that the types of bacteria present in starch are those which are prevalent in the atmosphere, and that the number present in starch depends first on the chemical treatment to which the starch has been subjected during manufacture and the conditions under which it has been

stored, including air and handling equipment. The actual types of bacteria reported were again the aerobic spore-formers and a few molds. Since these species are so widely distributed in nature, the few which would be added to paper in the starch sizing would be negligible and without significance from the sanitary standpoint. Frieden also pointed out that starch serves a useful function in paper by binding the water, making it unavailable to the bacteria which may be present in the paper. Rowland¹⁰ discussed the methods of application of starch and pointed out that failure to use accepted methods may lead to difficulties, some of which have bacteriological significance. Papermakers recognize the necessity of using starch which has been treated to lower the number of viable bacteria as is the case in the canning industry.

SLIME

Owing to the evil connotation of the word "slime," it is perhaps well to discuss it in a paper of this nature. Sanborn defined slimes as masses of growth built up on surfaces over which pulp suspensions flow. Bacteriological examinations of these masses have revealed a multiplicity of types all of which are of no sanitary significance but are troublesome to the papermaker. These masses may appear, in the finished paper, to cause what the papermaker calls "fisheyes." Sanborn mentioned five groups of bacteria which he had isolated, as follows: *Achromobacter*, *Escherichia* (one species not a coliform), *Aerobacter*, *Pseudomonas*, and *Bacillus* species of the *B. vulgatus* and *B. subtilis* species. Sanborn also mentioned the mold-like species, members of the genera *Oidium* and *Monilia*. Nason, Shumard, and Fleming⁷ reported several different filamentous and capsulated types of microorganisms which are troublesome in this respect. They are species with no sanitary significance and are easily con-

trolled by use of such a fungicide as sodium pentachlorophenate. *Escherichia coli*, the indicator used in sanitary work, has not been reported in slimes.

Many of the slime-producing bacteria are species of low heat resistance even though they are spore-formers. Results of an experiment with two such species were reported by Tanner, Wheaton, and Ball¹² which emphasized the lethality of various steps in the paper mill, i.e., pH, high temperature and moisture. *Aerobacter aerogenes* and *Bacillus peptogenes*, both isolated from slime in a paper mill were easily destroyed in three menstrua from vat pulp at pH 3.5, 1 per cent pulped paper at pH 4.6, and 1 per cent pulped paper at pH 7. The non-spore-forming *Aerobacter aerogenes* was destroyed by heating in these menstrua in 1 minute at 230° F., while the spore-forming species was completely destroyed in 3 minutes at 230° F., and markedly reduced in numbers in 3 minutes. Such results show the efficient germicidal action of various procedures necessary for making paper, whatever its ultimate use.

EFFECT OF DRYING ROLLS ON BACTERIA

These are a bank of steam-heated cylinders, as many as 100 or more, on cylinder board machines over which the web of pulp is threaded on the paper-making machine to remove the water. These rolls are heated to temperatures which ultimately reach 285° F., especially those toward the dry end of the web. At the wet end the temperature may be considerably lower because of the heat required to warm the pulp and water in it. Bacteriologists familiar with the factors involved in destruction of microorganisms by moist heat will readily recognize here a step in paper manufacture which possesses great significance in making paper safe for the food industry. This position has been substantiated by results of several experiments with pure cultures of bacteria

which have been sprayed on the web of paper as it was passing over the drying rolls.

Results of one experiment by Wheaton showed that non-spore-forming bacteria (*Escherichia coli*) cannot survive the drying rolls. A young suspension of a strain known to have higher heat resistance than ordinary strains, was sprayed onto the web of pulp just prior to its passage over the drying rolls. This suspension contained 486 million cells per ml., and about 10 ml. were sprayed over a length of paper about 18 ft. long and 12 in. wide. The web was moving at a rate of about 92 ft. per minute. The average temperature of the drying rolls was 250° F., the maximum being 270° F., the time for passage of the web over them being 6 minutes. None of the 40 samples of paper gave positive results for the test organism. It is significant to point out that the inoculum used was much heavier than would be expected in practice. Results of another experiment by Tanner, Wheaton, and Ball¹² confirmed these observations. They used suspensions of three organisms, a heat resistant strain of *Escherichia coli* (Frank), *Staphylococcus aureus*, and an anaerobic spore-forming organism of quite high test resistance. Suspensions of these bacteria were sprayed on the wet formed sheet just before it reached the first bank of drying rolls. Six ml. of heavy suspensions of the above mentioned bacteria were sprayed over a section from 12 to 15 ft. long and from 2 to 3 in. wide. These inoculations were heavy and undoubtedly much heavier than would be found in practice if, indeed, such bacteria could ever reach this point in a paper mill. The surface temperature of the rolls measured with a pyrometer varied from 220° F. to 235° F. Only one of the species used could be isolated from the finished paper, the spore-former, which was found in specimens taken for examination in numbers from

150 to 3,080 per gm. Isolation of this bacterium indicated that the technic employed was satisfactory and that failure to isolate the other organisms was not due to faulty methods of inoculation or sampling. The heat resistance of the *Escherichia coli* suspension was 21 minutes in phosphate buffer at pH 7 with 216 million cells per ml. Results of a more comprehensive experiment by Appling and Shema² may be reported because it is important to bring out what happens to bacteria on the drying rolls of a papermaking machine. They used suspensions of *Escherichia coli*, *Serratia marcescens*, *Staphylococcus aureus*, *Aerobacter aerogenes*, and *Bacillus mycoides*, an aerobic spore-forming bacterium. Only this last mentioned organism survived the drying rolls as has been the observation of previous investigators.

Prucha and Tracy⁹ also observed the destructive efforts of the drying rolls on *Escherichia coli*. Water used in one mill contained the organism but it was absent in the paper.

That paper leaving the drying rolls is therefore not sterile but contains viable spore-forming bacteria, is well known; but these species are not pathogenic.

LONGEVITY OF BACTERIA ON PAPER

Results of many experiments have shown that bacteria do not live long on paper but die out in a short time depending, of course, on the conditions of storage. In one experiment paper-board used in the food industry was sterilized in the autoclave, and then dipped into a heavy suspension of *Escherichia coli* (2,500,000 per ml.) and allowed to stand in it for several minutes. The strips were then drained and placed in the incubator at 37° C. (98.6° F.). At subsequent intervals samples were removed and analyzed for viable cells per gram of board. The first examination was made after 35 minutes and showed 360 bacterial cells

of *Escherichia coli* per gm. Gas formation occurred in lactose fermentation tubes. The next examination was made after 24 hours' storage at the above mentioned temperature when no viable *E. coli* cells were obtained and fermentation tests were negative. Similar observations were made after 96 and 120 hours with similar results, showing that bacteria of the coliform type die out very rapidly on paper-board. In another experiment, paper-board immersed for 3 minutes in a suspension containing 16,000,000 cells of *Escherichia coli* per ml., during which time 10 gm. of suspension were absorbed and the paper, containing 730 cells per gm. after drying for 2 hours at room temperature, was sterile in 12 hours by both standard agar plates and fermentation tube tests. The death rate is very rapid for bacteria on paper-board.

Frieden⁵ stated that the moisture content of paper (about 6 per cent) is too low to allow bacterial development and that it was probably present as bound water, not available for microorganisms. He believed that presence of starch binds water and makes it unavailable to bacteria, thus speeding their death. Whatever the reasons may be, those who have studied this problem, have had similar experiences.

In the early days of the paper milk container when it was under critical examination and the materials from which it is made were also being studied bacteriologically, experiments were carried out to determine the effect of the hot paraffin used for water proofing, on bacteria, in and on paper-board. Since the paper-board contained no bacteria of sanitary significance, strips of it were either sprayed with or soaked in heavy suspensions of these bacteria to make certain that they were present. It was observed, however, that as these strips dried prior to paraffination, the bacteria died quite rapidly. Prucha⁸ made a similar observation.

SANITARY PAPER

Attempts were initiated about ten years ago to introduce a "bacterial count" as an index of quality of paper for use in the food industry. Unfortunately, this count of not over 250 bacteria per gm. has been used by several food control groups without much consideration of how this standard originated, the types of organisms which it involves, and their significance. No consideration seems ever to have been given to the fact that the type of bacterium is fully as important, as the number present.

The so-called count standard (Breed³) which was first proposed by Sanborn was that paper-board to be used for paper milk containers should not contain over 500 bacteria per gm. This standard was lowered later to 250 per gm. as given in the *Standard Milk Ordinance and Code of the U. S. Public Health Service*. Previously, it was modified by adoption of a new culture medium which allowed about twice as many colonies to appear on plates made with disintegrated paper. The standard count was not changed. When it is remembered that these bacteria are harmless aerobic spore-bearing bacteria which have survived several treatments in the paper mill which have destroyed the species which are of sanitary significance in public health work, it is difficult to see what is accomplished by such standards. Furthermore, paper-board which contains them is paraffined at temperatures around 180° F. for 20 seconds.

Any bacteria which are present would be "sealed over" and could not reach the food which comes in contact with containers made from such water-proofed paper, even if they remained viable for any length of time. A plate count would be of sanitary significance only if it enumerated bacteria which caused disease or gave some information about procedures used in making a product. The count secured on finished

paper-board does not do this because no bacteria of sanitary significance are present. To offer an enumeration of harmless, relatively heat-resistance bacteria as having sanitary significance shows a distinct lack of appreciation of what sanitation really is.

Strange as it may seem, the severest criticisms of the plate count come from the two individuals, Breed and Sanborn,⁴ who proposed the "count standard" of not over 500 bacteria per gm. for paper-board to be used for paper milk containers. This publication completely discredits the count as a reliable guide because it is subject to too many errors. These are discussed at some length.

"It is unfortunate that there is no method whereby the true accuracy of the counts obtained from paper products by this technique can be determined. Even the most painstaking research, using refined methods, does not reveal the exact number of bacteria present in a gram of paper or paper-board, so that we can only guess whether the results obtained in routine analytical work are accurate counts."

About all that should be inferred from Breed and Sanborn's discussion is that plate counts on paper are subject to great error and should not be used as an index of anything. Such counts were said not to indicate dirt; dirt and bacteria were said to be two different things. In view of these comments, it is difficult to see what the plate count standard means or what good it does even to control officers.

Escherichia coli is conspicuous by its absence from paper. It has never been found on paper by the author nor in any samples taken in paper mills after the pulp has started its journey through them and has received the first treatments. As reported above, *Escherichia coli* is completely killed on the drying rolls of the papermaking machine even when strains with higher heat resistance than usual are used. Wheaton¹³ reported that at no time had he found *Escherichia coli* in samples of paper.

SUMMARY

1. Coliform bacteria are absent in the pulp stream in paper mills and in finished paper.

2. Bacteria are destroyed in paper mills by pulping under pressure with chemicals, bleaching with strong chlorine, and passage over drier rolls heated to high temperature.

3. Many species of bacteria die out in paper because of lack of moisture. Only aerobic spore-bearing bacteria survive.

4. A bacterial count standard such as has been proposed for finished paper is of no value for determining sanitary quality of paper.

REFERENCES

1. Appling, J. W. Micro-Organisms in Paper, Their Relation to the Sterility of Packaging Materials. *Modern Packaging*, Sept., 1946.
2. Appling, J. W., and B. F. Shema. The Lethal Effect of Drier Rolls upon Bacteria. *Paper Trade J.*, 114:152-156, 1942.
3. Breed, R. S. Conference on Sanitation of Paper Milk Containers. *Milk Sanitarian*, 6:11-13, 1937.
4. Breed, R. S., and Sanborn, J. R. Accuracy and Significance of Bacterial Counts from Paper and Paperboard. *Paper Trade J.*, July 3, 1941, pp. 24-29.
5. Frieden, Alexander. The Relation of Starch to Microbiological Problems and Methods for Controlling Bacterial Growth. *Paper Trade J.*, 110:29-32, 1940.
6. Johnsen, B., 1927, quoted from Sanborn, 1933. Milk Ordinance and Code Recommended by the United States Public Health Service. *Pub. Health Bull.* 220, 1939. Federal Security Agency, Washington, D. C.
7. Nason, B. K., Shumard, R. S., and Fleming, John D. Microbiology of Pulp and White Water Systems. *Paper Trade J.*, 110:180-186, 1940.
8. Prucha, M. J. Are Paper Milk Containers Sanitary. *Dairy Manufacturers Conference Manual*, University of Illinois, 1938, pp. 248-254.
9. Prucha, M. J., and Tracy, P. H. Bacteriological and Practical Aspects of Paper Containers for Milk. *Bull.* 495, Illinois Agr. Expt. Sta., 1943.
10. Rowland, B. W. Notes on the Use of Starch in Papermaking. *Paper Trade J.*, 110:101-104, 111, No. 9:71-74, (Aug. 29), 1940.
11. Sanborn, J. R. Development and Control of Microorganisms in a Pulp and Paper Mill System. *J. Bact.*, 26, 373-378, 1933.
12. Tanner, F. W., Wheaton, E. and Ball, C. O. Microbiology of Paper and Paper-Board for Use in the Food Industry. *A.J.P.H.*, 30:256-266, 1940.
13. Wheaton, E. Microbiology of Paper Containers for Fluid Products. *Proc. Inst. Food Technologists for 1940*, pp. 213-222.

American Journal of Public Health

and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 38

December, 1948

Number 12

Editorial Board

REGINALD M. ATWATER, M.D.
Chairman, and Managing Editor

LEONARD GREENBURG, M.D.
PROFESSOR JOHN M. HENDERSON
RALPH S. MUCKENFUSS, M.D.

STUART MUDD, M.D.
RAYMOND S. PATTERSON, PH.D.
GEORGE ROSEN, M.D.

C.-E. A. WINSLOW, DR.P.H.

C.-E. A. WINSLOW, DR.P.H., *Editor*

AUGUSTA JAY, *Editorial Associate*

THE MORNING AFTER

THE Seventy-sixth Annual Meeting of the American Public Health Association, held in Boston, November 8-12, is now a part of our history. It was the largest meeting in the three-quarters of a century of the Association, with a registration of over 4,200. The problems created by a convention of this size are serious. The housing of 400 participants, the provision of space for the exhibits and for simultaneous meeting places for a dozen different Sections, involve demands which can be met only by half-a-dozen cities in the United States. This makes impossible the wide geographical distribution of our Annual Conventions which was attainable in earlier and simpler days. Except for acoustical difficulties in certain of the meeting places, all of the problems involved were satisfactorily solved in Boston. Administrative arrangements were so excellent that everything moved smoothly, in a way which reflects great credit both on the Boston Local Committee, under the chairmanship of Dr. John H. Cauley, and on our own office staff. The generosity of our hosts in providing special entertainments for the Association and its officers broke all records.

In the field of Association business, the proposed constitutional amendment, which would have admitted members, as well as Fellows, to the franchise in voting for officers of the Association, was approved by a large majority but lacked seven votes of the two-thirds necessary for enactment. It is to be hoped that this amendment will be re-introduced next year and acted upon favorably. The Governing Council, by a large majority, approved the petition to establish a new Section on Medical Care, the thirteenth Section of our organization, and the first

new Section to be created since 1943. It will begin its existence with close to 500 members, a unique record.

Dr. Charles F. Wilinsky takes office as President, with recognition by the Association of his distinguished services to public health, and grateful appreciation of the major role he played in making the 76th Annual Meeting so pleasant and so profitable. Dr. Lowell J. Reed of Johns Hopkins was chosen as President-Elect, and Dr. Hugh R. Leavell of Harvard as Chairman of the Executive Board. The award of the Sedgwick Memorial Medal was made to Dr. Abel Wolman of Johns Hopkins (this was Johns Hopkins Day!)—the first engineer to receive this honor, in recognition of his technical achievements and his superb statesmanship. The Lasker Awards were—as usual—made with admirable discernment; to Selman A. Waksman, René J. Dubos and Vincent du Vigneaud, for distinguished scientific research, to Martha M. Eliot and Rollo E. Dyer for outstanding administrative achievement, and to The Department of Medicine and Surgery of the Veterans Administration (Paul R. Hawley and Paul P. Magnuson) for the remarkable reorganization of that department.

The central point about which the program was planned was the approximate centennial of Lemuel Shattuck's Report of the Massachusetts Sanitary Commission in 1850; and it is a source of gratification that a facsimile of this classic report was prepared for the occasion and may be obtained from the A.P.H.A. office. There were two trends which particularly impressed the writer in the program as a whole. One was emphasis on the vital problems of Administration, including recruitment, and qualifications of personnel, compensation, and inservice training and on the philosophy and techniques of health education. The other was a broadening vision of the scope of public health as evidenced by the interest of engineers in housing, of industrial hygienists in the health problems of the farm worker, of epidemiologists in accident prevention, of health officers in the administration of medical care programs. The fact that 22 out of a total of 48 technical meetings were joint sessions of different Sections illustrates this trend.

Finally, a word must be added in regard to one feature of our Annual Meetings (and of the functioning of the A.P.H.A. as a whole) which may have escaped the attention of the new members and may sometimes be forgotten by old members. This is the work of our Standing Committees on Administrative Practice, on Professional Education, and on Research and Standards. These committees held sessions at the Annual Meeting extending into the small hours of the morning; but the several hundreds of members of these committees and of their subcommittees are working 365 days of the year on their arduous and continuing tasks. To take one example, although a particularly shining one, think what we owe to Dr. Haven Emerson for the report on Local Health Units which is the solid base for our whole program for upbuilding the health machinery of these United States; and for the report on Communicable Diseases which is becoming the basis for standard practice all over the world. Consider our debt to the Committee on Research and Standards for standard methods for examination of water and milk and diagnostic procedures, to the Committee on Administrative Practice for the *Evaluation Schedule* and the whole program of local community surveys, to the Committee on Professional Education for its reports on qualifications of personnel, its Merit System program, its accreditation of schools of public health. The work of these Standing Committees is the life-blood of the Association; and to their

members—as well as to the members of the Section Councils who planned their sessions at Boston so well—we owe a deep debt of gratitude.

GUIDANCE FOR A PRE-ADOLESCENT WORLD

IT has become an obvious truism that the survival of modern society depends on narrowing the gap between the striding advance of physical science, and the deplorable lag in our understanding and our application of the principles of human motivation. As master of space and power, man has become a very Titan. As master of his own soul, he is immature—and, on the international scale, pre-adolescent.

The International Congress on Mental Health, held in London last August, was therefore an event of the greatest potential importance. Some 5,000 experts in sociology, psychology, psychiatry, anthropology, political science, philosophy, and theology, in twenty-seven countries were engaged in preliminary work on the report, finally crystallized by a small Preparatory Commission and adopted by the London Congress before its adjournment.¹

The fundamental basis of hope in this report is the proof which has come to us from modern psychology and psychiatry that human behavior is modifiable. "Men have long accepted the inevitability of recurring misfortunes in the shape of group conflict and war on the grounds that 'that is human nature.' This belief has even been used to maintain the existing state of affairs. When, however, social and psychiatric science had progressed sufficiently, a rigorous investigation of 'human nature' clearly revealed that these discouraging traditional views had no valid foundation. Possibly the most important contribution to human welfare which has come from studies by social scientists and psychiatrists has been the demonstration of how much human beings are the product of their upbringing."

On the other hand, the difficulties in the way are clearly recognized. The plasticity of human nature decreases with every passing year. The phases of infancy, of childhood, of adolescence, and "psychological weaning" are the periods in which personality is molded. Furthermore, the building of a healthy personality depends on far more than the work of the psychologist and psychiatrist. The parent, the employer, the social scientist, the economist, the lawyer, the politician, the administrator, the educator, the writer, the radio, the cinema, the church, all play their part in governing the course of character development. Note, too, that the objective is "character," not "conduct." Conduct may be controlled by force, as the dictators have demonstrated but "The application of principles of mental health demands that . . . human beings must not be induced to behave in particular ways by irresponsible manipulation of fear, guilt-feelings or prejudice."

Our objective must be "to discover ways of releasing human potentialities, individually and collectively, for the common good." And the "common good" must be visualized on a global scale, with a realization of the responsibilities of world citizenship involving loyalty to the whole of mankind. "Such new loyalty need not conflict but rather embraces traditional loyalties to family, community and nation, which alone are no longer sufficient for the protection of the interdependent peoples of the world." The concept of world citizenship is not used in any political sense of world supersovereignty. It involves merely acceptance of

the challenge of a "common humanity." "In one sense," the report reminds us, "the movement toward world citizenship is one which fulfils, rather than goes counter to the trend of history. Man's social history so far has usually limited his freedom for friendly coöperation by the degree of inclusiveness of the groups to which he has been permitted to give his loyalty. Thus in feudal times a man's loyalty was limited to his feudal lord, later to some regional principality, and later still to some larger political unit. At each step the smaller loyalty was taken up in the larger. It is possible to envisage a world community built on free consent and on the respect for individual and cultural differences."

The Report does not minimize the difficulties of the task. It reminds us that "Many people give up the struggle to participate actively in influencing public affairs of a political, social or economic nature, and seek escape either in civic apathy or in clinging to adolescent modes of thought; or they avoid insecurity by the espousing of some sheltering ideological movement.

"There are many other obstacles—the fatalistic belief, so widely held, that war is inevitable, and that nothing can be done about it; the exaggerated claims of the superiority of one's own national or racial group, with accompanying depreciation and contempt of others; the widespread manipulation of aggressive attitudes against 'out-groups' either within or outside the national community; the fears and doubts and uncertainties which lead people to seek in a strong national authority the security which they do not find in themselves; the sheer ignorance of the ways of life among other nations. There is no need to complete the list. It could be extended considerably."

To overcome such obstacles, the Report makes an urgent plea for research, not only in the study of the problems of mental health but in the broader fields of human personality, of social relationships and of social institutions. It outlines the general program of mental health services (hospitals for in-patient care, mental hygiene clinics for diagnosis and out-patient treatment, and child guidance centers for basic prevention) needed in every country; the principles which should govern such services; the problems of planning and administering them; and the role of education, of professional workers and the general public, essential for making such services operative. The report closes with a series of specific recommendations leading toward the goals outlined, which have been transmitted to the UN, the WHO, and the World Federation for Mental Health, which will carry on the work of the International Congress on a permanent basis.

The thoughtful reader must consider this Report with mixed feelings—with admiration, on the one hand, for its wisdom and soundness—but also with concern at the inevitable gap between present status and theoretical possibilities. The Report is absolutely right in ignoring easy and tempting short-cuts to perfection—in insisting on a basic approach and in anticipating results only on a basis of a long continued and widely based program which will have maximum effectiveness only when applied to the young and growing mind. On the other hand, the fate of the world will not be decided by a generation whose personalities have been strengthened and liberated by child guidance clinics. Man has largely conquered space and power. He has not conquered time; and time runs against us in this urgent hour. The Congress (perhaps for reasons of professional modesty) did not suggest that every national delegation to the United Nations should have a psychiatrist as its adviser. We venture to suggest that such a step would do more for us in 1949 than any of the specific recommendations made at London. Inter-

national delegations all have their political and legal and economic experts; but their task is basically and primarily a daring experiment in human behavior. Like any other scientific experiment, it requires expert judgment, not merely good intentions.

REFERENCE

1. International Preparatory Commission—International Congress on Mental Health, August, 1948. *Psychiatry*, 11:235-261 (Aug.), 1948.

HEALTH PROBLEMS OF AN AGING POPULATION

IN 1900, there were eight causes of death in the United States which exhibited death rates above 50 per 100,000 population. Three of these (tuberculosis, pneumonia, and diarrhea and enteritis), which were the three top causes of death in 1900, have now dropped below the 50 mark. The other five showed, in 1946, the following mortality rates: diseases of the heart, 307; cancer, 130; accidents and violence, 88; cerebral hemorrhage, 78; and nephritis, 58. All of these are conditions associated with an aging population; for it must be remembered that the age curve for accidents is almost as closely related to age as is that for heart disease. In 1946, these five causes of death accounted for about two-thirds of the mortality from all causes, and at all ages.

Cancer was the first of the diseases of later life to find an important place in the official public health program. In 1898, the Legislature of New York State appropriated funds to be expended by the Medical School of the University of Buffalo for research in this disease. Massachusetts, however, was the first state (in 1919) to provide funds to its State Department of Health for study on the prevalence, prevention, and control of cancer. A. V. Deibert, in a recent review¹ reports that 12 states and the Island of Puerto Rico now have permanent cancer programs in their departments of health; and 8 other states and the District of Columbia have received special appropriations earmarked for cancer activities but without the basis of assured permanency. In the first group of states cited,* the general ideals set forth by the National Advisory Council are more or less adequately approached. These include (1) statistical research to determine the nature and extent of the cancer problem of the state and to evaluate the results of activities; (2) educational activities for the public and all professional groups concerned in the detection, diagnosis, and treatment of cancer; (3) activities to provide adequate detection, diagnostic and treatment facilities and services accessible to persons of all economic groups in all sections of the state, including facilities for care of the terminal case either at home or in an institution.

In connection with the other health problems of later life, progress has been much less rapid. In a few states, however, interest is definitely spreading to the broader problems of geriatrics. Massachusetts continues to turn out an inspiring series of studies, not only on cancer, but also on diabetes and other geriatric problems. *Health News*, the modern and up-to-date monthly bulletin of the New York State Department of Health, devotes its June, 1948, issue to an admirable presentation of "Problems of the Aged," in a popular and effective format.

* Alabama, Connecticut, Florida, Georgia, Illinois, Maine, Massachusetts, New York, North Carolina, Rhode Island, South Carolina, and West Virginia.

In Indiana, the State Board of Health has a Division of Adult Hygiene and Geriatrics. In 1946, in coöperation with the Indiana University School of Medicine, it held an Institute on Geriatrics at which such subjects as cardiovascular and renal diseases, arthritis, eye changes in advancing years, and mental hygiene in geriatrics, and geriatrics in industry were discussed.² It would be well for the rest of our state health departments and our larger city departments to follow closely the pioneer work of Dr. Getting and Dr. Hilleboe and Dr. Burney and their colleagues in this field.

REFERENCES

1. *Pub. Health Rep.*, 63:1128 (Aug. 27), 1948.
2. *Proceedings Institute on Geriatrics*, May 22 1946. Indiana State Board of Health, Indianapolis.

LETTER TO THE EDITOR

TO THE EDITOR:

In reference to your article on the 150th Anniversary of the USPHS (38:1009, 1948) may I point out that the United States was not a pioneer in the field of treatment of seamen. In the 16th century Drake and Hawkins established the Chatham Chest, each "serving seaman" paying sixpence a month (multiply this by five to get the present prices). No distinction was made between Naval and Merchant Seamen at that time. The *Diary* of Mr. Pepys is full of his difficulties in "paying the Chest" as his colleague, Sir William Batten, had used the funds of the Chest as his own, and Pepys experienced great

difficulty in making him disgorge. The matter will be found in a condensed form in Arthur Bryant's *Samuel Pepys: The Man in the Making*.

Actually and realistically the Act signed in 1798 by President Madison was a subsidy for our embryonic Merchant Marine. My recollection is that there was first a "tonnage tax," paid by the ship-owners, and that the monthly assessments from the seamen came later. I recall that in my early years in the Service we occasionally encountered a seaman who had, in early life, had the deductions made from his wages.

J. D. REICHARD,
*Medical Director, Retired, USPHS
Staten Island, N. Y.*

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Bergey's Manual of Determinative Bacteriology — By Robert S. Breed, E. G. D. Murray, and A. Parker Hitchens. (6th ed.) Baltimore: Williams & Wilkins, 1948. 1529 pp. Price, \$15.00.

A new edition of this classic standard reference work on bacterial taxonomy is especially welcome because it is 9 years since publication of the 5th edition. Rapidly expanding knowledge has led to many changes and the text has been completely revised by some 65 specialist contributors in consultation with the Editorial Board. A total of 1,630 species are described as compared to 1,335 in the preceding edition.

The classification used is a modification of that used in previous editions but remains essentially the same. However the number of orders in the Class *Schizomycetes* has been reduced from 7 to 5. The order *Caulobacteriales* becoming a sub-order of *Eubacteriales* and the order *Thiobacteriales* being divided by assigning the colorless, filamentous sulfur bacteria, *Beggiatoaceae* and *Achromatiaceae*, to the order *Chlamydo bacteriales*, and making the purple sulfur bacteria, *Rhodobacteriaceae* a part of the sub-order *Rhodobacteriineae* in the order *Eubacteriales*. The family *Corynebacteriaceae* has been transferred from the order *Actinomycetales* to the order *Eubacteriales*, and the genus *Eberthella* has been combined with the genus *Salmonella*.

Three groups of organisms whose relationships are considered to be obscure are treated in supplemental chapters which are new to this edition. The *Rickettsiales* are divided into 3 families, 10 genera and 37 recognized species, with an additional 91 species listed as

incompletely studied. The *Virales* (filterable viruses) are treated as an order consisting of 13 families, 32 genera and 248 species. The *Borrelomycetaceae* (pleuropneumonia group) are listed in 13 groups.

Public health workers should note that two important pathogens have been assigned new names. The meningococcus is now *Neisseria meningitidis* instead of *Neisseria intracellularis*, and the typhoid bacillus is now *Salmonella typhosa* instead of *Eberthella typhosa*.

Descriptions of organisms, their habitats, biochemical, cultural and serologic characteristics are complete and thorough as in previous editions, and the entire contents made more attractive by a new two column format. Interesting reviews of the history of bacteriological taxonomy and of the rules of nomenclature are given in the opening chapters, and the usual complete index of names of genera and species, including synonyms, with well over 10,000 entries, appears at the end of the book. A new index of sources and habitats of almost equal length has been developed and appears for the first time in this edition.

Every bacteriologist will need to refer to this *Manual* frequently. It should be in the library of every bacteriological and public health laboratory.

E. K. KLINE

Mental Deficiency—By A. F. Tredgold. (7th ed.) Baltimore: Williams & Wilkins, 1947. 518 pp. Price, \$7.50.

This work is commonly referred to as the "Bible" by workers in the field of mental deficiency. In the appropriateness of this allusion lies both the strength and the weakness of the work.

For comprehensive coverage of the field it has not been challenged by any other text in the English language since its original publication in 1908. And as a classic, it will doubtless continue for a long time to occupy an honored place on the shelves of all students of mental disorders, but possibly only as a classic. In several rather fundamental respects, especially with reference to advancing etiological and ontogenetic concepts, a much more thorough revision than the present will be required if its rôle as a repository of accruing knowledge or a guide to current thinking and progressive orientation in the field is to be maintained.

Classic texts however, continue to be of value in spite of specifically recognized shortcomings. The usefulness of Tredgold's clinical descriptions and aids to differential diagnoses will hardly be surpassed as long as the existing framework of classification remains in force. And his emphasis on the biological and social criteria of mental deficiency, rather than intelligence quotients, scholastic educability and outworn legal concepts, represents the only reasonable and just approach to modern social planning. For these and other virtues the book should be useful to all public health workers interested in these problems.

PAUL H. STEVENSON

The Care and Management of Laboratory Animals—Edited by Alstair N. Worden. Baltimore: Williams & Wilkins, 1947. 368 pp. Price, \$8.50.

This handbook, edited by A. N. Worden, Director of Research in Animal Health, University College of Wales, is intended as a practical introduction and guide to the husbandry and laboratory management and care of most of the small animals commonly used in the laboratory. Each of the 23 chapters (including a chapter for each of 19 different species of small animals, birds, amphibia, and fish) have been

drafted by individuals or groups of individuals (two chapters were written by people in the United States, including the Michigan department), or compiled from information furnished by outstanding authorities throughout several countries.

An impressive keynote throughout the entire book is the stress placed on humane use and handling of animals. The first chapter is devoted to laws and ethics governing the laboratory use of animals in Great Britain and other countries.

A complete and very detailed discussion is given of each of the various types of housing, cages and equipment, nutrition, breeding, handling and general management, anesthesia, euthanasia, and disease and its control for each of the many species included. While the extensive references include many American writers and two of the chapters are by American authors, the book is mainly composed by British authors and as a result of this there are some differences to be noted in their discussion of kinds and types of equipment and feeds used as compared to ours in this country.

As a whole the book will very well serve the purpose for which it was intended.

G. D. CUMMINGS

History of Factory and Mine Hygiene — By Ludwig Teleky. New York: Columbia University Press, 1948. 342 pp. Price, \$4.50.

To those who are actively engaged in the practice of industrial hygiene in the United States, this book will be highly valuable in providing a historical background for their present knowledge. Dr. Teleky has accomplished a monumental task in reading and abstracting an unbelievable number of references.

The material offered in this book is fairly well organized, considering its complexity and geographical distribution. It does not, however, present a true picture of the general status of

either industrial hygiene or industrial safety in this country. Admittedly, some conditions here in industry may not be quite as good as they should be, but they are certainly not as unsatisfactory as the uninformed reader might be led to believe from reading certain statements in this book.

The reviewer is also of the opinion that more credit might have been given deservedly to the industrial hygiene work done and being done by the many state and local health departments. Furthermore, hardly any mention was made of the contribution made by industrial hygiene engineers in the prevention of occupational diseases by effectuating improvements in the working environment. The foregoing is due, no doubt, to the author's limited experience in this field in this country.

The book provides otherwise good and informative material and should be a valuable addition to one's reference shelf.

H. G. DYKTOR

Industrial Air Sampling and Analysis. Chemistry and Toxicology Series; Bulletin No. 1, 1947—By *Leslie Silverman*. Pittsburgh, Pa.: *Industrial Hygiene Foundation*, 1947. 72 pp. Price, \$1.50.

This bulletin is the first of a new series of publications on chemistry and toxicology under the sponsorship of the Committee on Chemistry and Toxicology of the Industrial Hygiene Foundation. Methods of sampling workroom air to detect health hazards and impurities is presented by Dr. Silverman who is Assistant Professor of Industrial Hygiene at the Harvard School of Public Health, Boston, Mass. The volume divides methods of air sampling into those which may be taken instantaneously and those over a longer period. Included among the methods and techniques for analyzing contaminated atmospheres are test paper and flame test methods, physical

methods, dust determinations, mixtures of contaminants in air, flow measurements, the calibrations of sampling instruments, calculations in industrial air analyses, and routine sampling and recording of atmospheric impurities, together with references from the literature.

REGINALD M. ATWATER

Bacteriology and Immunology—[*Fiat Review of German Science 1939–1946*], *Hans Schmidt* (Senior Author). Published by Office of Military Government for Germany, Field Information Agencies Technical. Printed under the supervision of *Dieterich'sche Verlagsbuchhandlung*, Wiesbaden, 1947. 155 pp. Hygiene Part I. General Hygiene [Fiat Review of German Science 1939–1946], *Ernst Rodenwaldt* (Senior Author). Published by Office of Military Government for Germany, Field Information Agencies Technical. Printed under the supervision of *Dieterich'sche Verlagsbuchhandlung*, Wiesbaden, 1948. 191 pp.

The two volumes under review represent part of a project by Military Government of the American, British, and French zones in Germany to present a concise yet complete account of the investigations and studies made by German scientists in biology, chemistry, mathematics, medicine, physics, and the geological sciences from May, 1939, to May, 1946. Actually, collection of information of this kind had already been undertaken during the war, and the earlier reports have been made available by the Department of Commerce. These earlier efforts, however, were aimed rather at obtaining information which could help to bring about an earlier end to the war, and were therefore not systematic in character.

The more systematic character of these recent publications is evident at a glance. The volume on Hygiene, of which the first part is reviewed here,

consists of eleven sections: medical statistics; public health service, effect of atmospheric conditions on man, bioclimatology, geomedicine, water, sewage, housing, nutrition, milk, and meat products. Each of the contributors is competent, and some, like K. Imhoff, have world-wide reputations.

The volume on Bacteriology deals with bacterial antagonisms, counting methods, microbial metabolism, the various bacteria (salmonella group, coli, dysentery, streptococci, staphylococci, tetanus, gas oedema, anthrax, gonococcus, meningococcus), as well as animal toxins and helminths. There is a separate section on immunology.

In a brief review it is impossible to discuss the material contained in these volumes. Interested readers are referred to the originals (which are in German), and inquiries should be directed to the Office of Military Government for Germany (U. S.), Economics Division, Research Control Branch, Berlin, Germany. APO 742. U. S. Army.

GEORGE ROSEN

Psychiatry in a Troubled World—
By William C. Menninger. New York: Macmillan, 1948. 636 pp. Price, \$6.00.

In this volume, Dr. Menninger has drawn on his experience as Chief Consultant in Neuropsychiatry to the Surgeon General of the Army to present an analysis of the psychiatric problems faced in the last war, a record of the accomplishment in meeting these problems, and an indication of the implications of this analysis for future application within civilian as well as military social organization. The book has been exhaustively documented with data and references and as a result is extraordinarily valuable as a reference source for both historical and scientific purposes.

In undertaking this task, Dr. Menninger was faced with the problem of

showing the tremendous accomplishments of psychiatry in the face of almost impossible handicaps, yet doing this in such a realistic way as to indicate how little was done in comparison with what might have been accomplished had we heeded the lessons of the first world war, and been able to utilize to the fullest the advances in psychiatric knowledge since that time. The chief difficulties were the tremendous size of the army and the relatively small number of psychiatrists available to do the job. Also of prime importance was the organization of the army and the attitudes toward psychiatric patients on the part of officers, medical, as well as line officers.

This book is of immense importance to public health workers, not because of the brief chapter on public health activities in this field, but in the implications for a broad program of really preventive work. Dr. Menninger has made a dynamic evaluation of the army as a social institution and the effect the pressures and requirements of this social organization had on the mental health of the soldier. The evaluation of these pressures is of utmost importance for application to the problems of civilian life.

Dr. Menninger points out the importance of good leadership to the moral and mental health of the soldier. By presenting and evaluating his material so courageously, by his frank criticism of army organization and procedure, and by his appraisal of our most critical social problems, he continues his rôle of leadership so ably established during his war service.

JAMES M. CUNNINGHAM

Psychotherapy in Child Guidance—
By Gordon Hamilton. New York: Columbia University Press, 1947. 340 pp. Price, \$4.00.

Gordon Hamilton, Professor of Social Case Work, School of Social Work, Co-

lumbia University, formulates in this book the principles of psychotherapy as practised by the social worker at the Jewish Board of Guardians. While this study will be of most value to those working in child guidance clinics or social case work agencies, certain sections of the book can assist public health workers in adding to their understanding of children's personality difficulties. Chapters III, IV, and V are devoted to a discussion of children who present different symptoms; Chapter III—The Child Who Acts Out His Impulses, Chapter IV—The Anxious Child, Chapter V—The Severely Disturbed Child. The chapters on the diagnostic process and treatment will give a detailed picture of what happens in "psychotherapy" of the child.

Chapter XI—Treatment of the Family, stresses basic attitudes toward the family, which are essential on the part of those with therapeutic intent toward the child. The reviewer is of the opinion that this chapter of itself can be especially valuable to workers in maternal and child health programs. While the practice in this particular agency is somewhat unique in the amount of therapeutic responsibility assumed by the social worker, it nevertheless indicates a growing tendency for "psychotherapy" to be undertaken by others than the psychiatrist, providing such workers secure suitable psychiatric supervision and consultation.

The many case studies cited in this book will give better understanding of etiological factors in children's difficulties, with the result that public health workers may be impressed again with their contribution to the overall health of the child.

MARTHA W. MACDONALD

Disability Evaluation—By Earl D. McBride. (4th ed.) Philadelphia: Lippincott, 1948. 667 pp. Price, \$12.00.

This is the fourth edition of a publi-

cation which has now become one of the standard texts in the field of disability evaluation. In this very important medicolegal field, Dr. McBride has furnished the physician with special techniques and guidance in aiding him in evaluating the end results of accidental injuries occurring in the course of employment.

The book is profusely illustrated with graphic figures which help to explain the medical procedures involved. Additional case illustrations, particularly in the field of treatment, add to the value of the book.

While there is no one system which can be accepted as authoritative in the field of disability evaluation, McBride's technical material, nevertheless, forms the basis of that clinical judgment which in the last analysis is the proper function and responsibility of the treating physician.

HENRY H. KESSLER

The Maryland Medical Care Program—By Howard M. Kline, Milton Terris, Cozette Hapney, and Nathan A. Kramer. *A Report by the Staff of the Subcommittee on Medical Care, Committee on Administrative Practice, American Public Health Association*, 1948. 151 pp.

This excellent report deals with one of the studies undertaken by the staff of the Subcommittee on Medical Care of the Association's Committee on Administrative Practice. Such studies may serve as a basis for expansion of the general specifications for a national health program laid down by the Association in 1944.

Maryland's program of medical and related services for public assistance recipients and the medically indigent has the distinction of being the first such state-wide program administered by a state health department and local public health units. It is thus of great significance at a time when public health

must fulfil its destiny of meeting the total challenge of the people's health. This report is a must for public health administrators and recommended reading for health and welfare workers generally.

The scope of this thorough study is impressive. A revealing historical background is presented and the report then deals in detail with the organization of the program and an analysis of services and expenditures. Helpful summaries of discussions are given throughout and the report is rounded out with a useful "Summary and Conclusions" chapter. Numerous tables and charts are included and several key documents and forms comprise the appendix.

Will the medical profession coöperate in developing a medical care program for disadvantaged people in their state? To what extent does their interest go beyond monetary considerations? How smoothly can a transfer of health functions from the welfare to the health agency be effected? Does a considerable degree of decentralization of policy formulation and administration have its serious drawbacks as well as clear advantages? Does experience prove that advisory groups should include representatives of the affected public? Does coördination of public health and medical care "come naturally," or must the merger be nurtured? The reader will draw his own conclusions from the facts and the unobtrusive comments of the writers.

Maryland's pioneering program already offers a wealth of experience to the health officer who wishes to be prepared to deal with medical fees and bills, duplicate prescriptions, authorizations for dentures, and the delicate relationships to be maintained in his area. The program itself, developed cautiously and handicapped by budgetary limitations, appears to be well rooted and to hold promise for the future. One would hesitate to predict the early fulfillment

of that promise in terms of comprehensive services for all medically needy residents of Maryland in the absence of integration in an overall health insurance program with contributory as well as general revenue financing.

F. D. MOTT

Tuberculosis Reference Statistical Year Book 1946—By *New York Tuberculosis and Health Association*, 1947. 14 pp. Free.

This annual statistical compilation by the New York Tuberculosis and Health Association has been long regarded as the outstanding publication of its kind in the United States. It is unique not only in so far as its completeness is concerned, but primarily because it has virtually set the standard for health organizations in other large cities.

For the most part the contents are concerned with mortality and morbidity statistics as applied to New York City and the usual breakdown thereof. In addition, the leading causes of death, clinic services, sanatoria, and hospital services are dealt with at length.

For purposes of comparison the author has wisely included similar statistics from 50 other large cities, thus enabling the reader to obtain at a glance an overall picture of the tuberculosis problem in the leading cities of the United States.

New York City presents an unusual opportunity for the study of tuberculosis. Besides having the distinction of being the largest city in the United States, it is likewise the most congested and populous urban aggregation in the world. The barometer of progress against tuberculosis as portrayed in this publication by Drolet and his associates indicates quite clearly, however, that despite the magnitude of the problem, the medical and health professions are making decided progress in effectively controlling the spread of the disease.

This is an unusual publication. The

reviewer regards it as "must" reading for every tuberculosis worker in any of the large cities of the United States. For the student of public health and hospital administration it comprises a veritable encyclopedia of well organized information pertaining to tuberculosis in urban areas.

EARL E. KLEINSCHMIDT

Synopsis of Pediatrics—By *John Zahorsky*. (5th ed.) St. Louis: Mosby, 1948. 449 pp. Price, \$5.50.

This compact volume of over 400 pages touches briefly on all aspects of pediatrics. It gives significant facts about serious illnesses and disorders in children; it offers the latest information on methods of treatment. It contains valuable factual information, excellent pictures, and diagrams. Many aspects of diagnosis which are of interest to pediatricians have been omitted, but as this is a synopsis, it cannot be expected to include all diagnostic points. As the subject of management of well children is an important aspect of pediatric practice, more references on this subject would seem to be indicated.

This volume should be very helpful as a reference to general practitioners, to health workers, and to other persons whose occupation brings them in contact with sick children.

MARTHA L. CLIFFORD

Smoke—The Problem of Coal and the Atmosphere—By *Arnold Marsh*. Cleveland, Ohio: The Sherwood Press, 1948. 306 pp. Price, \$7.00.

The author of this well written book is general secretary of the National Smoke Abatement Society of Great Britain and thus is in a position to make out a strong case for smoke control. This he does in meticulous fashion, marshaling his facts at considerable length.

His book is intended primarily for Britons and he writes mostly of British experiences. His references are almost

exclusively British, with an occasional reference to isolated American situations. Part of the Appendix is given over to a discussion of the smoke problem in countries other than Great Britain, including a few complimentary remarks for efforts in some American cities.

The first half of the book presents the problem of smoke—its history, nature, health significance, effect on plant life, destruction of property, relation to squalor and uncleanness and its cost. There is a short discussion of the related problems of sulfur compounds and of fly-ash.

The second half sets out the control methods which have been devised, with a discussion of their relative effectiveness and limitations. The author states that the prevention of smoke depends on "three principal factors: (1) the nature of the fuel; (2) the appliance in which it is burned; (3) the way in which it is burned." While one may disagree with his statement that only the first of these is involved in the domestic heating appliance, one should agree emphatically with his plea for smoke prevention rather than smoke abatement.

Mr. Marsh proposes a plan for action in which restrictions on the use of bituminous coal are progressively applied. In this he leans heavily on the experience of St. Louis. One should point out an over-emphasis of the health significance and of some other effects of smoke which is apparently in compensation for the author's admission of the overwhelming difficulty of national smoke control.

This is an excellent book for the municipal health official's library. Many of the answers to questions which his public may get around to asking him are found there. Also, there is much factual information for his use, should he want to organize public opinion to support an effective smoke control program.

JOHN BUXELL

Psychotherapy, Its Uses and Limitations—By D. R. Allison and R. G. Gordon. New York: Oxford University Press, 1948. 156 pp. Price, \$3.00.

The sub-title of this concise, pocket-sized book warns the reader against expecting a systematic treatment of the principles of psychotherapy as such, or a simplified initiation into the mysteries or techniques thereof. On the other hand, it serves to flag the attention of a widening circle of public health workers interested in keeping intelligently informed of the tangible results of specialized activities in this important sector of medical progress.

In the preface and first chapter the authors give a summary background to the development of psychotherapy. Serially in the following chapters are reviews of the different types of illnesses now commonly recognized as presenting significant psychological facets amenable to psychotherapeutic approach. Problems of differential diagnosis and of the limitations imposed by recognizable constitutional psychological deficits are appropriately considered. The point being emphasized that, in view of the scarcity of competent psychotherapists, important as it is to know when psychotherapy is indicated, it is equally important to recognize situations in which it is useless, where its practice is apt to be at the expense of others on whom effort can be more profitably expended.

The closing note is a plea for a combined approach to the total problem of psychotherapy. In addition to the increasing curricular attention being given to psychosomatic and psychosocial concepts in the field of medical education, there is found also today an increasing appreciation of the relevant contributions to be made by clinical psychology, philosophy, and religion. Accordingly, the authors' final words are ". . . the team's the thing; let us get together in a combined approach, with one object and

one object only in view, the material and spiritual welfare of the whole human race; and where necessary because illness has already intervened, the rehabilitation of the individual patient in relation to the world around him."

PAUL H. STEVENSON

Food Products—By Saul Blumenthal. New York: Chemical Publishing Co., 1947. 986 pp. Price, \$12.00.

The author states in the preface that the book was written for "Everybody interested in the preparation of food from the manufacturing plant executive, the food chemist and the food salesman, right down to the housewife." That is, the book is too popular in places and in others mildly technical. For example, on page 813, one reads, "Bacteria have no legs, fins, or wings." Numerous statements are made which may mislead the lay reader; others are partially in error. Thus, on page 811 occurs the statement "Foods which have been allowed to stand for some time after cooking, particularly if they are not cooled and kept refrigerated, are likely to cause food infections. The introduction of harmful bacteria which cause epidemics of disease, as well as those which cause food spoilage and waste, occurs in practically the same manner." The book is not particularly useful to the public health worker except in so far as he may acquaint himself with manufacturing procedures and type formulas for many prepared and processed foods. In some respects the book is not well balanced. As an example, 10 pages are devoted to frozen foods and 87 to dehydrated foods. A vast field of subject matter is covered in this book—candies, cereals, dairy products, spices, dessert powders, sauces, fish and meat products, syrups and beverages, canned, frozen and dehydrated foods, jellies, plant sanitation, and food composition. There are no photographs.

CARL R. FELLERS

Recent Advances in Public Health
—By J. L. Burn. London, Eng.: J. & A. Churchill, Ltd., 1947. 409 pp. Price, 25/s.

This interesting book by an English health officer has 37 chapters and is divided into 3 major parts dealing with the relationships of public health to the individual, the community, and the environment.

From the title of the book this reviewer expected to find a broad discussion of the most significant developments and sweeping advances in the field of public health, with perhaps an indication of the most likely developments of the future. Instead, the book deals with a very great variety of public health practices, some new and some old, but most of which are distinctly of interest to anyone concerned with public health.

Although the book deals mostly with activities of the English health officer, frequent allusion is made to public health practice in America. The administration of nitrous oxide and air by midwives trained in the use of a portable apparatus; school tests for color vision; municipal foot-health services; mobile obstetrical services; hostels for the retraining of neglectful mothers, while children are temporarily removed to nurseries; rural epidemiology and the possibility of research by amateurs strategically located in rural communities; the Garchey system of refuse disposal; cremation as a social service under the auspices of the public health officer; the growth of garden cities, and the Peckham experiment are some of the discussions on English practices which are probably less common or non-existent in American public health experience.

There is much valuable material in this book; it is well written and can be recommended as good reading, despite the fact that many of the practices enumerated as recent advances in pub-

lic health would probably not be accepted as such in this country—and the Oslo Breakfast is hardly to be accepted as a recent advance in public health unless we adopt the longer view of current events.

OLIVER E. BYRD

Your Skin and Its Care—By Howard T. Behrman and Oscar L. Levin. New York: Emerson Books, 1948. 255 pp. Price, \$2.50.

This is another book apparently designed for those readers with curiosity about disease, health, and beauty. As public health educators we hope to find this type of book in a form that such readers may learn all they need for sound health education in a particular field. Books of this sort usually fall short on the difficult problem of teaching the reader to use medical service effectively. This is no exception, although the attempt is made to give medical guidance for the victims of over fifty varieties of skin disorders.

The explanations to indicate the possibilities of medical treatment are rather confusing, and do not give the patient sufficient interpretation to understand the ways that he is likely to fail to do his part for adequate diagnosis and treatment. We do not find enough of the how and why of coöperation with the physician. The implication of an unwarranted degree of certainty in our knowledge of "constitution," "internal deficiencies," "systemic disturbances," and "endocrine disorders" in relation to skin condition adds neither interest nor medical background.

However, it does very well in offering an understanding of the skin and how it functions. It meets a need for advice on the daily care of the skin and the use of cosmetics, soap and water. The dangers of self treatment and of the salesmanship of beauticians and so-called skin experts are well handled.

HAROLD H. MITCHELL

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Pandemics Every Thirty Years?—Difficult to imagine would be a more dramatic graph than this curve of influenza-pneumonia deaths, plotted since the pandemic of thirty years ago. First the curative sera helped, then ten years ago the sulfa drugs sharpened the drop. Now, with penicillin added, the improvement in mortality has been three times as great as in the preceding decade.

ANON. Influenza and Pneumonia—Thirty Years after the Pandemic. *Stat. Bull. (Met. Life Ins. Co.)* 29, 9:8 (Sept.), 1948.

Streptomycin—Official—In the nature of a second annual progress report, this paper covers 2,780 patients with all the tuberculous ills that human flesh is heir to. Judgment concerning the value of streptomycin in the treatment of the various manifestations of TB is strengthened rather than altered. Streptomycin therapy is still held to be a useful adjuvant to other forms of therapy, and occasionally the drug becomes definitive therapy in itself.

ANON. Streptomycin in the Treatment of Tuberculosis. *J.A.M.A.* 138, 8:584 (Oct. 23), 1948.

Apparent, Not Real—Though recognized polio has become less frequent in early childhood, there is no evidence to indicate that the disease is more common in adults. There has been only a proportionate increase in the older ages.

DAUER, C. C. Trends in Age Distribution of Poliomyelitis in the United States. *Am. J. Hyg.* 48, 2:133 (Sept.), 1948.

Unrealized Productive Years—Questioning the adequacy of crude numbers of deaths as the sole measure of

the relative importance of the various causes, these two men have developed new measures for ranking causes of death, that take into consideration the age at death as well as the number of deaths. They call the measure "life years lost" and "working years lost." If that idea doesn't intrigue you, I wonder what will.

DICKINSON, F. G., and WELKER, E. L. What Is the Leading Cause of Death? *J.A.M.A.* 138, 7:528 (Oct. 16), 1948.

Epoch Making—Every health library, personal or agency, should have this account of the organization of the current program of WHO. For the first time, a single health organization broad in scope and world-wide in representation is established.

DOULL, J. A., and KRAMER, M. The First World Health Assembly. *Pub. Health Rep.* 63, 43:1379 (Oct. 22), 1948.

Yes, and No—These four papers constitute a sort of second-thought in the matter of controlling air-borne respiratory infections by ultra-violet radiation. Earlier and enthusiastic findings are cooled somewhat. Though the air-borne route was only partially blocked, the researchers conclude that their findings suggest that improved methods may yet be found effective.

Du BUI, H. G., *et al.* An Evaluation of Ultraviolet Radiation of Sleeping Quarters as Supplement of Accepted Methods of Disease Control (and three related papers). *Am. J. Hyg.* 48, 2:207 (Sept.), 1948.

Anent Keeping New-borns with Their Mothers—Rooming-in confers advantages alike on the baby, the mother, and the lying-in hospital, assert these two reviewers, who predict that

the method will receive more serious consideration in the future.

FIELDS, H., and ROSE, E. K. "Rooming-In". *Am. J. M. Sc.* 215, 6:710 (June), 1948.

With Good Care—Premies, too, seem to do pretty well on a semi "self-demand" feeding schedule. There were emotional and administrative advantages.

GLASER, K. Semi-Self-Demand Feeding Schedule for Prematurely Born Infants. *Am. J. Dis. Child.* 75, 3:309 (Mar.), 1948.

Learning by Doing—Five essential steps through which all productive teaching proceeds are set forth for the benefit of dietitians. The very same steps apply to your health educational goals whatever may be the label by which your job is known. Recommended reading for all.

HOULE, C. O. The Dietitian as a Teacher of Adults. *J. Am. Dietet. A.* 24, 10:837 (Oct.), 1948.

The Answer is NO—It says here, "From the data presented, there is reason to believe that since the introduction of insulin the 'true' diabetes mortality trend has been downward rather than upward as shown by official statistics." Having been about drowned in "hot water" resulting from an attempt to annotate an earlier statistical item, I am resolved to stay dry and cool, though the temptation to comment on this one is strong.

MORIYAMA, I. M. Is Diabetes Mortality Increasing? *Pub. Health Rep.* 63, 41:1334 (Oct. 8), 1948.

Food for Administrator's Thoughts—Health department food control has passed far beyond condemning spoiled meat and inspecting restaurants. Now it's a matter of guarding the public against the machinations of the light-fingered fringe of the food producers, processors, and distributors.

RILEY, R. H. The Health Department and the Food of the People. *J.A.M.A.* 138, 5:333 (Oct. 2), 1948.

After the Chest X-ray—Early returns from a community-wide tuberculosis survey in Minneapolis reveal both the feasibility and the worth of a complete diagnostic procedure. The proportion of previously unrecognized cases among the suspects was huge, and not one in ten of the active cases was previously known to the health department.

ROEMMICH, W., *et al.* Preliminary Report on a Community-Wide Chest X-ray Survey at Minneapolis, Minnesota. *Pub. Health Rep.* 63, 40:1285 (Oct. 1), 1948.

Objective Leadership Needed—Proposing a permanent national advisory and planning council on health, including representatives of the A.M.A., the A.P.H.A., and other organizations competent to deal with medicine and public health, to concern itself with long-term planning of research and program.

SIMMONS, J. S. The Challenge of Preventive Medicine. *Ann. Int. Med.* 29, 1:118 (July), 1948.

Now You Know It Is So—Fly breeding can be controlled by insecticides and by eliminating breeding places, and fly control will reduce *Shigella* and (to a lesser extent) *Salmonella* caused diarrheal diseases. You've always assumed these statements were true: here is your evidence.

WATT, J., and LINDSAY, D. R. Diarrheal Disease Control Studies. *Pub. Health Rep.* 63, 41:1319 (Oct. 8), 1948.

Lethal Agent—A medical push is added to the pressure being exerted to induce automotive engineers to redesign cars for safety rather than speed and snappy appearance. There is much that could be done to make automobiles reasonably safe conveyances rather than death traps. As accidental deaths creep nearer and nearer the top of the

ten commonest causes, health authorities, too, may in time take a hand in this life-saving pressure.

WOODWARD, F. D. Medical Criticism of Modern Automotive Engineering. J.A.M.A. 138, 9:627 (Oct. 30), 1948.

Note of Caution—Just in case you may be tempted to equip yourself with

fibrous glass-lined outer garments, you'd better read this item. The researcher was not able to confirm the claims that this insulating material offers warmth without weight.

YAGLOU, C. P. Thermal Insulation and Comfort Characteristics of Fibrous Glass-Lined Garments. J. Indust. Hyg. & Toxicol. 30, 5:312 (Sept.), 1948.

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

AETIOLOGICAL PRINCIPLE OF PYAEMIA IN ANCIENT EGYPTIAN MEDICINE. Robert O. Steuer. Baltimore: Johns Hopkins Press, 1948. 36 pp. Price, \$1.50.

BACTERIAL AND MYCOTIC INFECTIONS OF MAN. Edited by Rene J. Dubos. Philadelphia: Lippincott, 1948. 739 pp. Price, \$5.00.

CASE OF AUGUSTUS D'ESTÈ, THE. Douglas Firth. New York: Macmillan, 1948. 58 pp. Price, \$1.75.

COMMONSENSE PSYCHIATRY OF DR. ADOLPH MEYER. Edited by Alfred Lief. New York: McGraw-Hill, 1948. 677 pp. Price, \$6.50.

DIRECTORY OF PUBLIC HEALTH STATISTICIANS (4th ed.) American Public Health Association. New York: A.P.H.A., 1948. Free to Members of the Vital Statistics Section or \$1.00.

DISTRICT NURSING. Eleanor Jeanette Merry and Iris Dundas Irvén. Baltimore: Williams & Wilkins, 1948. 262 pp. Price, \$4.00.

DRUG RESEARCH AND DEVELOPMENT. Austin Smith and Arthur D. Herrick. New York: Revere, 1948. 608 pp. Price, \$10.00.

DRUGS YOU USE, THE. Austin Smith, with a Foreword by Morris Fishbein. New York: Revere, 1948. 237 pp. Price, \$3.00.

FOOD-PLANT SANITATION. Milton E. Parker. New York: McGraw-Hill, 1948. 447 pp. Price, \$6.00.

FIELD TRAINING FOR PUBLIC HEALTH PERSONNEL IN THE MICHIGAN COMMUNITY HEALTH PROJECT. Battle Creek, Mich.: Kellogg Foundation. 128 pp.

FOOD PRODUCTS. Henry C. Sherman (4th ed.) New York: Macmillan Co., 1948. 409 pp. Price, \$4.80.

HEALTH PROGRESS 1936 TO 1945. A Supplement to 25 years of Health Progress. Louis I. Dublin. New York: Metropolitan Life Insurance Co., 1948. 147 pp.

HEALTH TEACHING IN SCHOOLS. Ruth E.

Grout. Philadelphia: Saunders, 1948. 320 pp. Price, \$4.00.

HYGIENE OF THE BREASTS, THE. Clifford F. Dowkontt. New York: Emerson, 1948. 222 pp. Price, \$2.50.

LABORATORY MANUAL FOR PHYSICIANS. Aids in Diagnosis and Treatment. Issued by Division of Laboratories and Research. Albany, 1948. (9th ed.) New York: State Department of Health. 126 pp.

LIVER INJURY. Transactions of the 7th Conference January 15-16, 1948. New York, N. Y. Edited by F. W. Hoffbauer. New York: Josiah Macy, Jr. Foundation. 95 pp. Price, \$1.50.

LOCAL PLANNING AND ZONING. A Manual of Powers and Procedures for Citizens' and Governmental Officials. Albany, N. Y.: Bureau of Planning, Department of Commerce, 1948. 82 pp.

MAN-MADE PLAGUE. William G. Niederland. New York: Renbayle House, 1948. 298 pp. Price, \$3.50.

MANUAL FOR MEDICAL RECORDS LIBRARIANS. Edna K. Huffman (2nd ed. rev.) Chicago: Physicians' Record, 1948. 357 pp. Price, \$4.50.

MATHEMATICAL METHODS FOR POPULATION GENETICS. Gunnar Dahlberg. New York: Interscience, 1948. 182 pp. Price, \$4.50.

MICROBES MILITANT: A CHALLENGE TO MAN. Frederick Ebersson. New York: Ronald Press, 1948. 401 pp. Price, \$4.50.

PEDIATRICS AND THE EMOTIONAL NEEDS OF THE CHILD. Edited by Helen L. Witmer. New York: Commonwealth Fund, 1948. 180 pp. Price, \$1.50.

PERSONAL AND COMMUNITY HEALTH. C. E. Turner (8th ed.) St. Louis: Mosby, 1948. 565 pp.

PHYSICAL EXAMINATION OF SELECTIVE SERVICE REGISTRANTS. (3 Volumes) Selective Service

- System, 1947. Washington, D. C.: Superintendent of Documents, Government Printing Office, 1948.
- PROCEEDINGS OF AN INSERVICE TRAINING COURSE IN HEALTH EDUCATION TECHNIQUES. Honolulu, Hawaii: Territorial Department of Health.
- REPORT OF THE SANITARY COMMISSION OF MASSACHUSETTS, 1850. Lemuel Shattuck and Others. Cambridge, Mass.: Harvard University Press, 1948. 321 pp. Price, \$4.50.
- STORY OF BLOOD, THE. John H. Glynn. New York: A. A. Wyn, 1948. 285 pp. Price, \$3.00.
- STANDARD METHODS FOR THE EXAMINATION OF DAIRY PRODUCTS. New York: American Public Health Association, 1948. 373 pp. Price, \$4.00.
- SHAME OF THE STATES, THE. Albert Deutsch. New York: Harcourt, Brace, 1948. 188 pp. Price, \$3.00.
- TECHNIQUE OF TREATMENT FOR THE CEREBRAL PALSY CHILD. Paula F. Egel. St. Louis: Mosby, 1948. 203 pp. Price, \$3.50.
- TEXTBOOK OF ANATOMY AND PHYSIOLOGY. Diana Clifford Kimber and Carolyn E. Gray. Revised by Caroline E. Stackpole and Lutia Leavell. (12th ed.) New York: Macmillan, 1948. 773 pp. Price, \$4.00.
- A TEXTBOOK OF ENTOMOLOGY. Herbert H. Ross. New York: Wiley, 1948. 532 pp. Price, \$6.00.
- UNDERSTAND YOUR CHILD—FROM 6 TO 12. Public Affairs Pamphlet No. 144. Clara Lambert. New York: Public Affairs Committee, 1948. 32 pp. Price, \$20.
- YOUR BABY. Gladys Denny Schultz and Lee Forest Hill. Garden City, N. Y.: Doubleday, 1948. 278 pp. Price, \$3.50.
- THE FOLLOWING REPORTS HAVE BEEN RECEIVED
- ADOPTION IN NEW YORK CITY. Report of an Inquiry into Adoptions and Related Services by the New York City Committee on Adoptions. New York: Welfare Council of New York City, 1948. 99 pp. Price, \$1.25.
- AIR CONDITIONING IN TEXTILE MILLS. A Research Department Technical Report. New York: Textile Workers Union of America. 60 pp.
- ALABAMA, ANNUAL REPORT OF THE STATE DEPARTMENT OF HEALTH 1946. Montgomery, Alabama: State Department of Health. 252 pp.
- BRATTLEBORO MUTUAL AID ASSOCIATION, INC. A Neighborhood Association for Mutual Help in Sickness. Brattleboro, Vermont: Mutual Aid Association, Inc. 24 pp.-
- CITY OF CHICOPEE, MASSACHUSETTS 1947 ANNUAL REPORT OF THE DEPARTMENT OF HEALTH. Compiled by Paul Martel and Pauline Jette. 31 pp.
- DICKINSON COUNTY HEALTH DEPARTMENT, 11th ANNUAL REPORT—1947. Iron Mountain, Mich.: Dickinson County Health Department, 1948. 37 pp.
- DIVISION OF LABORATORIES AND RESEARCH—ANNUAL REPORT 1947. New York State Department of Health. Albany, N. Y.: State Department of Health. 178 pp.
- DOUGLAS SMITH HEALTH EDUCATION SERVICE. A 12 Year Health Service and Recreation Program for Young Working Women of Low Income (1932–44). Margaret Lovell. Plumley. Chicago: Douglas Smith Health Education Service, Publication Committee, 1948. 100 pp.
- EDUCATION FOR PROFESSIONAL RESPONSIBILITY. A Report of the Proceedings of the Inter-Professions Conference on Education for Professional Responsibility held at Buck Hills Falls, Pa., April 12–14, 1948. Pittsburgh: Carnegie Press, 1948. 203 pp.
- EXTERN-CLINICIANS. Preliminary Report and Statistical Report 1948. Jackson, Miss.: State Board of Health, 1948. 13 pp.
- GUARDING THE HEALTH OF BALTIMORE. A Summary of the 133rd Annual Report of the City Health Department, 1947. Baltimore, Md.: Department of Health.
- HEALTH IN RENSSELAER COUNTY, NEW YORK, ANNUAL REPORT FOR 1947. New York: Rensselaer County Department of Health.
- INTERNATIONAL APPROACHES TO PROBLEMS OF UNDEVELOPED AREAS. Paper Presented at the Round Table. 1947 Annual Conference of the Milbank Memorial Fund, November 19–20, 1947. New York: Milbank Memorial Fund, 1948. 76 pp. Price, \$25.
- INTERNATIONAL HEALTH DIVISION—ANNUAL REPORT 1947. New York: Rockefeller Foundation. 209 pp.
- LIST OF SPECIES MAINTAINED IN THE NATIONAL COLLECTION OF TYPE CULTURES. Medical Research Council Memorandum No. 21. London: His Majesty's Stationery Office, 1947. 17 pp. ninepence.
- LOS ANGELES COUNTY HEALTH DEPARTMENT—Annual Report 1947–1948. Los Angeles, Calif.: Department of Health, 1948. 71 pp.
- PRETORIA, SOUTH AFRICA, CITY COUNCIL OF. 42nd Annual Report of the Medical Officer of Health for the Year 1945–1946. 85 pp.
- PROGRESS REPORT—JULY 1, 1943 TO OCTOBER 31, 1947. Chicago Venereal Disease Control Program in Coöperation with U. S. Public Health Service. Chicago, Ill.: Chicago Board of Health.

Public Health in Foreign Periodicals

GEORGE ROSEN, M.D., PH.D.

FRENCH COLONIAL MEDICINE

The currently best selling novel, *The Plague (La Peste)*,¹ by Albert Camus is not only an admirable literary creation, but also an effective reminder of the medical problems faced by the French in their overseas possessions, and of their efforts to solve them. French achievements in the field of colonial medicine may be judged by the fact that among those who have participated in this work are such outstanding scientists as Alphonse Laveran, Albert Calmette, A. Yersin, Charles Nicolle, and Edmond Sergent.

In January, 1890, at the request of Pasteur, Albert Calmette was sent to Saigon in Cochin China to organize the first microbiological laboratory in a French colony. Several years later, in 1896, Emile Marchoux founded the first African laboratory at Saint-Louis du Sénégal. Subsequently, such laboratories were established in most of the French colonies. Some of these were branches of the Pasteur Institute at Paris. Among them may be mentioned the Pasteur Institutes at Saigon, Brazzaville, Hanoi, Dakar, and Tananarive. These establishments were founded to investigate and to find means for controlling the endemic and epidemic diseases that hindered the development of the particular regions. Three recent publications offer an illuminating review of some of these activities in French West Africa and in North Africa.

In a comprehensive survey entitled *L'Oeuvre des Pasteuriens en Afrique Noire, Afrique Occidentale Française*,² Constant Mathis deals with the work of the Pasteur institutes at Dakar and

Kindia in French West Africa, as well as with subsidiary establishments in the French Sudan, the Ivory Coast, and Dahomey. Mathis devotes the first part of his survey to biographical sketches of the various medical men who applied the methods of modern medicine to the control of disease in these French possessions. The second part of his account deals with the specific disease problems of the separate territories that make up French West Africa. Among the more important diseases of man that have required attention are malaria, sleeping sickness, amebiasis, leishmaniasis, plague, spirochetoses, tuberculosis, leprosy, cholera, yellow fever, dengue, murine typhus, ankylostomiasis, filariasis and rabies. In addition, the Pasteur Institute at Kindia deals with veterinary pathology, particularly with animal trypanosomiasis, piroplasmosis, anthrax, spirochetosis of horses, bovine and equine plague, tuberculosis, and peripneumonia. It is impossible to summarize the many detailed studies and the interested reader is referred to the original.

It is worth noting that these colonial investigators were almost all students of Félix Mesnil, the *Altmeister* of protozoölogy. Mesnil, a zoölogist by training, came to the Pasteur Institute at Paris in 1892, and in 1897 Laveran chose him as a collaborator. He thus provided a link between the heroic age of microbiology (Pasteur, Laveran, Roux) and the present. Edmond Sergent recently published an interesting appreciation of Félix Mesnil and his work.³

From March 23 to 26, 1948, the Institut d'Hygiène et de Médecine

d'Ostre-Mer de l'Afrique du Nord, which is in Algiers, celebrated the twenty-fifth anniversary of its foundation.⁴ On this occasion various aspects of public health work in Algiers were reviewed. The programs for the control of syphilis and tuberculosis, blood bank organization, and the prevention of blindness in Algiers were all discussed. In addition, papers were presented on the incidence of cancer in the French overseas possessions, health education in Algeria, and on occupational hygiene among Moslem artisans.

HISTORY OF AN ALGERIAN MARSH

In the course of the anniversary celebration, the visitors were shown a project of particular interest. This was the former marsh of Ouled Mendil, where the Pasteur Institute of Algiers had carried out a first class antimalarial program, as a result of which it had been possible to settle and to make available for cultivation an area of 300 hectares, that had previously been deserted because of the ravages of malaria. The brothers Sergeant who carried out this program have recently presented their experiences in a volume entitled *Histoire d'un Marais algérien* (History of an Algerian marsh).⁵

The vector in the Ouled Mendil area was *A. maculipennis* var. *labbranchiae*, one of the most formidable anophelines in the Mediterranean region. Mosquito suppression was accomplished principally by applying a kind of natural process of filling in the land (*colmatage* in French). The torrential streams that pour down from the Sahel hills during the rainy season carry earth and sand. By gathering the water in a series of rectangular basins where it could be held, the earth and sand settled out. The water was then decanted. As these basins were situated in the lowest portions of the marsh, it was possible to build up the land at these points so that the water could no longer stagnate

there. At the same time, drainage was carried on through 42 kilometers of drains, ditches, and irrigation canals. Where it was impossible completely to suppress the water by means of basins or drains, *Gambusia holbrooki* was introduced into the water to devour the larvae. In the low-lying areas which were most difficult to drain, 45,000 trees, chiefly *Eucalyptus algeriensis*, were planted. The Sergeants speak of these trees as living pumps.

This undertaking was begun in 1927 and completed in 1936. The marsh, which in 1926 was still figured on the map of the area put out by the geographical service of the French Army, was missing on the map issued in 1936.

The splenic index of the inhabitants was 53 per cent before the antimalarial campaign was begun. After systematic medication of the population with quinine, the index dropped to 6 per cent in a few years.

Mosquito suppression and treatment of the human reservoir made it possible to undertake cultivation of this vast unproductive terrain. Two experimental farms were set up and five wells were dug. In 1946, for the feeding of laboratory animals, there were sown on this land 163 hectares of cereals and 40 hectares of fodder (lucerne, vetch and oats, clover, maize).

Finally, the authors point out that none of the pioneers who cleared and drained the marsh, and who began to cultivate it ever had malaria. There were 46 Europeans who lived on the two farms continually, and who were susceptible to the disease. Furthermore, none of the native workers were ever absent because of malarial fever.

There is no doubt that the history of this Algerian marsh is of considerable interest to anyone interested in the malaria problem. It is well written and belongs on the same shelf as Hackett's *Malaria in Europe*.

DDT AND CATTLE TICKS

Edmond Sergent has recently carried out experiments in the field to determine whether DDT is effective against cattle ticks.⁶ It was tested against all stages of the ticks (larval, nymphal, and adult) and was found to exert no preventive action, that is, it did not prevent the ticks from attaching themselves and feeding on the cattle. Nor did DDT exhibit any curative action, that is, ticks already attached did not detach themselves.

ABSENCE OF POST-VACCINAL
ENCEPHALITIS IN ALGERIA

In a brief note, Edmond Sergent points out that in the course of twenty-eight years (1910–1937) the Pasteur Institute of Algeria has produced more than 50 million doses of smallpox vaccine, without a single case of post-vaccinal encephalitis being reported.⁷

TOUAT — A STUDY IN MEDICAL
GEOGRAPHY

After two years spent at Touat in the Sahara as physician to the native population, P. Devors has collected all his observations on the geography, history, sociology, and medicine of this region in the form of a brief monograph.⁸ According to this author certain diseases such as plague, rabies, and tetanus are absolutely unknown in Touat. On the other hand, the venereal diseases and trachoma are extremely widespread. Diabetes has never been observed among the inhabitants of Touat, and there appears to be an almost complete absence of acute abdominal syndromes. Malaria is present, but the endemicity is not high. Occasionally epidemic outbreaks occur. Typhus fever had not occurred before 1941, and its appearance coincided with the epidemic that ravaged North Africa. No authentic case of typhoid fever has ever been reported. Ascariasis is extremely common and has been observed in 70

per cent of the population. It is a frequent cause of intestinal troubles.

All in all, this monograph is worthy of attention as a type of medical literature—the medical topography—which was very common in the 18th and 19th centuries but appears only infrequently at present.

CANCER IN FRENCH WEST AFRICA
FROM 1940 TO 1946

Within recent years French public health programs in the overseas possessions have broadened just as in other parts of the world. One of the problems to which attention has turned is cancer.⁹ Denoix presents a brief analysis of the incidence of cancer during the past six years in French West Africa. This is based on a system of reporting by which identifying data, history and pathological nature of the neoplasm are entered by the doctor on a special card. The card accompanied by any biopsy or autopsy material is then sent to the local pathological laboratory where the histological diagnosis is added. Then the card is forwarded in duplicate to the National Institute of Hygiene in Paris. Where no histological material accompanies the card, it is sent directly to the Institute. On the basis of the material collected in this way it was found that 35 per cent of all the recorded cases were due to cancer of the liver. For comparative purposes it is noted that in Parisians the incidence is 4 per cent. Other striking facts noted are the relatively large number of sarcomata, and the frequency of epithelioma of the leg.

CANCER IN SOUTHERN ALGERIA AND
THE SAHARA

Montpellier and Montpellier review the literature on the incidence of cancer in Southern Algeria and the Sahara.¹⁰ From the available data they conclude that cancer is apparently rare, yet they also raise the question whether this is

really the case. Of the 118 cases reported, 84 were epitheliomas and 32 sarcomas. One of the striking findings is the high incidence of cancer of the skin. One of the sources of error is the fact that it is difficult to obtain data on neoplasms of the female genital organs.

BIRTH WEIGHTS AND GROWTH OF NATIVE INFANTS IN THE FRENCH SUDAN

Public health authorities are also concerned about improving infant health. Canivet reports on a study during 1943-1945 of the weight at birth and the rate of growth of Sudanese infants as compared with those in France.¹¹ There were 17,504 Sudanese infants and the average birth weight was found to be 2,823 grams, more than 400 grams less than that of French white infants. First born infants are between 300 and 400 grams lighter in weight than those born subsequently. Two factors are held to account for these findings. In the first place native mothers are extremely young; secondly, the period of suckling lasts for 18 months to two years, and during this period the woman remains apart from her husband. Consequently there is a period of two to three years between the birth of the child and that of the second. Another extremely important factor is the hard physical work and poor diet that the Sudanese mother must endure especially during the period from September to November when it is necessary to work in the fields and food is scarce. In contradistinction to the regulated mode of feeding prevalent in France, the Sudanese infant is suckled by an undernourished mother in a completely irregular fashion. The only supplementary feeding is adult food previously masticated by the mother. This is reflected in the fact that while the rate of growth of the Sudanese infant is more rapid at first, it slows down after the fourth month.

This study contains a number of interesting comparisons and deserves close reading.

ANOPHELINES, MALARIA AND ALTITUDES IN CENTRAL AFRICA

Schwetz points out that his observations on the absence of anopheline vectors of malaria (*A. gambiae*) and of autochthonous malaria at altitudes of 2,000 meters were confirmed in Abyssinia by Castelli, Corradetti, and by Lega, Raffaele, and Canalis.¹² He attributes the small outbreak of malaria observed by Garnham in Kenya at an altitude of 2,800 meters to the introduction of *A. gambiae* from a lower neighboring area. Finally he adds that the only other report, that of Martin, claiming the existence of apparently autochthonous cases of malaria at Addis Ababa ought to be reexamined.

REFERENCES

1. Camus, Albert. *La Peste*. Paris: Gallimard, 1947 (English translation by Stuart Gilbert, New York: Alfred A. Knopf, 1948).
2. Mathis, Constant. *L'Oeuvre des Pastoriers en Afrique Noire, Afrique Occidentale Française*. Paris: Presses Universitaires de France, 1946.
3. Sergeant, Edmond. *Le Professeur Félix Mesnil, Zoologiste et Chef d'École en Médecine coloniale, Alger, Institut Pasteur d'Algérie* (1948). Originally published in *Revue de la Méditerranée*, 5, 1948.
4. 25^e Anniversaire de l'Institut d'Hygiène et de Médecine d'Outre Mer de l'Afrique du Nord 1923-1948, Alger, Imprimerie Nord-Africaine (1948).
5. Sergeant, Edmond, and Sergeant, Etienne. *Histoire d'un marais algérien*, Institut Pasteur d'Algérie, 1947.
6. Sergeant, Edmond. Insecticide D.D.T. et tiques du boeuf. Deuxième note, *Archives de l'Institut Pasteur d'Algérie*, 26:15-20, 1948.
7. Sergeant, Edmond. Inexistence de l'encéphalite postvaccinale en Algérie. *Archives de l'Institut Pasteur d'Algérie*, 26:105, 1948.
8. Devors, P. Le Touat. Étude géographique et médicale. *Archives de l'Institut Pasteur d'Algérie*, 25:223-274, 1947.
9. Denois, P. Le Cancer en A.O.F. de 1940 à 1946. *Bull. Inst. National d'Hygiène*, 2:272-288, 1947.
10. Montpellier, J. M., and Montpellier, J. Le cancer dans le Sud algérien et le Sahara. *Cahiers Médicaux de l'Union Française*, 3:103-112, 1948.
11. Canivet, J. Étude des médecins coloniaux du Soudan français sur le poids de naissance et la croissance pondérale du nourrisson noir. *Bull. Inst. National d'Hygiène*, 2:344-351, 1947.
12. Schwetz, J. Anophèles, paludisme et altitude en Afrique centrale. *Revue du Paludisme et de Médecine Tropicale*, 6:69-73, 1948.



Left to right: Dr R E Dyer, Director, National Institutes of Health; Dr. George K. Strode representing Dr. René J. Dubos of Rockefeller Institute; Dr. Vincent du Vigneaud, Cornell University Medical College; Dr. George Baehr, President, New York Academy of Medicine and Chairman, Lasker Awards Committee; Mrs. Albert D. Lasker of Lasker Foundation; Dr. Paul R. Hawley, former Chief Medical Director, Veterans Administration; Dr. Martha M. Elot, Associate Chief, U. S. Children's Bureau; Dr. Paul B. Magnuson, Chief Medical Director, Veterans Administration, and Dr. Selman A. Waksman of Rutgers University and N. J. Agricultural Experiment Station.

THE LASKER AWARDS FOR 1948

THE Lasker Awards of the American Public Health Association are presented annually by the Albert and Mary Lasker Foundation to men and women in the field of medical research and public health administration whose efforts have contributed to, or will in time result in, the vastly improved health status of the peoples of the earth. In addition, outstanding work or research done by large groups where it is impossible to single out any one individual, is honored.

The awards are given not only to honor the recipients and dramatize their accomplishments but also to arouse increased professional and public interest in medical research and public health administration and to aid in the rapid dissemination of new medical information.

The Lasker Awards for 1948 were conferred on November 11, 1948, at the Second General Session of the 76th Annual Meeting in Boston, Mass. Five individuals and one group were honored. The beautifully illuminated citations read as follows:

To Professor Vincent du Vigneaud, for his outstanding and basic studies of transmethylation, including the concept that methyl groups are essential in animal nutrition; and for contributions to the chemistry of biotin and penicillin

Professor Vincent du Vigneaud has contributed richly to progress in the science of biological chemistry. Out of his early interest in the structure and metabolism of sulfur compounds, arose a new concept in regard to the essential role of methyl groups and amino acids in animal nutrition. These discoveries have been especially fruitful in regard to understanding the functions of the liver and kidneys, but they have no such limitation—they have given many new windows through

which the chemist, the biologist, and the physician can visualize changes that characterize all living cells.

In the field of vitamins, Dr. du Vigneaud's accomplishments, in collaboration with his associates, have included extensive structural and functional studies of vitamin H, or biotin. Following the isolation of biotin, its detailed structure was established by their work and the assigned formula was confirmed by synthesis in independent laboratories.

During the war years, Dr. du Vigneaud worked intensively on the chemistry of the critically needed antibiotic, penicillin. This work culminated in the creation of a synthetic product and proof of its identity with natural penicillin.

Few men are privileged to make so many basic discoveries and to establish experimental findings so clearly. Dr. du Vigneaud's achievements in biological chemistry have had, and will continue to have, an extraordinary influence upon scientific research in many laboratories throughout the world. In addition, a record of his contributions should include reference to his rare gift of friendship, his training of outstanding young biochemists, and his skill as a lecturer.

Because he has advanced the frontiers of our knowledge of fundamental living processes, the American Public Health Association is honored to present to him a Lasker Award for 1948.

To R. E. Dyer, M.D., for his outstanding administrative achievement in the organization and administration of the Research Grants Division of the National Institute of Health of the U. S. Public Health Service.

The Lasker Awards of the American Public Health Association are made in recognition of outstanding scientific or administrative achievements in medicine and public health. In recommending an award in 1948 to Dr. R. Eugene Dyer, the Association has the unusual privilege of honoring him in a dual capacity, for his scientific accomplishments in the field of microbiological research and for the administration of the National Institute of Health during the war and the post-war years, and, more recently, of the Research Grants Division of that Institute of the U. S. Public Health Service.

As a modest man of science, Dr. Dyer would undoubtedly have preferred to have the names of his associates and collaborators in the U. S. Public Health Service included in this citation. Yet with all due recognition of their valuable contributions, it was Dyer who consistently devoted most of his scientific career to the

advancement of our knowledge of the rickettsial diseases of the United States, which culminated in the demonstration that the rat flea was the vector responsible for transmission of this so-called "murine typhus" to human beings.

Dr. Dyer's unusual administrative abilities and scientific distinction led ultimately to his appointment as Director of the National Institute of Health. In this capacity he greatly expanded the physical facilities of that agency and broadened the scope of its research programs in many directions. The scientific contributions of the National Institute of Health, especially during the period of the war, have never been adequately recognized by our Government or by the people of this country. Under Dr. Dyer's leadership during the war years, the Institute concentrated all its resources upon the advancement of scientific knowledge important for the war effort and unselfishly contributed its labors to the common effort in collaboration with the research services of the armed forces, the Committee on Medical Research of the National Research Council, the Office of Scientific Research and Development, and many other official and nonofficial scientific agencies. Throughout the war, the important scientific contributions of the Institute were pooled with those of others without thought of reward or even recognition. It is therefore not surprising that they remain unheralded.

Shortly after the end of the war and the termination of the wartime Office of Scientific Research and Development, the Congress continued an important program of financial assistance to medical research with annual appropriations allocated to teaching institutions and research centers of the country through the U. S. Public Health Service. As Director of the National Institute of Health, it was Dr. Dyer's responsibility to devise the operational organization for the study of hundreds of applications for the support of research from scientific investigators and institutions throughout the country, to evaluate their relative merit and to determine the reasonableness of their financial needs. This was accomplished through the utilization of the National Advisory Health Council, consisting of eminent experts in the various medical sciences, together with representatives of the research divisions of each of the armed services and other government agencies.

The National Advisory Health Council is in turn served by Scientific Study Sections for each of the major divisions of medical research. These Study Sections, which include some of the best scientific minds in this

country with a fair measure of geographic representation, study in detail all applications for grants-in-aid for research projects in their respective fields, and recommend appropriate action to the National Council.

The remarkable efficiency with which these applications of extraordinary number and complexity have been processed by the staff of the Research Grants Division of the National Institute of Health, and the effective and impartial manner in which millions of dollars are awarded annually by this Division to support and stimulate medical research throughout the country and to train hundreds of young investigators under a broad program of fellowships, has captured the admiration of the American Public Health Association.

In making this Award to Dr. Dyer, the Association wishes to bring these extraordinary services of a man and of a great federal agency to the attention of the Congress and of the people of the United States.

To Martha M. Eliot, M.D., for her outstanding administrative achievement in the organization and operation of the Emergency Maternal and Infant Care Program.

For more than two decades, Dr. Martha M. Eliot has been a courageous and inspiring leader for improvement in standards of medical care for mothers and infants. As Director of the Division of Child and Maternal Health, Children's Bureau, U. S. Department of Labor, and subsequently as Assistant and Associate Chief of the Bureau, she has been a militant advocate of increasing government participation in the improvement of health services throughout the nation.

The passage of the Social Security Act of 1935 with the allotment of federal funds to the states for the provision of direct services brought new responsibilities and new opportunities. It is impossible to evaluate fully at this time the effect of the new services made possible by these funds upon the health of mothers and children throughout the nation. It is not without significance, however, that during this period maternal and infant mortality rates dropped sharply. One cannot look at these years of achievement without seeing in them a continuing theme, a calm and determined insistence that a better quality of care could and must be available to all mothers and children.

Early in the war, it became apparent that, among the many problems resulting from the dislocation of populations and the development of large military establishments distant from medical centers, medical services for

mothers and children were not being maintained at a satisfactory level. This difficulty was further aggravated by the depletion of the limited medical resources of many of these communities, inevitable in a country at war.

The rapidly increasing birth rate associated with the war made increasing demands for obstetrical and pediatric services for the wives and children of service men, all too frequently in communities where these services were at a low level. Martha Eliot was quick to recognize the need for new methods to meet these new problems. Funds allocated to the states for general maternal and child hygiene were promptly diverted to meet this emergency need. Out of this beginning grew a nation-wide Emergency Maternal and Infant Care program, organized and operated by Dr. Eliot, to provide adequate medical service for the wives and infants of service men of the four lowest pay-grades, financed through generous appropriations by the Congress.

This huge program was extraordinarily difficult to administer, for the need for quick action did not permit slow and cautious planning or the leisurely arbitration of differences of opinion among the many interested groups. A new pattern for efficient coöperation between government and hospitals and physicians and community agencies was developed, which worked.

As a contribution to the mental health and the morale of the men in the armed forces as well as their families, it made a unique contribution to the success of our war effort. Millions of mothers and babies benefited by the program. Quite possibly, the greatest good that history will attribute to the program will be the demonstration of the possibilities of government coöperation with hospitals and with physicians and nurses in the provision of good medical service.

It is not surprising that other nations and various international groups have called upon Dr. Eliot for advice and counsel. She gives unstintingly of herself, not only for the solution of post-war problems at home, but also through the United Nations Childrens Emergency Fund and the World Health Organization, to the problems of the mothers and children of war-ridden countries throughout the world.

On this occasion, the American Public Health Association has selected Dr. Martha M. Eliot for a Lasker Award for 1948, in appreciation of distinguished administrative achievement in organizing and administering the Emergency Medical and Infant Care program and the skill with which she enlisted the support of the medical and public health

professions on behalf of this national project.

In making this award, it is the hope of the Association that it may call to the attention of the approximately 14,500,000 veterans of World War II and of the people of this nation the unrepayable debt which they owe to this woman.

To Selman A. Waksman, Ph.D., and René J. Dubos, M.D., for outstanding scientific achievement in studies of the antibiotic properties of soil bacteria, especially streptomycin.

The value of man's health and well-being of fundamental research is well exemplified by the researches of Selman A. Waksman and of René J. Dubos, recognized throughout the world for their outstanding contributions to science.

Their studies on the relations of association and antagonism of mixed microbiological populations of the soil have not only contributed to our basic knowledge of bacterial metabolism, but also have demonstrated the antibiotic properties of soil bacteria of immediate value to man.

Dr. René J. Dubos, by applying the principle of enrichment of soil with pathogenic bacteria, isolated a spore-forming bacterium capable of bringing about lysis of certain Gram-positive organisms. He first isolated from the spore-forming bacteria specific crystalline substances such as tyrothricin that are powerful bacterial antagonists, thus contributing materially to the subsequent development in the field of antibiotics.

Dr. Selman A. Waksman's studies on the microorganisms of the soil have led to the discovery of a host of antibiotics, among them streptomycin, one of the most potent available to medicine today. It has permitted successful treatment of diseases due to bacteria which are resistant to penicillin. It also affects the growth and viability of the tubercle bacillus and favorably influences the course of some clinical varieties of human tuberculosis.

The studies of these scientists have again emphasized the importance of fundamental research in that, by increasing our knowledge

concerning the activities of soil organisms, they have at the same time elucidated roles which microorganisms can play in maintaining the health of man.

To Department of Medicine and Surgery, Veterans Administration, and especially to Drs. Paul R. Hawley and Paul B. Magnuson, in recognition of the efficient program developed by them to provide modern medical care for the millions of veterans who helped in the defense of America during World War II.

Undaunted by the universal lack of medical personnel and the tremendous problems of America's post-war demobilization, the Veterans Administration enlisted the wholehearted cooperation and assistance of the entire medical profession and provided for our veterans the best medical attention and care available anywhere in the world. Modern medical facilities were assembled, efficient hospitals and clinics were established throughout the nation, and, with the aid of a committee of the Deans of the Medical Schools, a permanent medical staff of extraordinary ability was recruited.

Today, many Veterans Hospitals are affiliated with medical schools and maintain standards of medical service comparable with those of the best teaching institutions. This great demonstration of efficient medical service provides an opportunity to test out under practical conditions new methods and procedures which should help in the eventual development of a more effective program of medical care and public health in the entire country.

The American Public Health Association has selected the Department of Medicine and Surgery of the Veterans Administration and its former chief medical director, Dr. Paul R. Hawley and its present medical director, Dr. Paul B. Magnuson for a Lasker Award of 1948 in recognition of extraordinary accomplishments on behalf of more than 18,750,000 veterans, and their significant contributions to medical administration in America.

ASSOCIATION NEWS

OFFICERS, 1948-1949

President—Charles F. Wilinsky, M.D., Boston, Mass.

President-Elect—Lowell J. Reed, Ph.D., Baltimore, Md.

Vice-Presidents:

Guillermo Arbona, M.D., Santurce, P.R.

Albert E. Berry, Ph.D., Toronto, Ont., Canada

Florence R. Sabin, M.D., Denver, Colo.

Treasurer—Louis I. Dublin, Ph.D., New York, N. Y.

Executive Secretary—Reginald M. Atwater, M.D., New York, N. Y.

Chairman of Executive Board—Hugh R. Leavell, M.D., Boston, Mass.

New Members of Executive Board:

Leona Baumgartner, M.D., New York, N. Y.

Thomas F. Sellers, M.D., Atlanta, Ga.

CHARLES F. WILINSKY, M.D., PRESIDENT OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

Dr. Charles F. Wilinsky of Boston, the Director of Beth Israel Hospital and Deputy Health Commissioner for the City of Boston, assumed the Presidency of the Association at the close of the 76th Annual Meeting in Boston on November 12, having served as President-Elect since 1947.

Dr. Wilinsky, who is a native of Warsaw, Poland, was brought to the United States at the age of ten years by his parents. He was educated in the public schools of Springfield and Lowell, Mass., and received his medical degree in Baltimore in 1904. Harvard University gave him an honorary A.M. in 1941.

Dr. Wilinsky began the general practice of medicine in 1904 in Boston and became a school physician in the Boston Health Department in 1909, advancing to the ranks of medical inspector and district health officer to become the organizer and director of the Blossom Street Health Unit in 1916. Since 1922 Dr. Wilinsky has served as Director of Boston's health centers and Deputy Commissioner since 1925. He

has been Director of Beth Israel Hospital since 1928 and has occupied many positions of distinction in the field of hospital administration in the Massachusetts Hospital Association, the New



CHARLES F. WILINSKY, M.D.

England Hospital Assembly, and the American Hospital Association.

Dr. Wilinsky, who has been a member of the American Public Health Association since 1922, has served on program committees, standing committees, special committees, the Executive Board, and the Governing Council. He was Chairman of the Section on Child Hygiene in 1931 and was made President-Elect in October, 1947.

There is hardly a medical or public health activity in Boston, in Massachusetts, or in New England with which Dr. Wilinsky has not been actively identified and his influence has been felt nationally through membership in the Advisory Council of the U. S. Public Health Service and of the Medical Advisory Board of the American National Red Cross.

In speaking editorially of Dr. Wilinsky as a successor of Lemuel Shattuck in Massachusetts, the *Boston Globe* on November 9 said "For 38 years Dr. Wilinsky has been part of Boston's health service. He has combined several careers, doing each of them superbly, as physician, public health official, and hospital administrator. In addition, his imagination and ability to bring scattered agencies into a united purpose have been serving not only the great city but the entire country by the example offered in Boston. . . . Co-operation with many private health agencies has been achieved by Dr. Wilinsky's skill at producing harmony in good works. Both public and private workers for the physical well-being of the community are finding the way to pull together for the common good."

SEDGWICK MEMORIAL MEDAL TO DR. WOLMAN FOR 1948

THE Sedgwick Memorial Medal for 1948 was awarded to Abel Wolman, Dr. Eng., Professor of Sanitary Engi-

neering in the School of Hygiene and Public Health, and the School of Engineering, The Johns Hopkins University, on November 9, during the Seventy-sixth Annual Meeting of the American Public Health Association in Boston. James S. Simmons, M.D., Dean of the Harvard School of Public Health, and Chairman of the Sedgwick Memorial Award Committee, made the presentation. In his presentation, Dean Simmons gave the following citation:

"Since the Sedgwick Memorial Medal was first awarded in 1929 there have been seventeen recipients selected for their distinguished service in public health. The special interests of those recognized have included epidemiology, teaching, laboratory studies, and administration. In 1948 we honor an engineer and a sanitarian, representative of the kind of person in whose training William Thompson Sedgwick excelled. Sedgwick was always described in *Who's Who* as a sanitarian, and to the development of



ABEL WOLMAN, DR. ENG.

this field of public health he gave his life.

"Abel Wolman is a native of Baltimore where he spent a professional life which now has national and international influence. He began his distinguished career as an assistant engineer in the U. S. Public Health Service in 1913. Nine years later, after serving his own state in junior positions, he was appointed Chief Engineer in the Maryland State Department of Health, a position he held from 1922 to 1939. His influence as a teacher was notable from his early years, and for a decade he has served as Professor of Sanitary Engineering in the School of Hygiene and Public Health of Johns Hopkins University as well as in the School of Engineering at Johns Hopkins, and as lecturer in other universities. Both through his teaching and through his consultative services his influence has been felt across the continent and abroad, through the students whom he has trained and through the leaders he has inspired in visits made overseas.

"Even two departments of a great university have been unable to contain all of Abel Wolman's energies, and his public service has been felt in posts such as Chairman of the Maryland State Planning Commission and Chairman of the Advisory Committee on Sanitary Engineering of the National Research Council. His contributions to numerous professional societies are evident in such organizations as the American Society of Civil Engineers and the American Association for the Advancement of Science. For 17 years he was Editor in Chief of the *Journal of the American Water Works Association*, and in 1942 he served as President of that Association. Most notable have been his contributions through the American Public Health Association which he served as President from 1938 to 1939 and as Chairman of the Executive Board from 1939 to 1948. He also served as first Chairman

of the Committee on Research and Standards. More recently he has been consultant to the Atomic Energy Commission. If one were to list in detail all his connections it would spell out other reasons which have led the committee to make this unanimous decision.

"Even more important, however, is the man Abel Wolman himself. His career illustrates the kind of public service which Professor Sedgwick held in the highest esteem and which was so well illustrated in his own life. Wolman's influence on students has been like Sedgwick's. There has been a similar overflowing of teaching into the practical aspects of community life, a generous and wise giving of himself to causes larger than himself and of which he became a part. The clarity of his thoughts has been notable. His wisdom and statesmanship are of rare quality and, in conference, his word generally keynotes ultimate conclusions. He has not hesitated to take his stand on critical issues or to espouse unpopular causes. The ready acceptance of his leadership reflects the sureness of his position. It also carries recognition of the quality and character that mark a man of distinguished ability.

"In the name of William T. Sedgwick and of the American Public Health Association, I therefore hand to you Professor Wolman the Sedgwick Memorial Medal for distinguished service in public health."

Dr. Wolman, in accepting the Award, made the following response:

"The much quoted aphorism of John Donne that 'no man is an Iland, intire of itselfe' must have been uppermost in the minds of the Committee on the Sedgwick Memorial Award when they selected me as the recipient for 1948. I like to believe that the committee, in making this choice, is giving due honor to that professional group, the sanitary engineer, which has labored so long and so successfully in the public

health field. My limited contributions to the prevention of disease were possible only because of the support and inspiration of my associates. For all of them I accept this award with en-

thusiasm. That my name is permanently associated with it, I shall cherish forever, even though I cannot help but put it down as one of the pleasurable accidents of history."

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Kenneth O. Courtney, M.D.C.M., D.T.M.&H., Box 383, Balboa Heights, Canal Zone, Asst. to Chief Health Officer, Canal Zone Health Dept.

Jack B. Eason, M.D., M.S.P.H., 551 City Hall, Spokane, Wash., City Health Officer

Paul W. Hughes, M.D., M.P.H., Alachua County Health Dept., Box 491, Gainesville, Fla., Asst. Director, State Board of Health Training Center.

Charles H. Miller, Jr., M.D., M.S.P.H., Golconda, Ill., Medical Director, Quadri-County Health Dept.

David E. Olsson, M.H.A., Rt. 1, Box 46, 2241 Ensenada Way, San Mateo, Calif., Administrative Resident, San Jose Hospital

William A. Smith, M.D., State Board of Health, Raleigh, N. C., Director of Tuberculosis Control

Alvin Sweeney, M.D., Gallinger Municipal Hospital, Washington, D. C., Superintendent

Enrique Villalobos-Carranza, M.D., Alcanfores 165, Miraflores, Lima, Peru, S. A., Medico-jefe, Departamento de Malaria, Direccion General de Salud Publica

Laboratory Section

Thayer W. Burnham, M.S., 1012 W. Dayton St., Madison, Wis., Director, Laboratory Division, Dept. of Public Health

Maryelizabeth Powers, 2240 Everett No., Seattle 2, Wash., Bacteriologist, State Dept. of Health

J. Cecil Rhodes, M.S., Hillside Ave. & Johnson St., Jenkintown, Pa., Director and Owner, Medical Arts Laboratory

Walter E. Ward, M.D., Ph.D., Cutter Laboratories, Berkeley, Calif., Medical Director

Vital Statistics Section

Lucille Amos, M.A., 240 S. 4th St., Minneapolis, Minn., Reporting Methods Analyst, Tuberculosis Control Division, U. S. Public Health Service

Margaret W. Chamberlin, 300 Oak Vue Ave., Concord, Calif., Senior Public Health Analyst, Division of Laboratories, State Health Dept.

Colin W. Churchill, Johns Hopkins Hospital, Baltimore 5, Md., Director of Employer Relations and Assistant Professor of Public Health Administration

Harry W. Clark, Jr., M.A., State Health Dept., State Office Bldg., Albany, N. Y., Junior Statistician

Claire E. Condell, 86 Malvern St., Melrose 76, Mass., Asst. Biometrician, State Dept. of Public Health

Catherine M. Corcoran, Health Dept., 116 Temple St., Los Angeles 12, Calif., Reporting Methods Analyst, U. S. Public Health Service

Ellen C. Garges, 2950 Northampton St., N.W., Washington 15, D. C., Statistician, Tuberculosis Control Division, U. S. Public Health Service

Herbert F. Hirsche, M.P.H., 12 Chelsea Lane, West Hartford 7, Conn., Health Director's Asst. and Director, Bureau of Vital Statistics, Hartford Health Dept.

Philip S. Lawrence, D.Sc., 40 Greenfield Rd., Hagerstown, Md., Biostatistician, Division of Public Health Methods, U. S. Public Health Service

Pauline Lee, Unit P-21, Univ. Village, 29 & Como Aves., S.E., Minneapolis 14, Minn., Formerly Public Health Analyst, State Dept. of Public Health (California)

Lillian S. K. Louis, M.S.P.H., 1060 Koko Head Ave., Honolulu 26, T.H., Statistician, Bureau of Health Statistics, Territorial Dept. of Health

Arthur J. McDowell, 3810 39th St., N.W., Washington 16, D. C., Chief, Statistical Analysis Branch, Medical Statistics Division, Surgeon General's Office, Dept. of the Army

Henry G. Page, M.A., Dominion Bureau of Statistics, Ottawa, Ont., Canada, Chief, Vital Statistics and National Index Section, Health and Welfare Division

Beulah M. Runge, P. O. Box 804, Springfield, Ill., Statistician, Division of Vital Statistics and Records, State Dept. of Public Health
 Edwin T. Tracy, State Dept. of Health, Drawer K., Sta. A., Hartford, Conn., Asst. Director of Vital Statistics
 Vera E. Troyer, 944 South First St., Springfield, Ill., Local Health Activities Statistician, State Dept. of Public Health
 William E. Uzzell, M.A., 848 Amsterdam Ave., N.E., Atlanta, Ga., Chief Statistician, Central Statistical Unit, State Dept. of Health
 Robert L. Ware, M.D., 2625 N. 18th St., Arlington, Va., Director, Medical Statistics Division, Bureau of Medicine and Surgery, Navy Dept.

Engineering Section

Alfred Baker, Box 352, Ketchikan, Alaska, Sanitarian, Territorial Dept. of Health
 Oliver H. Johnson, 1504 Fisk, Pullman, Wash., College Sanitarian, Washington State College
 Major Raymond J. Karpen, M.S.C., 615 22 St., N.W., Washington, D. C., Sanitary Engineer, Preventive Medicine Division, U. S. Army
 John A. Petsche, C.E., 10814 Penfield Ave., Cleveland 5, Ohio, Village Engineer, Cuyahoga Heights Village
 Donald L. Snow, M.S., 3950 Langley Ct., N.W., Washington 16, D. C., Sanitary Engineer, U. S. Public Health Service

Food and Nutrition Section

Eloise S. Cofer, M.S., Ogleboy Hall, Morgantown, W. Va., Specialist, Foods and Nutrition, Agriculture Extension Service
 Evelyn H. McDonald, M.S., 48 West 138 St., Apt. 11E, New York, N. Y., Health Education Asst., Bureau of Health Education, Dept. of Health

Maternal and Child Health Section

Audrey A. Bill, M.D., M.P.H., Old Sudbury Rd., Wayland, Mass., Student, Harvard School of Public Health
 Marion S. Dressler, M.D., 1165 Birch St., Denver, Colo., Director, Crippled Children's Section, State Health Dept.
 Margaret A. Losty, 201 West 16 St., New York, N. Y., Consultant Public Health Nurse, Maternity and Newborn Services, Dept. of Health
 B. Frederic Skinner, Ph.D., 8 Ellsworth Ave., Cambridge, Mass., Professor of Psychology, Harvard University
 June L. Triplett, Courthouse, Owatonna, Minn., Public Health Nurse, Steele County Public Health Nursing Service

Public Health Education Section

Edward A. Benjamin, M.S.P.H., 1910 Vermont Ave., N.W., Washington, D. C., Health Education Consultant, U. S. Public Health Service
 Carmen F. del Rosario, 311 Greene St., New Haven, Conn., Student, Yale University
 Lynde Fales, Box 1058, Juneau, Alaska, Health Education Technician, Territorial Dept. of Health
 Louise Giventer, 411 East 69 St., New York, N. Y., District Secy., Health Council of Greater New York
 Felix A. Grisette, M.A., 216 N. Dawson St., Raleigh, N. C., Exec. Director, Venereal Disease Education Institute
 Joseph B. Kane, 429 Dickinson St., Philadelphia 47, Pa., Chief Sanitary Inspector, Dept. of Health
 Sari P. Mayo, M.Ed., 1230 Amsterdam Ave., New York 27, N. Y., Student, Teachers College, Columbia University
 Thomas E. Roberson, M.S.P.H., 1437-Q St., N.W., Washington, D. C., Health Education Consultant, U. S. Public Health Service
 Genevieve F. Steefel, 2808 West River Rd., Minneapolis 6, Minn., Exec. Secy., Governor's Citizen's Committee on Mental Health
 Grace B. Taranto, 1539 Jackson Ave., New Orleans, La., Public Health Representative, U. S. Public Health Service District No. 4
 Aileen H. Tuttle, M.P.H., 1128 No. Broadway, Seattle, Wash., Asst. Health Educator, Seattle and King County Health Dept.
 Greta K. Yager, R.N., M.P.H., 50 Revere Rd., Munsey Park, Manhasset, N. Y., Health Educator, Manhasset Public Schools

Public Health Nursing Section

Mary A. Collins, R.N., Hillsdale Co. Health Dept., 39 North St., Hillsdale, Mich., Acting Supervising Nurse
 Lois R. Forsythe, R.N., M.P.H., 1715 So. University, Ann Arbor, Mich., Staff Nurse, Ford Motor Company and Nurse, Univ. Elementary School
 Evelyn A. Grillo, R.N., 213 Main St., South Fork, Pa., unemployed at present

Epidemiology Section

Benjamin D. Blood, D.V.M., 23 Pine St., Arlington 74, Mass., Student, Harvard School of Public Health
 Stephen Moi Kee Hu, Sc.D., 1965 Pauoa Rd., Honolulu, T. H., Chief, Bureau of Mosquito Control, Territorial Dept. of Health
 Lawrence Kilham, M.D., 695 Huntington Ave., Boston, Mass., Instructor in Epidemiology, Harvard School of Public Health

Arturo C. Reyes, M.D., M.P.H., Institute of Hygiene, Univ. of Philippines, Manila, P. I., Asst. Professor

School Health

John G. Harris, Huntington High School, Newport News, Va., Health and Physical Education Teacher, Newport News School System

Frederick A. Meier, M.S., 28 Stetson, Whitman, Mass., Dean of Men and Director of Health and Physical Education, Bridgewater State Teachers College

Marian V. Miller, M.A., Stephen F. Austin State College, Nacogdoches, Tex., Coördinator of Health Education

Unaffiliated

Julio Monroig-Delgado, Dept. of Health, Stop 19, Santurce, P. R., Chief, Bureau of Administration

Mark Eisenbud, M.D., 276 Riverside Drive, New York 25, N. Y., Resident in Medicine, Mt. Sinai Hospital

M. Ewan, Health Dept., City Hall, New Westminster, B. C., Canada, Health Inspector, City of New Westminster

Augusta F. Foster, M.D., Apt. 532, 410-420 Memorial Drive, Cambridge, Mass., Asst.

Director, Division of Cancer and Other Chronic Diseases, State Dept. of Public Health

Quentin S. Gonser, 504 Ave. E, Bismarck, N. D., Director, Division of Administration, State Health Dept.

Eva Gooden, 526 S. Indiana, Anaheim, Calif., Principal Clerk, Orange County Health Dept.

Harold J. Harris, M.D., 20 Fifth Avenue, New York 11, N. Y., Clinical and Laboratory Research, and Consultant in Brucellosis

Blas C. Herrero, M.D., 1918 Dekle Ave., Tampa 6, Fla., Private Practice

Morris Klapper, M.S., 447 E. 14 St., New York 9, N. Y., Asst. Director, Committee for the Care of the Jewish Tuberculous

Ira H. Lockwood, M.D., 830 Argyle Bldg., Kansas City 6, Mo., Radiologist, Research Clinic, Blue Cross and Blue Shield

William F. Lyons, M.D., D.V.M., 128 Hemenway, Boston, Mass., Student, Harvard School of Public Health

John T. Morrison, M.D., 8 Oak Lane, Mountain Lakes, N. J., Asso. to Director, Rural Hospital Division, Commonwealth Fund

Fern E. Snedder, 2511 Hearst Ave., Berkeley 2, Calif., Asso. in Medical Care Administration, School of Public Health, Univ. of California

DIRECTORY OF PUBLIC HEALTH STATISTICIANS

The Vital Statistics Section of the Association announces publication of the *Directory of Public Health Statisticians*, the fourth edition of what was known previously as the *Vital Statistics Directory*.

This Directory contains the names of 1,300 persons actively engaged in the collection, processing, analysis, or publication of public health statistics, including vital statistics and medical sta-

tistics. A copy of the *Directory* was sent to each member of the Vital Statistics Section without charge. It sells to non-members for \$1.00.

The *Directory of Public Health Statisticians* was compiled with the assistance of 63 key persons in the United States and Canada, under the direction of the Vital Statistics Section's Committee on Membership and Directory, Iwao M. Moriyama, Ph.D., *Chairman*.

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

(Supplemental to list in November Journal)

POSITIONS AVAILABLE

Director of Public Health Nursing: rural county located in Central California, generalized nursing service, six staff nurses; starting salary \$4,000.

Public Health Staff Nurses, same locality as above; forty hour, five day week; 6¢ mileage allowed for use of personal car; beginning salary \$3,120. Write: Health Officer, Merced County Department of Public Health, P. O. Box 1350, Merced, Calif.

Public Health Nurses for Ulster County; generalized program; salary range \$2,400-\$2,880; 6¢ mileage for use of own car. Write: Adele Didrickson, R.N., Director, Public Health Nursing, 15 Main Street, Kingston, N. Y.

Public Health Engineer for the directorship of a specialized home safety experimental program. Excellent opportunity for a man with initiative to win national recognition in this specialized field. Salary \$4,200 plus car allowance.

Health Educator (M.P.H. and experience required) for generalized public health educational program with emphasis on School Health, Home Safety, and Cancer. Territory includes City of 56,000 and County of 48,000. Supporting staff of 36. Salary \$3,600 plus travel. For both above positions write: Dr. W. B. Prothro, Health Department, Kalamazoo, Mich.

Assistant Public Health Biologist to do water pollution control work and some medical entomology. Graduate of accredited college with major in biology. Salary \$2,880-\$3,480 at start plus field expenses. State Civil Service position with vacation, sick leave and retirement privileges. Write: Director Division Water Pollution Control, Minnesota Department of Health, Minneapolis 14, Minn.

Staff Nurses for generalized program in rural area within short distance from University of Michigan. Salary \$235-\$250 monthly depending on experience and qualifications. Travel allowance, liberal personnel policies, opportunity for study during summer. Car essential. Write: Director, Lenawee County Health Department, Adrian, Mich.

Director of Nursing; to supervise and direct a school for practical nurses in a chronic disease hospital in Maryland. Applicants should have a B.S. in nursing; one year's study in teaching and supervision of nursing or in hospital administration; one year of experience in teaching and supervision of nursing in school of nursing or hospital plus one year as Director of School of Nursing in a 100 bed hospital or as Assistant Director in a larger hospital. Position offers full maintenance, vacation and sick leave, retirement benefits and security of employment. Write: Dr. James A. McCallum, Ritchie Hospital, Cascade, Md.

Executive Director for nursing division of progressive public health department in Pacific Northwest. Generalized program in metropolitan area under joint administration of city health department and visiting nurse service. County health department recently merged with city department. Starting salary, \$5,040. Civil service status. V.N.A. experience necessary. Write: Joanna Eckstein, Seattle Visiting Nurse Service, 504 County-City Bldg., Seattle 4, Wash.

Supervisor of Public Health Nurses. Generalized service: Director, three supervisors and staff in health unit containing sixty full-time positions. Area adjacent to District of Columbia. Population 130,000 urban and rural. Salary \$3,200-\$3,680, retirement system, liberal annual and sick leave. Write Montgomery County Health Department. Rockville, Md.

Assistant Director, (Maternal and Child Health). Beginning salary \$516 per month, with the Los Angeles County Health Department. California Physician's License will not be required until appointment is offered. An M.D. degree from an approved medical school and at least two years' recent experience in the practice of medicine in a public health department is required. Six months of experience must have been in maternal and child health. Write: Los Angeles County Civil Service Commission, Room 102, Hall of Records, Los Angeles 12,

Calif. Applications accepted until December 15, 1948.

Public Health Nurses. Immediate openings available. Generalized public health program; \$2,700 salary to start or more depending on qualifications plus \$900 travel allowance. Write: Director, Ottawa County Health Department, Grand Haven, Mich.

Public Health Staff Nurse, Negro, School Health Department. Base Salary \$2,600-\$2,900 depending on qualifications; 5 day week, 1 month's vacation, retirement plan. Community 124,000 population, adjacent to Washington, D. C. Write: Claire A. Christman, M.D., School Health Department, 1800 North Edison Street, Arlington, Va.

Public Health Nurse for official agency. Newly organized six county rural unit. Salary depends on qualifications \$200-230; 15 day vacation and sick leave, 38½ hr. week. Mileage allowance. Write: Director, Northeast Colorado Health Department, Box 1296, Sterling, Colo.

Health Officer with outstanding ability and experience for the Health Department of Alexandria, Va. Write: City Manager, Alexandria, Va.

Director of Public Health Nursing—Challenging opportunity in a combined agency financed by official and nonofficial funds; generalized program; graduate affiliation with two university programs. Staff consists of 13 public health nurses, 1 clinic nurse, 1 general supervisor, 1 educational supervisor, 2 secretaries and 1 clerk. One hour from New York City. Salary open. Write Box A-37, Employment Service, A.P.H.A.

Public Health Officer for Grays Harbor County, entrance salary \$7,440 with the range reaching \$9,120. County popu-

lation 55,000 located on the western portion of the State of Washington. Write: Arthur L. Ringle, M.D., State Director of Health, 1412 Smith Tower, Seattle, Wash.

Staff Nurses with minimum education in public health nursing, with or without experience. Pleasant working conditions, generalized program both urban and rural, sick leave, car allowance, salary range \$2,400 to \$2,880. Write: McLean County Health Department, 1009 North Park St., Bloomington, Ill.

Staff Public Health Nurse, generalized service includes rural schools, TB, VD, C.H.C. and M.C.H. programs. Salary range \$250-\$300; car allowance 6¢ mileage, P.H.N. certificate required. Coast County near San Francisco. Write: Dr. R. O. Ingham, Health Officer, Santa Cruz County Dept. of Health, Santa Cruz, Calif.

Public Health Nurses needed in New York City Health Department. General service. Immediate appointment on provisional basis. Starting salary \$2,400, 35 hour week, liberal vacation allowance, in-service training. Write or come to the Bureau of Nursing, City Health Department, 125 Worth Street, New York 13, N. Y.

Sanitary Engineer—Bachelor's degree in engineering from an accredited college or university; at least one year of post-graduate study in sanitary or public health engineering; four years' experience in sanitary engineering and all phases of sanitation; age between 21 and 45 years. Salary range \$275-350 plus \$60 per month travel allowance. Examinations to be held December 20 in locations convenient to those meeting the minimum requirements. For applications write: Little Rock Civil Service Commission, Room 214, City Hall, Little Rock, Ark.

POSITIONS WANTED

Physician, former Health Unit Director, former Director and Chief Medical Examiner of employment center large industrial concern during war years, available on part- or full-time basis in New Orleans, La., area. For further information write: Box Ph-9, A.P.H.A. Employment Service.

Dentist (D.M.D. Tufts)—10 years' private practice, also teaching and research experience. Male, 39 years, married, veteran. Interested in preventive program including administrative responsibilities. Write Box D3, Employment Service, A.P.H.A.

Advertisement

All communications should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

Opportunities Available

WANTED—(a) Public health physician to direct new program; duties principally administrative; California. (b) Public health physician to conduct program in one of the South American countries; headquarters in city of 300,000. (c) Student health physician; well known college in Southeast. (d) Medical director; public school system, having more than 80 schools, school population of nearly 70,000; city of 400,000; university medical center; West. (e) Director of venereal disease control; state health department; Middle West. (f) Medical director, health service of national organization; \$7,200-\$9,000; headquarters one of several large cities. (g) Professor of preventive medicine; should be qualified to teach preventive medicine and public health with a primary emphasis on preventive medical aspects; university medical school; East. (h) Field physician; duties consist of establishing local health chapters throughout country; considerable traveling; administrative public health experience required; \$8,000-\$10,000. PH12-1 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

WANTED—Dentists trained or experienced in public health for the following: (a) Administrative appointment, voluntary health agency conducting children's dental clinics in various parts of the city and suburbs; East. (b) Appointment as regional consultant; county health department, having two urban areas; South. (c) To conduct city health school program; senior post; North Carolina. (d) To take charge of fast finding two-chair clinic; will be assisted by full-time dental assistant and orthodontist one day weekly; splendid opportunity for practicing pedodontia. (e) To conduct dental health program in Alaska; year's contract. PH12-2 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

WANTED—(a) Health educator; municipal tuberculosis society; one of the largest cities east of the Mississippi; opportunity for developing service. (b) Nutritionist to take charge of department; city health department; Middle West. (c) Health educator; county health department; headquarters in town of 90,000; East; \$5,000. (d) Sanitary engineer to join division of engineering and sanitation of county department of health; headquarters in large metropolis; Middle West. (e) Public health engineer; state department of health; headquarters in town of 30,000. (f) Sanitary chemist; qualified to conduct lake pollution investigation; laboratories of state university; Middle West. (g) Sanitary chemist or bacteriologist; research project sponsored by university and city health department; Southwest. (h) Public health engineer to direct specialized home safety experimental program; health department serving city of 50,000 and rural area of 48,000; Middle West. PH12-3 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

WANTED—(a) Public health nurse to supervise nursing staff, municipal health department; town of 100,000; short distance from Chicago; \$4,500. (b) Public health nurse qualified in teaching; new program; fairly large city in one of the Latin American countries. (c) School nurse; approximately 1,200 students, town of 8,000; Middle West. (d) Public health nurse to direct children's clinic; university medical center; West; \$4,200. (e) Assistant professor of public health nursing; eastern university. (f) Health coordinator; duties divided between nursing education and nursing service; teaching hospital; university medical center; East. (g) Director of public health nursing; state department of health; generalized program; headquarters in college town of 20,000; West; \$4,000. PH12-4 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

Advertisement

Opportunities Wanted

Physician well qualified as health educator; B.S., M.D., and Master of Health degrees; several years, director of university health service where he has carried a rather heavy teaching load; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Sanitary engineer; B.S. in Civil Engineering with Sanitary option; considerable work toward Master's degree in Public Health Engineering; eight years, director of sanitation, state health department; four years, sanitary engineering in foreign fields; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health physician; medical degree, eastern school; M.P.H., Harvard; six years, director, county health department; in 1938 reorganized city health department and remained as its director;

teaching experience; available for relocating because of desire for broader administrative responsibilities; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health nursing executive; M.S. degree, Health Education and Public Health; six years, executive secretary, county tuberculosis association; seven years, director, metropolitan public health nursing association; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health dentist; master's degree in Public Health; has done considerable research on problem of dental caries; prefers public health dentistry or teaching position in pedodontia; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

NEWS FROM THE FIELD

ROCKY MOUNTAIN CONFERENCE ON LOCAL HEALTH UNITS

A second five state regional Conference on Local Health Units was held in Salt Lake City on October 6 and 7. Attended by 71 persons representing League of Women Voters, Farm Bureau, Home Economics Association, Congress of Parents and Teachers, Junior League, Junior Chamber of Commerce, Federation of Labor, as well as state medical societies, health committees, tuberculosis associations, agricultural extension services, and health departments, it served to generate the power that will carry the message of expanded local health protective services over the transmission lines of every valley in the five states of Colorado, Idaho, Montana, Utah, and Wyoming.

Utah as the host state had the largest representation of 21 persons; Idaho had 14 and far outstripped any of the others in the broadness of its representation; Colorado's delegation numbered 10; Montana and Wyoming each sent 4 persons. Eighteen special guests and resource persons included the regional directors of the Federal Security Agency and of the American Red Cross, the health officer and director of local health administration of Oregon, and New Mexico's director of local health administration.

The Conference, requested by the respective state health officers who selected and captained their state teams, was sponsored by the National Advisory Committee on Local Health Units of the National Health Council. It was in general charge of the Council's Associate Director, John W. Ferree, M.D., and its Assistant Director for Community Organization, S. S. Lifson. Haven Emerson, M.D., father of *Local Health Units for the Nation*, was present to give the

background of the program and to summarize the Conference. The A.P.H.A.'s former director and associate director of field service, Carl E. Buck, Dr.P.H., and George T. Palmer, Dr.P.H., respectively were present for consultation and advice.

Following the pattern set by the Indiana Conference in April, this Conference devoted one day to committee work on four major problem areas in extending health services. Based on the cross-pollination of these problem committees, the second day was concerned with state problems, each state delegation sitting as a state committee.

Each state committee made a report to the whole Conference on the program it would promote in its own state. Colorado, for example, has a master plan for 13 health jurisdictions within the state which it will work toward securing through necessary legislation, through securing adequate salaries to attract personnel and through educational work with citizen groups. Colorado now has 20 counties and 65 per cent of the population served through eight health jurisdictions of one or more counties. In these units there are three health officer vacancies and 22 of 36 public health nursing positions are unfilled. This state suggested the use of teams of professional workers to set up demonstrations of local health services in communities as a community education technique.

The Idaho Committee reported its intention to work for the organization of six health jurisdictions within the state as recommended in *Local Health Units for the Nation*, and now official with the health department. This state has made a particular effort to draw into the program the widest possible variety of participation by citizen and voluntary health agencies. The state group ex-

pressed its determination to proceed with the completion of the state plan. It also went on record as favoring co-operation among the Rocky Mountain states in supporting the medical schools of Colorado and Utah, particularly for the training of public health physicians.

The Montana group reported an educational program in the state to inform citizens of the significance of the permissive health unit law passed in 1945. About 15 voluntary county health councils have been formed in the state due largely to the influence of the State Health Planning Committee.

Utah's group reported its chief need to be a state plan formulated and publicized by the State Board of Health, and made a specific recommendation that a carefully selected committee study the problem, and with technical assistance, formulate a plan, develop a state health council, and encourage local community councils. Small units of government without sufficient population and resources which are attempting to maintain separate public health services were recognized by this group as a fundamental obstacle.

The Wyoming group reported a plan to support permissive health unit legislation. Upon passage of the Act, it is hoped to set up public health units in six cities which will be used as the nuclei for district health units. In addition, rural health centers in four towns are projected, centers that will be directed in the early stages from the State Health Department.

The Conference, on recommendation of its separate problem or state committees, adopted a number of recommendations. Some of these are summarized as follows:

1. A master plan for the development of local health services should be adopted and published by the state health authority.
2. Where necessary, legislation should be developed providing for county and multi-

ple county health units including the cities of the county.

3. Local health departments should be so organized as to have fiscal and other administrative control within the department, operating on the basis of standards approved by the state health authority.
4. Additional federal funds, such as provided for in S 2189, should be made available as a further means of financing local health departments.
5. The development of state and local health councils is the chief means at hand for creating aggressive professional and lay leadership. Such councils should include geographic, agency—voluntary, public, professional, and citizen—and personal representation, and should use existing organizations in evolving a program.
6. In order to attract and retain qualified personnel in the field of public health, public health physicians should be recognized as specialists on the same plans as other medical specialists, and other professional groups should be similarly recognized as specialists, public health workers should be given adequate facilities and salaries commensurate with their services to the community and comparable to similar training and responsibility of professional workers in other fields, reasonable opportunity for professional and financial advancement should be provided and inservice training made available.

As a part of the problem of meeting the serious shortage of professional personnel suffered by each of the states, Dr. Florence R. Sabin, Chairman and motive power of the Colorado State Health Planning Committee, and now Manager of Denver's Health and Charity, reported tentative conversations among the separate state governors and the chancellors of the Universities of Colorado and Utah whereby their medical schools would be regional rather than state schools receiving official support from the states without medical schools on the basis of a formula to be worked out. The Idaho state group voted its complete support of such a plan and the entire Conference voted its only formal resolution on this subject as follows:

"Resolved that the Rocky Mountain Conference on Local Health Units endorses the

principles of inter-state coöperation in the establishment and development of professional training in fields which require greater personnel and financial support than can adequately and reasonably be provided by any single state in this region."

DIVISION OF AIR POLLUTION CONTROL IN PHILADELPHIA

In June, 1948, the Division of Air Pollution Control, Department of Public Health of Philadelphia, Pa., was established. The ordinance establishing the Division also prohibits certain practices which might be contributory to air pollution and requires that the Chief of the Division be an engineer with training and experience in design, construction, and operation of fuel-burning equipment and industrial processes, and also have qualifications at least equal to those required of a licensed professional engineer in Pennsylvania. An Air Pollution Control Board, consisting of seven members is also established.

SOUTHERN BRANCH A.P.H.A. PLANS CONSTITUTIONAL AMENDMENT

George A. Denison, M.D., P.O. Box 2591, Birmingham, Ala., Secretary-Treasurer of the Southern Branch, American Public Health Association, notifies the members of the Southern Branch through this notice of a proposed amendment to Article IV of the Constitution of the Southern Branch which would add to the list of officers "one delegate to the American Public Health Association." According to Dr. Denison this is to correct an omission in the original draft of the Constitution.

It is expected that the amendment will be voted on at the next meeting of the Southern Branch which will take place in Dallas, Tex., April 14-16, 1949.

CLEARING HOUSE OF CHILD LIFE RESEARCH

The U. S. Children's Bureau has set up a Clearing House for Research in Child Life as a center for information on

current research being undertaken by the various disciplines in the field of child life. As an initial activity the clearing house will canvass investigators in various fields for reports on current research which will be summarized in an information bulletin in 1949. This service was set up at the request of scientists who feel the need for a center that will promote collaboration and interchange of information. Clara E. Councell is director of the clearing house under the general supervision of the Bureau's Associate Chief, Martha M. Eliot, M.D.

AMERICAN INSTITUTE OF NUTRITION AWARDS

The American Institute of Nutrition announces three awards to be made at its annual meeting next spring. The Mead Johnson Co. award of \$1,000 will be given to the laboratory (non-clinical) or clinical research worker in the United States or Canada who has published during 1948 the most meritorious scientific report dealing with the field of the B-complex vitamins. While the award will be given primarily for publication of specific papers, it may be made to a worker for contributions over an extended period.

The Borden Award in Nutrition, \$1,000 and a gold medal, will be given for distinctive research by investigators in the United States and Canada which has emphasized the nutritive significance of the components of milk or of dairy products. The award will be made primarily for publication of specific papers.

The Osborne and Mendel Award of \$1,000, established by the Nutrition Foundation, Inc., for outstanding accomplishments in the general field of exploratory research in the science of nutrition, will be given to the investigator who is judged to have made the most significant published contribution in the year. While preference will be given to research workers in the United States

and Canada, investigators in other countries are not excluded.

Nominations must be in the hands of the chairman of the nominating committee by January 15, 1949. They should be accompanied by such data relative to the accomplishment of the nominee and his research as will facilitate the task of the committee of judges. Nominating committee chairman for the Mead Johnson Award is Harold H. Williams, Cornell University, Ithaca, N. Y.; for the Borden Award, James M. Orten, Wayne University College of Medicine, Detroit 26, and for the Osborne and Mendel Award, D. W. Woolley, Rockefeller Institute for Medical Research, New York.

NEW YORK LOCAL HEALTH OFFICERS ORGANIZE

Upstate New York full-time county and city health officers recently organized themselves into a Conference of County and City Health Officers, membership on which is limited to physicians doing full-time public health work in city or county departments of health. The object of this group is to (1) discuss administrative and other problems which arise in the program of the various full-time local departments of health; (2) to secure better coöperation between the State Health Department and local city and county departments.

Officers elected at the first meeting in May are:

Chairman—Dr. William A. Holla, Commissioner of Health, Westchester County

Vice-Chairman—Dr. C. A. Sargent, Commissioner of Health, Syracuse

Secretary-Treasurer—Dr. F. Robert Freckleton, Deputy Commissioner of Health, Rensselaer County

MINNESOTA PUBLIC HEALTH CONFERENCE MEETS

The Minnesota Public Health Conference held its second annual meeting in St. Paul, October 8, 1948. Guest speakers included Katherine F. Lenroot,

Chief, U. S. Children's Bureau; Alma Haupt, Director, Nursing Bureau, Metropolitan Life Insurance Company; Dr. Charles C. Wilson, Professor of Education and Public Health, Yale University; and R. W. Hart, District Engineer, U. S. Public Health Service, District No. 7 (Kansas City, Mo.). An honorary membership was presented to Dr. C. L. Scofield, of Benson, Minnesota, who has practised medicine in rural Minnesota for 64 years. The Conference which now has 220 active members, is applying for A.P.H.A. affiliation.

S. P. Kingston, Public Health Engineer of Rochester, was elected president for the coming year.

BOXING COMMISSION

New York State has enacted a law creating a nine member Medical Advisory Board to the State Boxing Commission in an effort to make boxing and wrestling less hazardous than the 11 deaths in 1946, 9 in 1947, and 12 in 1948 indicate. This board will formulate, for putting into effect by the Boxing Commission, new standards and regulations for the pre- and post-bout examination of boxers and wrestlers, and will institute other medical measures designed to prevent fatalities. Frank R. Ferlaine, M.D., attending physician, New York Post Graduate Medical School and Hospital, is Chairman.

CHLOROMYCETIN CLAIMED TO BE EFFECTIVE IN ROCKY MOUNTAIN SPOTTED FEVER TREATMENT

Maurice C. Pincoffs, M.D., of the Department of Medicine at the University of Maryland, Baltimore, reported late in October at the Army Medical Center in Washington on the treatment of 15 cases of Rocky Mountain spotted fever at the University Hospital. Chloromycetin treatment was begun from 3 to 11 days following the infection. Dr. Pincoffs believed the results to be definitely better than PABA. The

series of cases showed something over 2 days' interval to bring temperature to normal compared with 16 days in the average untreated case.

Joseph E. Smadel, M.D., also reported progress in combating scrub typhus and epidemic and murine typhus with chloromycetin.

NOBEL PRIZE IN MEDICINE TO DR. PAUL MUELLER

It was announced in Stockholm, Sweden, on October 28 that Dr. Paul Mueller of Basle, Switzerland, had been awarded the 1948 Nobel Prize in Medicine in recognition of his discovery of the insecticidal powers of DDT.

According to the report, the Award will amount to about \$44,000 and was to be presented on December 10.

DDT, which was first produced in 1874, was put to its present use in 1939 when Dr. Mueller at the Geigy Drug Industries Company in Basle discovered its insect killing properties.

Dr. Mueller who is 48 years of age has served since the age of 25 with the Geigy Laboratories with a principal interest in synthetic tanning substances. He visited the United States in 1945 on invitation of the United States Government. He is a native of Switzerland and received his Doctor's degree at the University of Basle in 1925.

AMERICAN ASSOCIATION OF PUBLIC HEALTH DENTISTS CHANGES MEMBERSHIP REQUIREMENTS

According to Carl L. Sebelius, D.D.S., Secretary of the American Association of Public Health Dentists, the requirements for active membership in the Association were changed during the recent annual meeting in Chicago, September 11-12.

A person is now eligible for active membership in the American Association of Public Health Dentists if the individual is a member of the American Dental Association and is a director or

assistant director of a state dental public health program or is administering or promoting a dental health program on a national, state, or local level.

PENNSYLVANIA PUBLIC HEALTH ASSOCIATION HOLDS ANNUAL MEETING

The 1948 Annual Meeting of the Pennsylvania Public Health Association was held at Williamsport, Pa., October 22-23, under the Presidency of Harriet L. Hartley, M.D., of Philadelphia.

The program included reviews of Pennsylvania's health facilities presented by Roscoe P. Kandle, M.D., Field Director, American Public Health Association and the Director of the Pennsylvania Health Survey which is nearing completion. Pennsylvania's hospital facilities were discussed by Hubley R. Owen, M.D., the Director of Pennsylvania's Hospital Survey and Medical Director of the Philadelphia Board of Education. P. F. Lucchesi, M.D., presented "Organized Medicine and Public Health" from the standpoint of the Commission on Public Health and Preventive Medicine of the Pennsylvania State Medical Society. Merl Greene Colvin, M.D., the County Medical Officer of Lycoming County, reviewed the activities under the present system of Pennsylvania's health laws.

Norris W. Vaux, M.D., Pennsylvania's Secretary of Health, and Honorary President of the Pennsylvania Public Health Association, presided at the Dinner Session at which the speaker was Professor C.-E. A. Winslow, Professor Emeritus of Public Health of Yale University School of Medicine and Editor of the *American Journal of Public Health*. He spoke on "Challenges to Health in Pennsylvania." The Association's Award of Merit was presented by Dr. Hartley to Charles H. Miner, M.D., of Wilkes-Barre, former Secretary of the Pennsylvania State Department of Health.

The second day was devoted to a

panel on venereal disease control under the Chairmanship of Reginald M. Atwater, M.D., Executive Secretary of the American Public Health Association. The participants included Alice DeBenneville, R.N., of the Public Health Nursing Society of Pittsburgh; Alvin Funke, M.D., of the Venereal Disease Clinic in Wilkes-Barre; Norman R. Ingraham, Jr., M.D., Venereal Disease Control Division, Philadelphia Department of Public Health; Roscoe P. Kandle, M.D., Field Director, A.P.H.A., and Robert E. Rothermel, M.D., Assistant Field Director, A.P.H.A.

The new officers of the Association for the coming year include Lorenzo G. Runk, Jr., M.D., of Phillipsburg, Pa., *President*; P. F. Lucchesi, M.D., of Philadelphia, *President-Elect*; and J. Clarence Funk, of Fayetteville, Pa., *Secretary*.

CANADIAN PUBLIC HEALTH ASSOCIATION ADOPTS A.P.H.A. STATEMENTS ON PROFESSIONAL QUALIFICATIONS

"With the hearty approval of the American Public Health Association, the qualifications recommended by that body for all personnel engaged in public health have been adopted by the Canadian Public Health Association, with the necessary changes to meet Canadian needs. Thus, Canadian standards will be generally in accord with standards in the United States. The importance of standards in Canada will be increasingly evident as health services are extended through the application of federal grants for public health." Editorial, *Canad. Pub. Health J.*, Sept., 1948.

NATIONAL INSTITUTES OF HEALTH CRE- ATES MICROBIOLOGICAL INSTITUTE

It is reported that in the present reorganization of the National Institutes of Health, Bethesda, there has been established a Microbiological Institute to conduct basic studies beyond the pur-

view of the Institutes on Cancer, on Heart Disease and on Dental Health. Emphasis will be placed on virus, rickettsial, bacterial, and tropical diseases. According to the *Washington Report on the Medical Sciences*, it is planned that the standardization of biologicals will be transferred to the new Institute. Dr. Victor H. Haas has been appointed director of the new unit. He has previously headed a malaria research project undertaken by NIH in coöperation with the University of Tennessee School of Medicine.

DR. SANDOR HORWITZ HONORED ON RE- TIREMENT IN ILLINOIS

At the Annual Conference of City, County, and District Public Health Officers of Illinois held in Springfield, October 25-29, Dr. Sandor Horwitz, State Health Superintendent for District No. 7, including Marshall, Putnam, Stark, Tazewell, and Woodford Counties, was honored at a special luncheon. Dr. Horwitz is retiring as of January 1 after devoting 38 years of service to public health in Illinois.

Speakers at the luncheon included Dr. Henrietta Herbolzheimer, speaking for Dr. Roland R. Cross; State Director of Public Health, as well as B. K. Richardson, Dr. Charles F. Sutton, Maude Carson, R.N., of the Division of Public Health Nursing, and others of Dr. Horwitz' associates. Dr. Horwitz received the gift of a traveling bag to mark the occasion, following which he presented a paper on the treatment of bulbar poliomyelitis.

FLORIDA PUBLIC HEALTH ASSOCIATION

The Florida Public Health Association held its 20th annual meeting in Panama City, October 6 and 7. The registration was more than 250. There was a wide panel of speakers and discussion leaders drawn from state practitioners of public health and related interests as well as out of state leaders.

Senator Claude Pepper was among the main speakers as were the candidates for the state governorship and the state superintendency of public instruction.

Roscoe P. Kandle, M.D., A.P.H.A.'s Field Director, spoke on the "Evaluation of Local Health Services" and W. T. Ingram, the Engineering Field Representative, on "Sanitation Administrative Practices." Other out of state speakers were:

K. Barbara Dormin, Consultant, Diabetes Section, U. S. Public Health Service

Franklin Foote, M.D., Executive Director, National Society for the Prevention of Blindness

John M. Henderson, Professor of Sanitary Science, Columbia University, School of Public Health

Pearl Shalot, Nursing Consultant, Mental Health Division, U. S. Public Health Service

Marjorie Spaulding, Senior Assistant Nurse Officer, City-County Health Department, Winston-Salem, N. C.

Dr. Clair E. Turner, Assistant to President, National Foundation for Infantile Paralysis

The following officers were elected:

President—T. E. Cato, M.D., Miami

First Vice-President—May Pyncheon, Jacksonville

Second Vice-President—Bertha King, Tampa

Secretary—Fred B. Ragland, Jacksonville

Treasurer—Elsie Hyatt, Jacksonville

PERSONALS

LOUIS BAZY, M.D., Chief Surgeon of the French National Railroads, in recognition of the operation endarterectomy which he developed for treating arteriosclerosis, received an Honorary Fellowship from the American College of Surgeons at a Convocation held in the Philharmonic Auditorium of Los Angeles, Calif., on October 22 as the closing ceremony of the 5 day Clinical Congress of the College.

MALCOLM A. BOUTON, M.D., New York District State Health Officer for Fulton and Montgomery Counties, has been appointed Health Commissioner

for the city of Schenectady, effective October 1.

LOUIS D. BROWN, has been appointed Secretary of the Governmental Research Association, 30 Rockefeller Plaza, New York, N. Y., effective September 1.

ANTON J. CARLSON, M.D.,† recently delivered the second annual Margaret Barclay Wilson memorial lecture at Hunter College, New York, on the subject "Diet and the Span of Life."

TORBJOERN O. CASPERSSON, Director of the Institute for Cell Research, Medical Nobel Institute of Stockholm gave the 16th series of Thomas William Salmon Lectures at the New York Academy of Medicine on November 8-10 under the general title, "Cell Function and Cell Growth in Normal and Pathologic Conditions, Studied by Quantitative Cyto-Chemical Procedures."

ERVAL R. COFFEY, M.D.,* Medical Director, U. S. Public Health Service, has taken over his new assignment as Regional Director for the Federal Security Agency in the Regional Office, Washington, D. C.

H. TRENDLEY DEAN, D.D.S.,* is Director of the National Dental Research Institute in the National Institutes of Health, Bethesda, Md. He has hitherto been Director of the Dental Division of the National Institute of Health.

HOWARD ENNES,† on leave as Chief, Extension and Training Section of the Venereal Disease Division, U. S. Public Health Service, is now Director of Public Health Education, Erie County, N. Y., Department of Health. Since September, 1947, he has been Executive Secretary of the Coöperative Studies in the Social and Educational Aspects of Venereal Disease Control, a joint project of the De-

* Fellow A.P.H.A.

† Member A.P.H.A.

partment of Public Health of Yale University and the Venereal Disease Division of the Service.

L. W. FRAME, M.D., on October 1 became Director of the Division of Communicable Disease Control, West Virginia State Department of Health.

JAMES GIBBARD,* who has long served on the staff of the Laboratory of Hygiene, Department of National Health and Welfare, Ottawa, Canada, has been promoted to be Chief of the Laboratory, succeeding R. J. GIBBONS, M.D.,* resigned.

MARGUERITE F. HALL, Ph.D.,* formerly Associate Professor of Public Health Statistics, University of Michigan, Ann Arbor, has been appointed Director of the Bureau of Vital Statistics, New Jersey State Department of Health.

GEORGE HANNA, civil engineer formerly with a Syracuse, N. Y., construction firm has become the city health department's first sanitary engineer.

RALPH H. HEEREN, M.D.,* formerly connected with the Oklahoma City Department of Health, has been appointed Director of Preventable Disease and Venereal Disease in the Iowa State Department of Health, Des Moines, succeeding CARL F. JORDAN, M.D.,* resigned.

LEON H. HETHERINGTON, M.D., on October 1 became Chief of the Division of Tuberculosis Services, Maryland State Department of Health. Dr. Hetherington will administer the four State Sanatoria now under the Department's direction.

E. HAROLD HINMAN, M.D., M.P.H.,* who has been Chief Malariologist of the Tennessee Valley Authority, recently became Director of Public Health at the University of Oklahoma, Norman. The university is developing training programs for public health workers.

JOSEPH HIRSH,* for the past year Acting Director, has been appointed Ex-

ecutive Director of the Research Council on Problems of Alcohol. He has been its Associate Director for the past several years. Mr. Hirsh is the author of "The Problem Drinker," shortly to be published by Duell, Sloan and Pearce.

T. E. HYNSON, M.D.,† of the U. S. Public Health Service, has been assigned to the West Virginia State Department of Health as Acting Director of the Bureau of Venereal Disease Control, serving also as medical officer in charge of the Rapid Treatment Center in South Charleston.

HUGH JACKSON,† has resigned as Director of the Public Charities Association of Pennsylvania to become Executive Vice-President of the Better Business Bureau of New York City. He has been succeeded in Pennsylvania by A. DAVID BOUTERSE, formerly Director of the Ohio Citizens' Council.

SARAH JUDY† has been assigned to the Erie County, N. Y., Department of Health as apprentice Health Educator under the newly developed program of the New York State Department of Health. She was formerly information Specialist with the National Cancer Institute, U. S. Public Health Service.

P. Z. KING, M.D., formerly Chief Medical Officer of the National Department of Health in Nanking, China, has accepted appointment as Head of the Department of Public Health, National Medical College, Shanghai.

HUGO M. KULSTAD, D.D.S.,* is the head of the newly formed Bureau of Dental Health in the California State Department of Public Health.

WARREN W. LACEY, JR., M.D., M.P.H.,* for 3 years District Health Officer of the New York City Health Department, is now Deputy Medical Director of the America Fore Insurance Group. Dr. Lacey served 5 years in the Medi-

* Fellow A.P.H.A.

† Member A.P.H.A.

cal Corps, U. S. Army, and was previously on the staff of the New York State Health Department.

NEWTON W. LARKUM, M.D.,* formerly Pathologist with the Kings Daughters Clinic in Temple, Tex., has been appointed Pathologist at the Easton Hospital, Easton, Pa.

A. LEPORE, became consultant on Maternal and Child Health with the Kanawha-Charleston Health Department, West Virginia. She is a graduate of Lobenstine Clinic School for Nurse Midwives, New York City.

PASCAL F. LUCCHESI, M.D.,† Medical Director and Superintendent of the Philadelphia General Hospital, has received the Strittmatter Award for 1947 "in recognition of his outstanding service to medical education and to the public health of Philadelphia."

ROBERT G. MARQUARDT, M.D., formerly Health Officer for Utica district, New York State Department of Health, has been appointed Syracuse Deputy Health Commissioner, a newly created post.

GEORGE J. NELBACH,* Consultant, New York State Committee on Tuberculosis and Public Health, is teaching a weekly evening course on "Community Organization for Health," at New York University's School of Education.

JEROME PETERSON, M.D., M.P.H.,* New York City, who has recently returned from China where he was Chief of the China Mission of the World Health Organization, has been loaned by the WHO to the Long Island College of Medicine, Brooklyn, as Acting Executive Officer of the Department of Preventive Medicine and Community Health, succeeding THOMAS D. DUBLIN, M.D., DR.P.H.,* who recently became Executive Director of the National Health Council.

FRANCES READ, M.D., was recently appointed Director of the Florida State Board of Health's Bureau of Maternal and Child Health, Jacksonville. She will also direct the mental health program. Dr. Read was formerly Director of the Pediatrics Department, a member of the Medical Board, and Director of Research in Cardiac Clinic, of Johns Hopkins Hospital. MARTHA RONAYNE, formerly with the Iowa State Health Department as Nurse Consultant in the Division of Venereal Disease Control, assumed her position as Educational Director of the Public Health Nursing Association of Des Moines and Polk County, Iowa, on September 15.

GEORGE ROSEN, M.D., M.P.H.,† delivered the Louis Green Memorial Lecture under the auspices of the Montreal Clinical Society on October 27 on "The Idea of Social Medicine in America."

DEAN F. SMILEY, M.D.,* has resigned from the staff of the American Medical Association, Chicago, to become Assistant Secretary of the Association of American Medical Colleges, Chicago, effective September 1.

J. EARL SMITH, M.D.,* who has served as Medical Director of the St. Louis, Mo., Health Division, Communicable Disease Section since 1933, has been appointed Acting Health Commissioner of St. Louis to succeed JOSEPH F. BREDECK, M.D., D.P.H., who died suddenly of a heart attack on October 4.

JOHN C. TALBOT, M.D., has been appointed Assistant Professor of Preventive Medicine, University of California Medical School, San Francisco, and has also been appointed Assistant Dean of the school. He is a graduate of the University in 1939 after which he served in the Army Medical Corps.

CORNELIUS H. TRAEGER, M.D., by reason of a grant from the Milbank Memorial Fund, was appointed Medi-

* Fellow A.P.H.A.

† Member A.P.H.A.

cal Director of the National Multiple Sclerosis Society with headquarters in the New York Academy of Medicine. Dr. Traeger is Attending Physician and co-chief of Arthritis Clinic, the Hospital for Special Surgery and Consulting Attending Physician in Internal Medicine and Chief of Arthritis Clinic, Roosevelt Hospital, both in New York.

JAMES O. WAILS, M.D., M.P.H.,* most recently Worcester, (Mass.) Commissioner of Health, is now epidemiologist and director of the Division of Communicable Disease Control, Oklahoma State Health Department.

PATRICIA WHITE WARREN,† is the new Assistant Executive Secretary of the Hartford Tuberculosis and Public Health Society, Inc., Hartford, Conn. Mrs. Warren, just prior to going to Hartford, helped to organize a successful patient and visitor education program at Rutland Heights Veterans' Hospital in Massachusetts and has had experience in tuberculosis work with local, state, and national organizations.

E. RICHARD WEINERMAN, M.D., M.P.H.,† has joined the staff of the School of Public Health, University of California, Berkeley, as Associate Professor of Medical Economics.

ROBERT S. WESTPHAL, M.D.,* former Deputy Health Officer in Rochester, N. Y., has recently become Health Officer in Riverside County, California.

EDWIN G. WILLIAMS, M.D., of the staff of the U. S. Public Health Service, Washington, D. C., has been transferred to the Office of the Surgeon General in the Sanitary Engineering Division where he is establishing a section on radiological health.

GLADYS R. J. WILSON,† for the past 14 years Supervisor of the Nursing Bureau, New Haven Health Department, has been appointed North At-

lantic Area supervisor of Centers Nurses in the National Blood Program of the American Red Cross, with headquarters in New York City. She will direct nursing phases of the National Blood Program in the North Atlantic Area, including New England, New York, New Jersey, and Delaware.

WILLIAM W. WOOD, M.B.A., has been appointed Chief Coördinator of Public Health Education in the Bureau of Health Information, Massachusetts State Department of Health. His principal task will be the organization of community health services and community education. He was formerly Assistant Director of the Harvard Pediatric Service, Cambridge.

J. G. WOODIN, M.D., is the new director of the Grand Island-Hall County Health Department in Nebraska, succeeding J. C. NEWMAN,† M.D., who resigned in December, 1947. Dr. Woodin is also Grand Island city physician.

RALPH W. G. WYCKOFF, Ph.D.,† left recently for Europe where he is to receive an Honorary Degree from the faculty of medicine of Masaryk University, Brno, Czechoslovakia.

CALIFORNIA STATE DEPARTMENT OF HEALTH, CHANGES IN PERSONNEL:

DOROTHY MERWIN has returned to the Bureau of Public Health Nursing after receiving her Master's Degree in Public Health at the University of Michigan. A general nursing consultant, she has been assigned to the northeastern section of the state.

ALICE HAGELSHAW has also joined the staff as a general nursing consultant, Bureau of Public Health Nursing, assigned the coastal area south of San Francisco.

LUCRETIA SAUNDERS,† formerly of the Indiana State Health Depart-

ment, is now Consultant in Health Education. She will have responsibility for developing health education programs in rural areas where full-time health departments do not exist.

ALCOR BROWNE† is a new member of the Division of Laboratories on assignment to the Division of Local Health Service. His services to local health departments will include help in the recruitment and training of personnel, and assistance in working out problems of laboratory construction, procedures, and equipment.

NORTH DAKOTA STATE HEALTH DEPARTMENT, ADDITIONS TO THE STAFF:

ELEANOR MUMFORD, R.N.,† has succeeded IRENE M. DONOVAN,* who has been Director, Division of Public Health Nursing since 1939.

KENNETH MOSSER, Administrator, Division of Preventable Diseases.

ALLENE SMALL, Nutritionist, Maternal and Child Health Division.

JAMES H. PENCE, D.D.S., Director, Division of Oral Hygiene.

WALTER SWENSON, Ph.D., Director, Section of Mental Hygiene.

Deaths

FREDERICK BOERNER, V.M.D., Associate Professor of Clinical Bacteriology, Graduate Hospital, University of Pennsylvania, died recently (Laboratory Section).

JOSEPH F. BREDECK, M.D., D.P.H., Health Commissioner of the City of St. Louis, Mo., since 1933, died suddenly on October 4 (Health Officers Section).

RALPH TALCOTT FISHER, former Chairman of the Finance Committee of the Alameda County Tuberculosis and Health Association, Calif., died August 7.

ARTHUR L. SULLIVAN, State Food and Drug Commissioner of the Maryland State Department of Health, died suddenly at his home in Baltimore on August 16.

CONFERENCES AND DATES

American College of Physicians. New York, N. Y. March 28-April 1, 1949.

American Public Welfare Association. Chicago, Ill. December 9-10.

American Water Works Association:

Annual Mid-Winter Luncheon Meeting of the New York Section, held jointly with the New York State Sewage Works Assn. and the San. Eng. Div. of the American Society of Civ. Engrs., Hotel Pennsylvania, New York City. January 21, 1949.

Cuban Section. National Hotel, Havana, Cuba. December 2-4.

Southeastern Section. Sheraton Bon Air Hotel, Augusta, Ga. December 6-8.

College Physical Education Association. 52nd Annual Convention. Hotel La Salle, Chicago, Ill. December 27-28.

First Pan American Convention on Medical Education. Pan American Medical Congress, Lima, Peru, December 3-13.

Michigan Public Health Association. Grand Rapids, Mich. December 1-3.

National Cancer Conference. Memphis, Tenn. February 25-27, 1949.

Ninth International Heating and Ventilating Exposition. International Amphitheater, Chicago, Ill. January 24-28, 1949.

Oklahoma Public Health Association. Oklahoma City, Okla. December 6-8.

Southern Branch, American Public Health Association. Baker Hotel, Dallas, Tex. April 14-16, 1949.

for
Safer Control

Ratopax

The Ideal Raticide for Municipal Use.
Universally acclaimed by BOARDS of HEALTH

Write us for information.

BIOCERTA CORPORATION
303 FIFTH AVENUE • NEW YORK, 16, N.Y.

* Fellow A.P.H.A.

† Member A.P.H.A.

American Journal of Public Health

and THE NATION'S HEALTH

Index to Volume 38, 1948

How to Use the INDEX

This is an Index to all the reading matter in the JOURNAL. It is essentially a title and author Index, although occasional subject headings are provided.

Articles, committee reports, and editorials are listed alphabetically according to the key words in the title, with many cross-references.

Editorials are indexed under "Editorials" as well as alphabetically under the key words in the title.

News notes and fillers are indexed under "News from the Field." This section should be searched as supplemental to the title index.

Matters pertaining to the Association are indexed under "American Public Health Association," and "Year Book."

Book reviews are indexed under "Books and Reports."

Obituaries are indexed under "Death Notices."

A	Page
Abortion as a Cause of Death. Christopher Tietze, M.D.....	1434
Abridged Table of Probits for Use in the Graphic Solution of the Dosage-Effect Curve, An. Edward S. Weiss, M.S.P.H.....	22
Accident Prevention, Epidemiological Approach to. Edward Press, M.D., M.P.H.....	1442
Accreditation. See:	
Criteria for Institutions to be Accredited for the Degree of Master of Public Health (Diploma of Public Health in Canada) and for the Degree of Doctor of Public Health for the Academic Year 1948-1949. Committee on Professional Education....	100
Schools of Public Health Accredited for the M.P.H. and Dr.P.H. Degrees for 1948-1949..	870
Institutions Accredited by the American Public Health Association to Give the Degree of Master of Public Health (Diploma of Public Health in Canada) and Doctor of Public Health for the Academic Year 1948-1949.....	871
Administration, Essentials of Good Local Public Health. Summary of a Panel Discussion Prepared by Richard F. Boyd, M.D.....	219
Administration, Progress in Public Health. Hugh R. Leavell, M.D., Dr.P.H.....	154
Administrative Judgment in the Control of Tuberculosis. Editorial.....	557
Administrative Practice. Report of the Chairman of the Committee to the Governing Council, October 8, 1947. Wilton L. Halverson, M.D., Chairman.....	Year Book 54
Age Distribution of Poliomyelitis in New York City in Relation to Previous Epidemics. Alfred Yankauer, Jr., M.D., M.P.H., and Henry P. Goldberg, M.D.....	1683
Aging Population, Health Problems of an. Editorial.....	1698
Ailments of Health Departments, The. Florence R. Sabin, M.D.....	1508
Air-borne Infections. See: Sanitary Ventilation. W. F. Wells.....	775
Air Pollution Control Program in Cleveland, The. General Atmospheric Pollution. A Symposium. Herbert G. Dyktor.....	957
Air Pollution. See: General Atmospheric Pollution—A Symposium.....	957
Air Pollution. Report of the Committee on Air Pollution. H. A. Whittaker, Chairman....	761
Air, Problem of Dust Control for the Disinfection of. Report of the Referee on Suppressive Measures for the Control of Dust, to the Standard Methods Committee for the Examination of Germicides and Antibacterial Agents. Clayton G. Loosli, M.D., Referee..	409
Alaska and Puerto Rico. See: A Tale of Two Territories. Editorial.....	1011
Allen, Frederick H., M.D. Developments in Child Psychiatry in the United States.....	1201
See: The Child Guidance Clinic. Editorial.....	1273
Allocation of Funds to Local Programs. Some Concrete Problems of Health Administration—A Symposium. G. F. Moench.....	925

	Page
Amalgamation of Health Departments in Seattle and King County. Some Concrete Problems of Health Administration—A Symposium. Emil E. Palmquist.....	927
American Dental Association, Dental Health Education Services of the. Glenna G. Walter..	378
American Hospital Association and the American Public Health Association, Joint Statement of Recommendations by the. Coordination of Hospitals and Health Departments.....	700
American Public Health Association, Joint Statement of Recommendations by the American Hospital Association and the. Coordination of Hospitals and Health Departments....	700
American Public Health Association News....125, 295, 443, 587, 737, 890, 1033, 1172, 1326, 1471, 1608,	1721
Administrative Officers. See: First Annual Conference of Fiscal, Business, Personnel and Planning Officers of State and Territorial Departments of Health.....	1479
Affiliated Societies	Year Book 39
Amendments to Constitution of the American Public Health Association, Proposed....	1473
Annual Meeting, Section Highlights of the 75th.....	425
Annual Meeting, 76th A.P.H.A., Notice of.....295, 443, 587, 738, 890, 1033, 1172, 1326, 1471	1471
Health Education and Publicity Headquarters at the Boston Annual Meeting, Materials for	1326
Materials for Health Education and Publicity Headquarters at the Boston Annual Meeting	1326
Preliminary Program	1296
Annual Meetings	Year Book 15
Association Committee on Child Health.....	295
Biologists Interested in Public Health, Notice to.....	296
Buck, Carl E., Dr.P.H., Joins University of Michigan Faculty.....	742
Child Health, Association Committee on.....	295
Child Health, Gift to Committee on.....	743
Committee List, 1947-1948.....	Year Book 19
Committee on Child Health, Gift to.....	743
Community Health Educators, Educational Qualifications of.....	1327
Constitution and By-Laws.....	Year Book 8
Constitution of the American Public Health Association, Proposed Amendments to....	1473
Dairy Products, Ninth Edition—Separates of Chapter 2 on Milk and Cream, Standard Methods for the Examination of.....	587
Directory of Public Health Statisticians.....	1726
Educational Qualifications of Community Health Educators.....	1327
Executive Board of the American Public Health Association to the Governing Council 1946-1947, Report of the. Abel Wolman, Dr.Eng., Chairman.....	Year Book 40
Fellowship, Applicants for.....	1333
Fellowship in the American Public Health Association.....	443, 890, 1033
First Annual Conference of Fiscal, Business, Personnel and Planning Officers of State and Territorial Departments of Health.....	1479
Governing Council	Year Book 7
Governing Council Actions, 75th Annual Meeting, Summary of.....	Year Book 47
Governing Council, Nominations for the.....	1172
Lasker Awards for 1948, The.....	1717
Medical Care, A.P.H.A., Proposed Section on.....	1327
Membership, Applicants for.....125, 297, 445, 587, 738, 893, 1036, 1174, 1330, 1476, 1608,	1724
Merit System Service, Progress in the.....	1173
Milk Sediment Standards Available, Photograph of.....	296
Officers, 1948-1949	1721
President of the American Public Health Association, Charles F. Wilinsky, M.D.....	1721
Proposed Amendments to Constitution of the American Public Health Association....	1473
Proposed Section on Medical Care, A.P.H.A.....	1327
Publications of the American Public Health Association.....	Year Book 39
Public Health Biology Section. See: Notice to Biologists Interested in Public Health..	296
Report of the Executive Board of the American Public Health Association to the Governing Council 1946-1947. Abel Wolman, Dr.Eng., Chairman.....	Year Book 40
Representatives of the American Public Health Association to Other Organizations and Committees for 1948.....	Year Book 35
Resolutions Committee for Boston Meeting.....	1328
Section Councils	Year Book 17
Section Highlights of the 75th Annual Meeting.....	425
Sedgwick Memorial Medal for 1948 to Abel Wolman, Dr.Eng.....	1722
Sedgwick Memorial Medal, Recipients of the.....	Year Book 38
75th Annual Meeting, Section Highlights of the.....	425
Standard Methods for the Examination of Dairy Products, Ninth Edition—Separates of Chapter 2 on Milk and Cream.....	587
Standard Methods for the Examination of Dairy Products. See: Photograph of Milk Sediment Standards Available.....	296
State and Territorial Departments of Health, First Annual Conference of Fiscal, Business, Personnel and Planning Officers of.....	1479
Statisticians, Directory of Public Health.....	1726
Summary of Governing Council Actions, 75th Annual Meeting.....	Year Book 47
Sustaining Members	Year Book 38
Sustaining Members	1340, 1404, 1610, 1662
Wilinsky, Charles F., M.D., President of the American Public Health Association.....	1721
Wolman, Abel, Dr.Eng., Sedgwick Memorial Medal for 1948 to.....	1722

	Page
Amsterdam, Bacteriological and Epidemiological Data on Typhoid Fever in. A Charlotte Ruys, M.D.	1219
Analysis of the Wilson-Worcester Method for Determining the Median Effective Dose of Pertussis Vaccine. An. Margaret Pittman, Ph.D., and J. E. Lieberman, M.S.	15
Anderson, Richmond K., M.D., Calvo, José, M.D., Robinson, William D., M.D., Seranno, Gloria, M.D., and Payne, George O., M.D. Nutrition Appraisals in Mexico.	1126
Anderson, Robert J., M.D., and Weber, Francis J., M.D. Summary of Tuberculosis Control Activities	512
See: Administrative Judgment in the Control of Tuberculosis. Editorial.	557
Andrews, Justin M., Sc.D. What's Happening to Malaria in the U.S.A.?	931
See: Letter to the Editor.	1277, 1479
Andrews, Justin M., Sc.D., and Simmons, S.W., Ph.D. Developments in the Use of the Newer Organic Insecticides of Public Health Importance.	613
See: Progress in the Study of Organic Insecticides. Editorial.	709
Anne Arundel County, Maryland. See: The Use of Medical-Social Service by a County Health Department. William J. French, M.D., and Geneva Wiser.	1555
Appraising a Medical Care Program. Seymour Etkin.	1551
Appraising the Nutritional Status of Mothers and Infants. Clement A. Smith, M.D., and Harold C. Stuart, M.D.	369
Archivist, 1917, Report of the. Anna M. Sexton.	Year Book 71
Armbruster, E. H., and Ridenour, G.M., Ph.D. Some Factors Affecting the Properties of Quaternary Ammonium Compounds as Sanitizers.	504
Armed Forces, 1912-1916, Experience of Rheumatic Patients Who Served in the. May G. Wilson, M.D., J. W. Payson, and Rose Lubschez.	398
Army with Regard to Venereal Diseases, Changing Attitude of the. Editorial.	1150
Army. See: Schick Testing and Diphtheria Immunization of United States Troops in Europe. Lt. Colonel Hartwin A. Schulze.	1527
Aronson, Albert H. Personnel Administration in Public Health.	1103
Atlanta, The Communicable Disease Center at. Editorial.	1578
Atmospheric Pollution, General. A Symposium.	
The Air Pollution Control Program in Cleveland. Herbert G. Dyktor.	957
Some Work in Pittsburgh Air Pollution Problems. Sumner B. Ely.	960
Los Angeles "Smog". Charles L. Senn.	962
New York City's Atmospheric Pollution Control Problems. Arthur C. Stern.	966
Austin, Catherine L., R.N., and Eller, C. Howe, M.D., Dr.P.H. South Richmond Community Nursing Service	1609

B

Bacteriological and Epidemiological Data on Typhoid Fever in Amsterdam. A Charlotte Ruys, M.D.	1219
Bacteriological Studies of the Fort Loudoun Reservoir. Robert N. Clark, and F. W. Kittrell	342
Baer, W. H., M.D., Littman, A., M.D., Valchulis, J. A., Ph.D., Ivy, A. C., Ph.D., M.D., and Kaplan, R., M.D. The Chronic Typhoid Carrier: I. The Natural Course of the Carrier State	1675
Bailey, Albert E., Ph.D. Some Recent Trends in Vital Statistics Registration Practices.	253
Bailey, Flora L., Ph.D. Suggested Techniques for Inducing Navaho Women to Accept Hospitalization During Childbirth and for Implementing Health Education.	1418
Bain, Katherine, M.D., Williams Charles L., Jr., M.D., M.P.H., and Hubbard, John P., M.D. Community Health Services for Children in Eight Selected States.	75
Barron, J. Lloyd, C.E., Chairman. Municipal Public Health Engineering. Time Studies—A Needed Research Project.	Year Book 87
Battle of Britain, The. Editorial	711
Bauer, Herbert, M.D., et al. See: Letters to the Editor—Comment on Editorial, "The Victory Over Maternal Mortality" published November 1947.	205
Beginnings of a Mental Health Program in a State and Local Department of Health. Kent A. Zimmerman, M.D.	811
Bell, Joseph A., M.D. Pertussis. Current Status of Immunization Procedures—A Symposium	478
Bellows, Marjorie T. The Registry in the Community Rheumatic Fever Program. The Rheumatic Fever Community Program. Its Value in the Epidemiological Study of Rheumatic Fever. A Symposium.	1088
Berens, Conrad, M.D., and Foote, Franklin M., M.D. Penicillin or Silver Nitrate as a Prophylactic Against Ophthalmia Neonatorum?	1680
Berenson, Gerald, Lt. (J.G.) (MCR) USNR. Value of Routine Fluorograms as a Measure for Detecting Cardiac Abnormalities.	1564
Beriberi. See: Orient.	
Bidwell, M. H., Chairman. Shellfish (Progress Report).	Year Book 90
Biological Stain Commission, The. Report of the Association Representative. Edmund K. Kline, Dr.P.H.	Year Book 79
Birth of a Section, The. H. E. Kleinschmidt, M.D.	1657
Births and Deaths. See: Some Recent Trends in Vital Statistics Registration Practices. Albert E. Bailey, M.D.	253
Bishop, Lindsay K., M.D., Kissling, Robert E., D.V.M., and Howitt, Beatrice F. Presence of Neutralizing Antibodies of Newcastle Disease Virus in Human Sera.	1263

	Page
Black, L. A., Ph.D., and Levine, B. S., Ph.D. Newly Proposed Staining Formulas for the Direct Microscopic Examination of Milk.....	1210
Black, Luther A., Ph.D., Thomas, Robert C., M.S., Levine, Benjamin S., Ph.D. Studies Showing the Effect of Changes in the New (9th) Edition of Standard Methods in Relation to the Bacteriological Analysis of Milk.....	233
Black, Luther A., Ph.D., and Weber, George R., Ph.D. Laboratory Procedure for Evaluating Practical Performance of Quaternary Ammonium and Other Germicides Proposed for Sanitizing Food Utensils.....	1405
Blake, John B. The Origins of Public Health in the United States.....	1539
Bliss, Muriel F., Ph.D., Chairman. Coordination of the Public Health Education Section with all other Sections of the A.P.H.A.....Year Book	104
Blood and Blood Derivatives Program, Development of the Massachusetts. Geoffrey Edsall, M.D., Loren D. Moore, M.D., Vlado A. Getting, M.D., Dr.P.H., and Dwight J. Mulford, Ph.D.....	226
Blood Grouping and Rh Typing in a State Public Health Laboratory. Robert A. MacCready, M.D., and Robert T. McGee.....	637
Board, Leonard M., M.P.H., and Dunsmore, Herbert J., M.P.H. Environmental Health Problems Related to Urban Decentralization.....	986
Books and Reports.....114, 263, 432, 571, 724, 880, 1020, 1160, 1284, 1459, 1589, 1700	
Accident Prevention Manual for Industrial Operations. National Safety Council....	114
Adkins, Dorothy C. Construction and Analysis of Achievement Tests.....	726
Administration of Medical Care; Problems and Issues. Odin W. Anderson.....	579
Advances in Internal Medicine. Volume II. Edited by William Dock and I. Snapper..	728
Advances in Military Medicine. Vols. I and II. Edited by E. C. Andrus, et al.....	1024
Advances in Pediatrics, Vol. II. S. Z. Levine, Allan M. Butler, L. Emmett Holt, Jr., and A. Ashley Weech.....	114
Allison, D. R., and Gordon, R. G. Psychotherapy, Its Uses and Limitations.....	1707
Amatruda, Catherine S., and Gessell, Arnold. Development Diagnosis (2nd ed.)....	727
American Building: The Forces That Shape It. J. M. Fitch.....	1164
American Can Company. Canned Food Reference Manual (3rd ed.).....	1166
American County—Patchwork of Boards, The. Edward W. Weldner.....	580
American Foundations and Their Fields. Part I. Edited by William B. Cherin....	729
American Medical Research, Past and Present. Richard H. Shryock.....	883
American Mosquito Control Association, Sponsored by the. The Use of Aircraft in the Control of Mosquitoes.....	1285
American Public Health Association. Public Health—A Career with a Future (rev. ed.)	1021
American Year Book, 1946, The. Edited by William M. Schuyler.....	727
American Year Book, 1947, The. Edited by William M. Schuyler.....	1594
American's Needs and Resources—A Twentieth Century Fund Survey Which Includes Estimates for 1950 and 1960. J. Frederic Dewhurst and Associates.....	1101
Anderson, Gaylord W., and Arnstein, Margaret G. Communicable Disease Control (2nd ed.).....	881
Anderson, John E., and Faegre, Marion L. Child Care and Training (7th ed.).....	1162
Anderson, Odin W. Administration of Medical Care; Problems and Issues.....	579
Andrews, F. Emerson, Glenn, John M., and Brandt, Lilian. Russell Sage Foundation, 1907-1946. (2 volumes).....	1289
Andrus, E. C. et al. Advances in Military Medicine. Vols. I and II.....	1024
Antonov, A. N., Compiled by. Physiology and Pathology of the New-born.....	732
Applied Medical Bacteriology. Max S. Marshall, et al.....	880
Approach to Social Medicine, An. John D. Kershaw.....	290
Arnstein, Margaret G., and Anderson, Gaylord W. Communicable Disease Control (2nd ed.).....	881
Artificial Pneumothorax in Pulmonary Tuberculosis (2nd ed.) T. G. Heaton.....	731
Atlas of Bacteriology. R. Cranston Low and T. C. Dodds.....	725
Bachman, George and Meriam, Lewis. The Issue of Compulsory Health Insurance..	1592
Bacon, Francis L., Keene, Charles H., and Rathbone, Josephine L. Health in Your Daily Living.....	1594
Bacteriology and Immunology. (Fiat Review of German Science 1939-1946). Hans Schmidt (Senior Author).....	1702
Bacteriology—A Textbook of Microorganisms (4th ed.) F. W. Tanner and F. W. Tanner, Jr.	1166
Baker, Helen Cody and Routzahn, Mary Swain. How to Interpret Social Welfare....	435
Baney, Anna Mae, Hollingsworth, Helen, and Klem, Margaret C. Medical Care and Costs in Relation to Family Income (2nd ed.).....	284
Barach, Alvan L. Physiologic Therapy in Respiratory Diseases (2nd ed.).....	1459
Basic Facts of Health Education, Selected Articles from the Ministry of Health Bulletins published in the Pharmaceutical Journal, 1944-1947.....	1460
Bauer, Louis Hopevell. Private Enterprise or Government in Medicine.....	1025
Becker, J. Ernestine, and McCollum, E. V. Food, Nutrition, and Health (8th ed.)....	728
Beeuwkes, Adelia M., and Hanlon, John J. Nutrition and the Public Health: A Study Guide.....	1288
Behrman, Howard T., and Levin, Oscar L. Your Skin and Its Care.....	1708
Benjamin Rush, The Selected Writings of. Edited by Dagobert D. Runes.....	726
Bergey's Manual of Determinative Bacteriology. (6th ed.) Robert S. Breed, E. G. D. Murray, and A. Parker Hitchens.....	1700
Berne, Eric. The Mind in Action.....	1027
Bibby, Cyril. How Life Is Handed On.....	1023

Books and Reports--Continued

Page

Blerring, W. L., Prepared under the Editorial Direction of, Ryplins' Medical Licensure Examinations, 16th ed.).....	580
Biological Symposia, Vol. XII: Estimation of the Vitamins. Edited by W. J. Dann and Howard Satterfield	115
Blowflies of North America, The. David G. Hall.....	1163
Blumenthal, Saul. Food Products.....	1707
Bond, Earl D. Dr. Kirkbride and His Mental Hospital.....	288
Boyd, William C. Fundamentals of Immunology.....	730
Brandt, Lilian, Andrews, F. Emerson, and Glenn, John N. Russell Sage Foundation, 1907-1916, (2 Volumes).....	1289
Breed, Robert S., Murray, E. G. D., and Hitchens, A. Parker. Bergey's Manual of Determinative Bacteriology (6th ed.).....	1700
British Journal of Social Medicine.....	581
Burn, J. L. Recent Advances in Public Health.....	724, 1708
Butler, Allan M., Holt, L. Emmett, Jr., Weech, A. Ashley, and Levine, S. Z. Advances in Pediatrics, Vol. II.....	114
Buxton, P. A. The Louse. An account of the lice which infect man, their medical importance and control (2nd ed.).....	578
Byrd, Oliver E., Edited by. Health Instruction Yearbook, 1917.....	884
Cady, Louise Lincoln. Nursing in Tuberculosis.....	1028
Calcium and Phosphorus in Foods and Nutrition. Henry C. Sherman.....	580
Canned Food Reference Manual (3rd ed.). American Can Company.....	1166
Cardwell, Viola E. The Cerebral Palsied Child and His Care in the Home.....	725
Care and Management of Laboratory Animals, The. Edited by Alstair N. Worden....	1701
Care of the Teeth, Prenatal and in Infancy, The. C. Herbert H. Russell.....	1462
Careers for Nurses. Dorothy Deming.....	119
Carmichael, Leonard, and Dearborn, Walter F. Reading and Visual Fatigue.....	286
Casparl-Rosen, Beate, and Rosen, George. 30 Years of a Doctor's Life.....	1598
Castendyck, Elsa, Hanson, Harold B., and Stone, Sybil A. Children in the Community. The St. Paul Experiment in Child Welfare.....	116
Caution of Appendicitis, The. A. Rendle Short	115
Cerebral Palsied Child and His Care in the Home, The. Viola E. Cardwell.....	725
Cherin, William B., Edited by. American Foundations and Their Fields. Part I....	729
Child Care and Training (7th ed.) Marlon L. Faegre and John E. Anderson.....	1162
Children in the Community. The St. Paul Experiment in Child Welfare. Sybil A. Stone, Elsa Castendyck, and Harold B. Hanson.....	116
Cineplasty. Henry H. Kessler.....	117
Citizen Participation in Government—A Study of County Welfare Board. Helen E. Martz	1598
City Finances: 1915. Volumes 1, 2, 3. Prepared under the supervision of Allen D. Marvel, Bureau of the Census.....	288
Coker, Robert E., Edited by, with a Foreword by Louis R. Wilson. Research and Regional Welfare	1593
Columbia University College of Physicians and Surgeons, Sponsored by the. Proceedings of a Conference on Industrial Ophthalmology.....	433
Committee on Administrative Practice of the A.P.H.A., 1917. Prepared by the Subcommittee on State and Local Health Administration for the. Health Practice Indices 1943-1946	579
Communicable Disease Control (2nd ed.) Gaylord W. Anderson and Margaret G. Arnstein	881
Comparative Physiology. Bradley T. Scheer.....	1167
Construction and Analysis of Achievement Tests. Dorothy C. Adkins.....	726
Cornell Conferences on Therapy, Volume II. Edited by Harry Gold.....	576
Crosby, Alexander L. Pamphlets that Pull.....	1590
Cureton, Thomas Kirk, Jr., and Kasch, Frederick W. Physical Fitness Appraisal and Guidance	1020
Dahir, James, Compiled by. The Neighborhood Unit Plan.....	1160
Dallavalle, J. M. Industrial Environment and Its Control.....	732
Dann, W. J., and Satterfield, G. Howard, Edited by. Biological Symposia. Vol. XII: Estimation of the Vitamins.....	115
Davis, Hallowell, Edited by. Hearing and Deafness—A Guide for Laymen.....	881
Dearborn, Walter F., and Carmichael, Leonard. Reading and Visual Fatigue.....	286
Deming, Dorothy. Careers for Nurses.....	119
Dental Health Teaching Outline. Verne D. Irwin and Netta W. Wilson.....	1591
Desmond, Senator Thomas C., Chairman. Meals for Millions—Final Report of the New York State Joint Legislative Committee on Nutrition.....	576
Developmental Diagnosis (2nd ed.) Arnold Gessell and Catherine S. Amatruda.....	727
Dewberry, Elliott B. Food Poisoning (2nd ed.).....	285
Dewhurst, J. Frederic and Associates. America's Needs and Resources—A Twentieth Century Fund Survey Which Includes Estimates for 1950 and 1960.....	1161
Diabetes and the Diabetic in the Community. Mary E. Tangney.....	437
Diagnostic Procedures for Virus and Rickettsial Diseases. Thomas Francis, Jr....	1284
Disability Evaluation. (4th ed.) Earl D. McBride.....	1704
Diseases Transmitted from Animals to Man (3rd ed.) Thomas G. Hull.....	577
Dock, William, and Snapper, I., Edited by. Advances in Internal Medicine. Volume II	728
Dodds, T. C., and Low, R. Cranston. Atlas of Bacteriology.....	725
Duncan of Liverpool. W. M. Frazier.....	116

Books and Reports—Continued

	Page
Dunn, Halbert L., Prepared under the supervision of. Summary of International Vital Statistics, 1937-1944.....	435
Dust and Its Effects on the Respiratory System. George H. Gill.....	120
Duthie, E. S. Molecules Against Microbes.....	433
Dynamic Mental Hygiene. Ernest and Catherine Groves.....	290
Ebaugh, Franklin G., Ewalt, Jack R., and Strecker, Edward A. Practical Clinical Psychiatry.....	437
Essentials of Nursing (2nd ed.) Helen Young, Eleanor Lee and Associates.....	1463
Estimation of the Vitamins. Biological Symposia, Vol. XII. Edited by W. J. Dann and G. Howard Satterfield.....	115
Ethics—With Special Application to the Nursing Profession. Joseph B. McAllister... ..	120
Ewalt, Jack R., Strecker, Edward A., and Ebaugh, Franklin G. Practical Clinical Psychiatry.....	437
Experimental Air-Borne Infection. Theodor Rosebury.....	1022
Factors Regulating Blood Pressure. Transactions of the First Conference April 24-25, 1947. Josiah Macy, Jr. Foundation.....	1163
Faegre, Marion L., and Anderson, John E. Child Care and Training (7th ed.).....	1162
Fairbrother, R. W. A Textbook of Bacteriology (6th ed.).....	1021
Fitch, J. M. American Building: The Forces That Shape It.....	1164
5,000,000 Casualties on the Home Front. Louise Neushutz.....	286
Flynn, Martha E., and Roberts, Doris. Tuberculosis Nursing Manual.....	1461
Follis, Richard H., Jr. The Pathology of Nutritional Disease.....	880
Fonseca, Dres. F. and Wohlwill, Fr. Tifus Exanthematico.....	1590
Food and Health (new ed.) Henry C. Sherman.....	118
Food, Nutrition, and Health (6th ed.) E. V. McCollum and J. Ernestine Becker.....	728
Food Poisoning (2nd ed.) Elliott B. Dewberry.....	285
Food Products. Saul Blumenthal.....	1707
Food Regulation and Compliance. Volume II. Arthur D. Herrick.....	729
400 Years of a Doctor's Life. George Rosen and Beate Caspari-Rosen.....	1593
Francis, Thomas, Jr. Diagnostic Procedures for Virus and Rickettsial Diseases.....	1284
Frazier, W. M. Duncan of Liverpool.....	116
Fundamentals of Human Reproduction. Edith L. Potter.....	1589
Fundamentals of Immunology (2nd ed.) William C. Boyd.....	730
Fungi. Frederick A. Wolf and Frederick T. Wolf.....	289
Further Effects of Added Thiamin on Learning and Other Processes. Ruth Flinn Harrell.....	1022
Gessell, Arnold, and Amatruda, Catherine S. Developmental Diagnosis (2nd ed.)....	727
Gibbon, John Murray. Victorian Order of Nurses for Canada—Fiftieth Anniversary..	1598
Gill, George H. Dust and Its Effects on the Respiratory System.....	120
Give Your Child a Chance. Lenore Turner.....	1165
Glen, John M., Brandt, Lillian, and Andrews, F. Emerson. Russell Sage Foundation, 1907-1946 (2 Volumes).....	1289
Gold, Harry, Edited by. Cornell Conferences on Therapy, Volume II.....	576
Goldwater, S. S. On Hospitals.....	289
Gordon, R. G., and Allison, D. R. Psychotherapy, Its Uses and Limitations.....	1707
Groves, Ernest and Catherine. Dynamic Mental Hygiene.....	290
Guthrie, Douglas. A History of Medicine.....	1459
Hall, David G. The Blowflies of North America.....	1163
Hamilton, Gordon. Psychotherapy in Child Guidance.....	1703
Handbook of Communicable Diseases (2nd ed.) Franklin H. Top and Collaborators... ..	436
Handbook of Communicable Diseases for the Use of Medical Officers of Schools (11th ed.) Medical Officers of Schools Association.....	1599
Handbook of Psychiatry. Winfred Overholser and Winifred V. Richmond.....	432
Hanlon, John J., and Beeuwkes, Adelia M. Nutrition and the Public Health: A Study Guide.....	1288
Hanson, Harold B., Stone, Sybil A., and Castendyck, Elsa. Children in the Community. The St. Paul Experiment in Child Welfare.....	116
Harrell, Ruth Flinn. Further Effects of Added Thiamin on Learning and Other Processes.....	1022
Harrower, Molly R. and Kubie, Lawrence S. Training in Clinical Psychiatry. Symposium.....	436
Hartwell, Samuel W. Practical Psychiatry and Mental Hygiene.....	575
Harvey, William Clunie. Milk Products (2nd ed.).....	1286
Health Instruction Yearbook, 1947. Edited by Oliver E. Byrd.....	884
Health in Your Daily Living. Josephine L. Rathbone, Francis L. Bacon, and Charles H. Keene.....	1594
Health Officer's Bookshelf, The. Huntington Williams, M.D., Dr.P.H. Review Article..	467
Health Practice Indices 1943-1946. Prepared by the Subcommittee on State and Local Health Administration for the Committee on Administrative Practice of the A.P.H.A., 1947.....	579
Hearing and Deafness—A Guide for Laymen. Edited by Hallowell Davis.....	881
Heaton, T. G. Artificial Pneumothorax in Pulmonary Tuberculosis (2nd ed.).....	731
Heller, Margaret, in collaboration with Nelson, Janet Fowler. Marriages Are Not Made in Heaven.....	435
Henry, George W. Sex Variants: A Study of Homosexual Patterns.....	1600
Herrick, Arthur D. Food Regulation and Compliance. Volume II.....	729
Hill, A. Bradford. Principles of Medical Statistics (4th ed.).....	1461

Books and Reports—Continued

	Page
History of Factory and Mine Hygiene. Ludwig Teleky.....	1701
History of Medicine. A. Douglas Guthrie.....	1459
Hitchens, A. Parker, Breed, Robert S., and Murray, E. G. D. Bergey's Manual of Determinative Bacteriology. (6th ed.).....	1700
Hollingsworth, Helen, Klem, Margaret C., and Baney, Anna Mae. Medical Care and Costs in Relation to Family Income (2nd ed.).....	284
Holt, L. Emmett, Jr., Weech, A. Ashley, Levine, S. Z., and Butler, Allan M. Advances in Pediatrics, Vol. II.....	114
Hopkins, Edward S. Water Purification Control (3rd ed.).....	1595
How Life Is Handed On. Cyril Hibby.....	1023
How To Interpret Social Welfare. Helen Cody Baker and Mary Swain Routzahn....	435
Hull, Thomas G. Diseases Transmitted from Animals to Man (3rd ed.).....	577
Hygiene Part I. General Hygiene. (Flat Review of German Science 1939-1940. Ernest Rodenwaldt (Senior Author).....	1702
IES Lighting Handbook (1st ed.) Compiled under the auspices of the Illuminating Engineering Society	1024
Illuminating Engineering Society, Compiled under the auspices of the. IES Lighting Handbook (1st ed.).....	1024
Industrial Air Sampling and Analysis. Chemistry and Toxicology Series; Bulletin No. 1, 1917. Leslie Silverman.....	1702
Industrial Environment and Its Control. J. M. Dallavalle.....	732
Interesting and Useful Medical Statistics. Edited by William H. Kupper.....	1593
International Statistical Classification of Diseases, Injuries and Causes of Death (6th decennial revision.) (To be Published).....	1486
Orders for	1656
Introduction to Human Physiology. William D. Zoethout.....	1590
Irwin, Verne D., and Wilson, Netta W. Dental Health Teaching Outline.....	1591
Issue of Compulsory Health Insurance. The. George Bachman and Lewis Meriam....	1592
Johnstone, Rutherford T. Occupational Medicine and Industrial Hygiene.....	1461
Josiah Macy, Jr., Foundation. Problems of Early Infancy. Transactions of the First Conference, March 3-4, 1917.....	287
Kasch, Frederick W., and Cureton, Thomas Kirk, Jr. Physical Fitness Appraisal and Guidance	1020
Keene, Charles H., Rathbone, Josephine L., and Bacon, Francis L. Health in Your Daily Living	1594
Kershaw, John D. An Approach to Social Medicine.....	290
Kessler, Henry H. Cineplasty.....	117
Kinsey, A. C., Pomeroy, W. B., and Martin, C. E. Sexual Behavior in the Human Male..	571
Kirkbride (Dr.) and His Mental Hospital. Earl D. Bond.....	238
Klem, Margaret C., Baney, Anna Mae, and Hollingsworth, Helen. Medical Care and Costs in Relation to Family Income (2nd ed.).....	284
Kline, Howard M., Terris, Milton, Hapney, Cozette, and Kramer, Nathan A. The Maryland Medical Care Program.....	1704
Kubie, Lawrence S., and Harrower, Molly R. Training in Clinical Psychiatry. Symposium	436
Kupper, William H., Edited by. Interesting and Useful Medical Statistics.....	1593
Laboratory Experiments in Physiology (4th ed.) William D. Zoethout.....	1466
Lee, Eleanor and Young, Helen. Essentials of Nursing (2nd ed.).....	1463
Legal Aspects of Milk Sanitation (2nd ed.) James A. Tobey.....	1167
Lets Talk about Your Baby (3rd ed.) H. Kent Tenney, Jr.....	434
Levine, S. Z., Butler, Allan M., Holt, L. Emmett, Jr., and Weech, A. Ashley. Advances in Pediatrics, Vol. II.....	114
Levin, Oscar L., and Behrman, Howard T. Your Skin and Its Care.....	1708
Levinson, Samuel A., Edited by. Symposium on Medicolegal Problems. Under the Co-sponsorship of the Institute of Medicine of Chicago and the Chicago Bar Association	885
Life Insurance Medical Research Fund—Third Annual Report, 1947.....	1597
Lindesmith, Alfred R. Opiate Addiction.....	884
Louse, The—An account of the lice which infest man, their medical importance and control (2nd ed.) P. A. Buxton.....	578
Lovell, Robert G. Taking the Cure.....	1461
Low, R. Cranston, and Dodds, T. C. Atlas of Bacteriology.....	725
Lundberg, Emma Octavia. Unto the Least of These—Social Services of Children....	283
Macy, Josiah, Jr., Foundation. Factors Regulating Blood Pressure. Transactions of the First Conference April 24-25, 1917.....	1163
Malmberg, Carl. 140 Million Patients.....	573
See: Letter to the Editor.....	1580
Manual of Medical Parasitology, with Techniques for Laboratory Diagnosis and Notes on Related Animal Parasites. C. Courson Zeff.....	883
Manual of the Common Contagious Diseases, A (4th ed.) Philip Moen Stimson.....	120
Manvel, Allen D., Prepared under the supervision of. City Finances: 1945. Volumes 1, 2, 3.....	288
Man, Weather, Sun. William F. Petersen.....	1025
Marriages Are Not Made in Heaven. Janet Fowler Nelson, in collaboration with Margaret Heller	435
Marsh, Arnold. Smoke—The Problem of Coal and the Atmosphere.....	1706
Marshall, Max S., et al. Applied Medical Bacteriology.....	880

Books and Reports—Continued

	Page
Martin, C. E., Kinsey, A. C., and Pomeroy, W. B. Sexual Behavior in the Human Male..	571
Martin, C. R. A. Practical Food Inspection (3rd ed.).....	1287
Martz, Helen E. Citizen Participation in Government—A Study of County Welfare Boards	1598
Maryland Medical Care Program, The. Howard M. Kline, Milton Terris, Cozette Hapney, and Nathan A. Kramer.....	1704
McAllister, Joseph B. Ethics—With Special Application to the Nursing Profession....	120
McBride, Earl D. Disability Evaluation (4th ed.).....	1704
McCollum, E. V., and Becker, J. Ernestine. Food, Nutrition, and Health (6th ed.)....	728
McIntosh, W. A., and Milam, D. F. A Survey of the Epidemiological Services in Canada with Recommendations as to Desirable Developments in the Organization and Policy of the Department of National Health and Welfare.....	432
Meals for Millions—Final Report of the New York State Joint Legislative Committee on Nutrition. Chairman, Senator Thomas C. Desmond.....	576
Medical Care and Costs in Relation to Family Income (2nd ed.) Helen Hollingsworth, Margaret C. Klem, and Anna Mae Baney.....	284
Medical, Legal and Social Approaches to the Problems of Inebriety. Proceedings of a Conference Sponsored Jointly by the Research Council on Problems of Alcohol and the New York Academy of Medicine.....	436
Medical Officers of Schools Association. Handbook of Communicable Diseases for the Use of Medical Officers of Schools (11th ed.).....	1599
Medicine for Moderns. Frank G. Slaughter.....	730
Medicine in the Post War World—The March of Medicine, 1947. Number XII of the New York Academy of Medicine Lectures to the Laity.....	1589
Menninger, William C. Psychiatry in a Troubled World.....	1703
Mental Deficiency. (7th ed.) A. F. Tredgold.....	1700
Mental Health in Modern Society. Thomas A. C. Rennie and Luther E. Woodward..	1465
Meriam, Lewis and Bachman, George. The Issue of Compulsory Health Insurance....	1592
Milam, D. F., and McIntosh, W. A. A Survey of the Epidemiological Services in Canada with Recommendations as to Desirable Developments in the Organization and Policy of the Department of National Health and Welfare.....	432
Milbank Memorial Fund, 1946 Conference of the. A New Approach to Nutrition Services in State Health Departments.....	1160
Milk Products (2nd ed.) William Clunie Harvey.....	1287
Miller, Augustus T., and Morehouse, Laurence E. Physiology of Exercise.....	1596
Mind in Action, The. Eric Berne.....	1027
Ministry of Health Bulletins published in the Pharmaceutical Journal, 1944-1947, Basic Facts of Health Education, Selected Articles from the.....	1460
Ministry of Health, Scotland, Prepared by Department of Health for Scotland. Report of the Working Party on the Recruitment and Training of Nurses.....	288
Molecules Against Microbes. E. S. Duthie.....	433
Münnig, H. O. Veterinary Helminthology and Entomology (3rd ed.).....	1591
Morehouse, Laurence E., and Miller, Augustus T. Physiology of Exercise.....	1596
Mott, Frederick D., and Roemer, Milton I. Rural Health and Medical Care.....	1595
Murray, E. G. D., Hitchens, A. Parker, and Breed, Robert S. Bergey's Manual of Determinative Bacteriology (6th ed.).....	1700
National Safety Council. Accident Prevention Manual for Industrial Operations....	114
Neighborhood Unit Plan—Its Spread and Acceptance, The. Compiled by James Dahir..	1160
Nelson, Janet Fowler, in collaboration with Heller, Margaret. Marriages Are Not Made in Heaven	435
Neuschütz, Louise. 5,000,000 Casualties on the Home Front.....	286
New Approach to Nutrition Services in State Health Departments, A. 1946 Conference of the Milbank Memorial Fund.....	1160
New York Academy of Medicine Lectures to the Laity, Number XII of the. Medicine in the Post War World—the March of Medicine, 1947.....	1589
New York State Health Preparedness Commission. Planning for the Care of the Chronically Ill in New York State.....	728
New York Tuberculosis and Health Association. Tuberculosis Reference Statistical Year Book 1946.....	1705
Noah Webster: Letters on Yellow Fever Addressed to Dr. William Currie—Introductory essay by Benjamin Spector. (Supplements to the Bulletin of the History of Medicine No. 9).....	1465
Nursing in Tuberculosis. Louise Lincoln Cady.....	1028
Nursing. Lulu K. Wulf.....	286
Nutrition and the Public Health: A Study Guide. Adella M. Beeuwkes, and John J. Hanlon	1288
Occupational Diseases of the Skin. (2nd ed.) Louis Schwartz, Louis Tulipan, and Samuel M. Peck.....	118
Occupational Medicine and Industrial Hygiene. Rutherford T. Johnstone.....	1464
140 Million Patients. Carl Malmberg.....	573
See: Letter to the Editor.....	1580
On Hospitals. S. S. Goldwater.....	289
Opiate Addiction. Alfred R. Lindesmith.....	884
Oral Hygiene Committee of Greater New York. Radio Manual—A Guide to Broadcasting for Mouth Health Education.....	1288
Oral Vaccines and Immunization by Other Than Usual Routes. David Thompson and Robert Thompson	1461

Books and Reports—Continued

Page

Ordinance No. 2467—Providing for the Regulation and Operation of "Care Homes"....	1462
Overholser, Winfred, and Richmond, Winifred V. Handbook of Psychiatry.....	432
Pamphlets that Pull. Alexander L. Crosby.....	1590
Parkinson, G. S., assisted by Shaw, Kathleen M. A Synopsis of Hygiene.....	882
Pathology of Nutritional Disease, The. Richard H. Follis, Jr.....	880
Peck, Samuel M., Schwartz, Louis, and Tulipan, Louis. Occupational Diseases of the Skin (2nd ed.).....	118
Petersen, William F. Man, Weather, Sun.....	1025
Physical Fitness Appraisal and Guidance. Thomas Kirk Cureton, Jr., and Frederick W. Kasch, assisted by John Brown and W. G. Moss.....	1020,
Physiologic Therapy in Respiratory Diseases (2nd ed.) Alvan L. Barach.....	1459
Physiology and Pathology of the New-born. Compiled by A. N. Antonov.....	732
Physiology of Exercise. Laurence E. Morehouse and Augustus T. Miller.....	1596
Planning for the Care of the Chronically Ill in New York State. New York State Health Preparedness Commission.....	728
Pomeroy, W. B., Martin, C. E., and Kinsey, A. C., Sexual Behavior in the Human Male..	571
Potter, Edith L. Fundamentals of Human Reproduction.....	1589
Practical Clinical Psychiatry. Edward A. Strecker, Franklin G. Ebaugh, and Jack R. Ewalt	437
Practical Food Inspection (3rd ed.) C. R. A. Martin.....	1287
Practical Psychiatry and Mental Hygiene. Samuel W. Hartwell.....	575
Principles of Medical Statistics (4th ed.) A. Bradford Hill.....	1461
Principles of Occupational Therapy. Edited by Helen S. Willard and Clare S. Spackman	1460
Private Enterprise or Government in Medicine. Louis Hopewell Bauer.....	1025
Problems of Early Infancy. Transactions of the First Conference, March 3-4, 1947. The Josiah Macy, Jr., Foundation.....	287
Proceedings of a Conference on Industrial Ophthalmology. Columbia University College of Physicians and Surgeons, Sponsored by the.....	433
Psychiatry in a Troubled World. William C. Menninger.....	1703
Psychotherapy in Child Guidance. Gordon Hamilton.....	1703
Psychotherapy, Its Uses and Limitations. D. R. Allison, and R. G. Gordon.....	1707
Public Health—A Career with a Future (rev. ed.) American Public Health Association	1021
Public Health Administration in the United States (3rd ed.) Wilson G. Smillie.....	882
Public Health Law (3rd ed.) James A. Tobey.....	1026
Radio Manual—A Guide to Broadcasting for Mouth Health Education. Oral Hygiene Committee of Greater New York.....	1288
Rathbone, Josephine L., Bacon, Francis L. and Keene, Charles H. Health in Your Daily Living	1594
Reading and Visual Fatigue. Leonard Carmichael and Walter F. Dearborn.....	286
Recent Advances in Public Health. J. L. Burn.....	724, 1708
Rennie, Thomas A. C., and Woodward, Luther E. Mental Health in Modern Society..	1465
Report of the Working Party on the Recruitment and Training of Nurses. Prepared by Department of Health for Scotland, Ministry of Health, Scotland.....	288
Research and Regional Welfare. Edited by Robert E. Coker, with a Foreword by Louis R. Wilson.....	1593
Research Council on Problems of Alcohol and New York Academy of Medicine, Proceedings of a Conference Sponsored Jointly by the. Medical, Legal and Social Approaches to the Problems of Inebriety.....	436
Richmond, Winifred V., and Overholser, Winfred. Handbook of Psychiatry.....	432
Road to School Health, The. Guides for Better School Health. Bulletin No. 1. Wisconsin Cooperative School Health Program.....	119
Robert, Doris, and Flynn, Martha E. Tuberculosis Nursing Manual.....	1461
Rodenwaldt, Ernst. (Senior Author). Hygiene Part I., General Hygiene. (Fiat Review of German Science 1939-1946).....	1702
Roemer, Milton I., and Mott, Frederick D. Rural Health and Medical Care.....	1595.
Rosebury, Theodor. Experimental Air-Borne Infection.....	1022
Rosen, George and Caspari-Rosen, Beate. 400 Years of a Doctor's Life.....	1598
Routzahn, Mary Swain and Baker, Helen Cody. How to Interpret Social Welfare...	435
Runes, Dagobert D., Edited by. The Selected Writings of Benjamin Rush.....	726
Rural Health and Medical Care. Frederick D. Mott, and Milton I. Roemer.....	1595
Russell, C. Herbert H. The Care of the Teeth, Prenatal and in Infancy.....	1462
Russell Sage Foundation, 1907-1946 (2 Volumes.) John M. Glenn, Lillian Brandt, and F. Emerson Andrews.....	1289
Rypins' Medical Licensure Examinations (6th ed.) - Prepared under the Editorial Direction of W. L. Bierring.....	580
Sand, René. Vers la Médecine Sociale.....	1284
Satterfield, G. Howard and Dann, W. J., Edited by. Biological Symposia, Vol. XII: Estimation of the Vitamins.....	115
Say It With Figures. Hans Zeisel.....	1289
Scheer, Bradley T. Comparative Physiology.....	1167
Schmidt, Hans. (Senior Author.) Bacteriology and Immunology. (Fiat Review of German Science 1939-1946)	1702
School Health and Health Education. C. D. Turner.....	115
Schuyler, William M., Edited by. The American Year Book, 1946.....	727
Schuyler, William M., Edited by. The American Year Book, 1947.....	1594

Books and Reports—Continued	Page
Schwartz, Louis, Tulipan, Louis, and Peck, Samuel M. Occupational Diseases of the Skin (2nd. ed.).....	118
Science and Public Policy. Volume I. Report to the President by John R. Steelman, Chairman, The President's Scientific Research Board.....	283
Selected Writings of Benjamin Rush, The. Edited by Dagobert D. Runes.....	726
Sexual Behavior in the Human Male. A. C. Kinsey, W. B. Pomeroy, and C. E. Martin..	571
Sex Variants: A Study of Homosexual Patterns. George W. Henry.....	1600
Shaw, Kathleen M., and Parkinson, G. S. A Synopsis of Hygiene.....	882
Sherman, Henry C. Calcium and Phosphorus in Foods and Nutrition.....	580
Sherman, Henry C. Food and Health (new ed.).....	118
Short, A. Rendle. The Causation of Appendicitis.....	115
Shryock, Richard H. American Medical Research, Past and Present.....	883
Silverman, Leslie. Industrial Air Sampling and Analysis. Chemistry and Toxicology Series; Bulletin No. 1, 1947.....	1702
Slaughter, Frank G. Medicine for Moderns.....	730
Smillie, Wilson G. Public Health Administration in the United States (3rd ed.).....	882
Smoke—The Problem of Coal and the Atmosphere. Arnold Marsh.....	1706
Snapper, I., and Dock, William, Edited by. Advances in Internal Medicine. Volume II..	728
Spackman, Clare S., and Willard, Helen S. Principles of Occupational Therapy.....	1460
Sports for the Handicapped (2nd ed.) George T. Stafford.....	731
Stafford, George T. Sports for the Handicapped (2nd ed.).....	731
Steel, Ernest W. Water Supply and Sewerage (2nd rev.).....	285
Steelman, John R., Chairman, The President's Scientific Research Board. Science and Public Policy—Volume I.....	283
Stimson, Philip Moen. A Manual of the Common Contagious Diseases (4th ed.).....	120
Stone, Sybil A., Castendyck, Elsa and Hanson, Harold B. Children in the Community The St. Paul Experiment in Child Welfare.....	116
Strecker, Edward A., Ebaugh, Franklin G., and Ewalt, Jack R. Practical Clinical Psychiatry	437
Summary of International Vital Statistics, 1937-1944. Prepared under the supervision of Halbert L. Dunn.....	435
Survey of the Epidemiological Services in Canada with Recommendations as to Desirable Developments in the Organization and Policy of the Department of National Health and Welfare, A. D. F. Milam and W. A. McIntosh.....	432
Symposium on Medicolegal Problems. Under the Co-sponsorship of the Institute of Medicine of Chicago and the Chicago Bar Association. Edited by Samuel A. Levinson	885
Synopsis of Hygiene, A (9th ed.) G. S. Parkinson assisted by Kathleen M. Shaw.....	882
Synopsis of Pediatrics. (5th ed.) John Zahorsky.....	1706
Taking the Cure. Robert G. Lovell.....	1464
Tangney, Mary E. Diabetes and the Diabetic in the Community.....	437
Tanner, F. W., and Tanner, F. W., Jr. Bacteriology—A Textbook of Microorganisms (4th ed.)	1166
Teleky, Ludwig. History of Factory and Mine Hygiene.....	1701
Tenney, H. Kent, Jr. Lets Talk about Your Baby (3rd ed.).....	434
Terris, Milton, Hapney, Cozette, Kramer, Nathan A., and Kline, Howard M. The Maryland Medical Care Program.....	1704
Textbook of Bacteriology, A. (6th ed.) R. W. Fairbrother.....	1021
Thompson, David and Thompson, Robert. Oral Vaccines and Immunization by Other Than Usual Routes.....	1461
Tifus Exanthematico. Dres. F. Fonseca and Fr. Wohlwill.....	1590
Tobey, James A. Legal Aspects of Milk Sanitation (2nd ed.).....	1167
Tobey, James A. Public Health Law (3rd ed.).....	1026
Top, Franklin H. and Collaborators. Handbook of Communicable Diseases (2nd ed.)..	436
Training in Clinical Psychiatry. Symposium. Lawrence S. Kubie and Molly R. Harrower	436
Tredgold, A. F. Mental Deficiency. (7th ed.).....	1700
Tuberculosis Nursing Manual. Martha E. Flynn and Doris Roberts.....	1461
Tuberculosis Reference Statistical Year Book 1946. New York Tuberculosis and Health Association	1705
Tulipan, Louis, Peck, Samuel M., and Schwartz, Louis. Occupational Diseases of the Skin (2nd ed.).....	118
Turner, C. E. School Health and Health Education.....	115
Turner, Lenore. Give Your Child A Chance.....	1165
Unto the Least of These—Social Services of Children. Emma Octavia Lundberg.....	283
Use of Aircraft in the Control of Mosquitoes, The. Sponsored by the American Mosquito Control Association.....	1285
Vers la Médecine Sociale. René Sand.....	1284
Veterinary Helminthology and Entomology (3rd ed.) H. O. Mönnig.....	1591
Victorian Order of Nurses for Canada—Fiftieth Anniversary. John Murray Gibson..	1598
Water Purification Control (3rd ed.) Edward S. Hopkins.....	1595
Water Supply and Sewerage (2nd rev.) Ernest W. Steel.....	285
Weech, A. Ashley, Levine, S. Z., Butler, Allan M., and Holt, L. Emmett, Jr. Advances in Pediatrics, Vol. II.....	114
Weidner, Edward W. The American County—Patchwork of Boards.....	580
Willard, Helen S., and Spackman, Clare S., Edited by. Principles of Occupational Therapy	1460

Books and Reports—Continued		Page
Wilson, Netta W., and Irwin, Verne D. Dental Health Teaching Outline.....		1591
Wisconsin Coöperative School Health Program. The Road to School Health. Guides for Better School Health, Bulletin No. 1.....		119
Wohlwill, Fr., and Fonseca, Dres. F. Tifus Exanthematico.....		1590
Wolf, Frederick A., and Wolf, Frederick T. Fungi.....		289
Woodward, Luther E., and Rennie, Thomas A. C. Mental Health in Modern Society...		1465
Worden, Alstair N. The Care and Management of Laboratory Animals.....		1701
Wulf, Lulu K. Nursing.....		286
You Can Lick TB—Handbook for Tuberculosis Patients, Pamphlet 10-18.....		1463
Young, Helen and Lee, Eleanor. Essentials of Nursing (2nd ed.).....		1463
Your Skin and Its Care. Howard T. Behrman, and Oscar L. Levin.....		1708
Zahorsky, John. Synopsis of Pediatrics. (5th ed.).....		1706
Zeisel, Hans. Say It With Figures.....		1289
Zelliff, C. Courson. A Manual of Medical Parasitology, with Techniques for Laboratory Diagnosis and Notes on Related Animal Parasites.....		883
Zoethout, William D. Introduction to Human Physiology.....		1590
Zoethout, William D. Laboratory Experiments in Physiology (4th ed.).....		1466
Books Received.....	121, 293, 441, 585, 733, 888, 1029, 1168, 1293, 1467, 1602,	1711
Bookshelf, The Health Officer's. Huntington Williams, M.D., Dr.P.H.....		467
Bosch, Herbert M., Chairman. Industrial Sanitation.....	Year Book	99
Boyd, Richard F., M.D., Prepared by. Essentials of Good Local Public Health Administration. Summary of a Panel Discussion.....		219
Britain—The Changing Scene, Public Health in. Sir Andrew Davidson, M.D., F.R.C.P., F.R.C.S., F.R.S. Ed., D.P.H.....		319
Britain, The Health Officer in Post-War. Sir Allen Daley, M.D., F.R.C.P., D.P.H., K.H.P...		325
British National Health Insurance Act. See: The Battle of Britain. Editorial.....		711
Brookings Report. The Issue of Compulsory Health Insurance. See: Galileo Was Right. Editorial.....		1275
Brown, Earle G., M.D. Essentials of Good Local Public Health Administration. Summary of a Panel Discussion.....		219
Brucella Ring Test Antigen, A New and Rapid Method for the Preparation and Standardization of. Ronald M. Wood.....		1225
Buck, Carl E., Dr.P.H. Essentials of Good Local Public Health Administration. Summary of a Panel Discussion.....		219
Buck, Carl E., Dr.P.H., Joins University of Michigan Faculty.....		742
Budgets and Expenditures for Dentistry from Maternal and Child Health Funds. John T. Fulton, D.D.S.		825
Bundesen, Herman N. Staff Education in Chicago. Some Concrete Problems of Health Administration—A Symposium		915
Burney, L. E., M.D., M.P.H., and Watt, Ben H. Role of the Department of Education and the Department of Health in the Inservice Preparation of Classroom Teachers, School Administrators, School Nurses, and School Physicians. Preservice and Inservice Preparation in Health of School Personnel—A Symposium.....		25
"By His Tongue Shall Ye Know Him." Editorial.....		263

C

California, Fiscal Relationships Between the State and Local Health Departments in. Some Concrete Problems of Health Administration—A Symposium. W. L. Halverson..	922
California State Department of Health. See: Beginnings of a Mental Health Program in a State and Local Department of Health. Kent A. Zimmerman, M.D.....	811
Calvo, José, M.D., Robinson, William D., M.D., Serrano, Gloria, M.D., Payne, George C., M.D., and Anderson, Richmond K., M.D. Nutrition Appraisals in Mexico.....	1126
Cameron, G. D. W., M.D., D.P.H. A New National Health Program for Canada.....	1643
Canada, A New National Health Program for. G. D. W. Cameron, M.D., D.P.H.....	1643
Canadian Atlantic Coast, Paralytic Shellfish Poisoning on the. J. Gibbard and J. Naubert	550
Canada. See: Resolution 21—Recognition of Increased Federal Appropriations for Public Health in Canada. (Filler).....	1652
Cancer Control Program of the U. S. Public Health Service, Public Health Nursing in the. Rosalie I. Peterson, R.N.....	206
Cancer Control, Progress in. Editorial.....	259
Cancer Control, Recent Developments in. Austin V. Deibert, M.D.....	191
See: Progress in Cancer Control. Editorial.....	259
Cancer, The Cell Smear Method of Diagnosing. George N. Papanicolaou, M.D., Ph.D....	202
Can Public Health Agencies Handle Poliomyelitis Alone? Hart E. Van Riper, M.D.....	696
Cardiac Abnormalities, Value of Routine Fluorograms as a Measure for Detecting. Gerold Berenson, Lt. (j.g.) (MCR) USNR.....	1564
Cardiac. See: Rheumatic Fever	
Caries Control, Theoretical Considerations Concerning. L. S. Fosdick, Ph.D.....	977
Cattle Rabies in New York State, Dog, Fox, and. Robert F. Kornis, M.D., and A. Zeissig, D.V.M.	50
Cave Sickness—A New Disease Entity? A. M. Washburn, M.D., M.P.H., John H. Tuohy, M.D., and Elmer L. Davis, M.D.....	1521
Cell Smear Method of Diagnosing Cancer, The. George N. Papanicolaou, M.D., Ph.D....	202
Centennial of Public Health, A. Louis I. Dublin, Ph.D.....	1635

	Page
Changing Problems Growing Out of the Change in Composition of the Population. Lowell J. Reed, Ph.D.....	160
Chant, Harry L., M.D. Essentials of Good Local Public Health Administration. Summary of a Panel Discussion.....	219
Cheever, F. S., M.D. A Schick Survey of 18,000 Naval Recruits.....	374
Chicago, Staff Education in. Some Concrete Problems of Health Administration—A Symposium. Herman N. Bundesen.....	915
Childbirth and for Implementing Health Education, Suggested Techniques for Inducing Navaho Women to Accept Hospitalization During. Flora L. Bailey, Ph.D.....	1418
Child Feeding in Europe Under the International Children's Emergency Fund. Martha M. Elliot, M.D.	1
See: One World. Editorial.....	80
See: Public Health in the Eightieth Congress. Editorial.....	90
Child Guidance Clinic, The. Editorial.....	1273
Child Health. See: Cultivating Our Human Resources for Health in Tomorrow's World. Martha M. Elliot, M.D.....	1499
Child Health, Twenty-five Years in Maternal and. Felix J. Underwood, M.D.....	1512
Childhood and Youth. See: A Dream. Editorial.....	420
Child Psychiatry in the United States, Developments in. Frederick H. Allen, M.D.....	1201
Children in Eight Selected States, Community Health Services for. Charles L. Williams, Jr., M.D., M.P.H., John P. Hubbard, M.D., and Katherine Bain, M.D.....	75
Children of School Age, Principles for Consideration in Judging the Probable Effectiveness of Federal Legislation Designed to Improve the Health of. Approved by the Council of the School Health Section of the A.P.H.A.....	580
China. See: Orient.	
Chloromycetin Claimed To Be Effective in Rocky Mountain Spotted Fever Treatment.....	1733
Cholecystograms. See: The Chronic Typhoid Carrier.	
Chronic Typhoid Carrier, The: I. The Natural Course of the Carrier State. A. Littman, M.D., J. A. Valchulis, Ph.D., A. C. Ivy, Ph.D., M.D., R. Kaplan, M.D., and W. H. Baer, M.D.	1675
City Department of Health Program on the Improvement of Mechanical Dishwashing, A. Walter L. Mallmann, Ph.D., Leo Zaikowski, and David Kahler.....	239
Clark, Lloyd K., and Wolman, Abel, Dr.Eng. Human Waste Disposal from Railroad Passenger Cars	652
Clark, Robert N., and Kittrell, F. W. Bacteriological Studies of the Fort Loudoun Reservoir	342
Clearing House on Public Health Salary Information.....	103, 267, 563, 714, 867, 1153, 1452, 1582
Cleveland, The Air Pollution Control Program in. General Atmospheric Pollution—A Symposium. Herbert G. Dyktor.....	957
Cobbler's Children, The. Editorial.....	856
Cocci in Swimming Pools, Sanitary Significance of. Cassandra Ritter and E. Lee Treece, Ph.D.	1532
Cohen, Ethel. A Medical-Social Worker's Approach to the Problem of Poliomyelitis.....	1092
Cohen, Hedwig, R.N., Fisher, Ruth, R.N., and Rusby, Dorothy, R.N. Comment of N.O.P.H.N. Field Staff on Seattle and Richmond Reports.....	1673
Colliform Densities. See: Water	
Colombia, Simple Goiter in. Horacio Parra, M.D.....	820
Colorado. See: The Ailments of Health Departments. Florence R. Sabin, M.D.....	1508
Colorado Springs, Colo. See: Mass Control of Dental Caries Through the Use of Domestic Water Supplies Containing Fluorine. Frederick S. McKay, D.D.S.....	828
Colorado Tick Fever, Epidemiology of. Lloyd Florio, M.D., Dr.P.H., and Mabel Stewart Miller	211
Comment of N.O.P.H.N. Field Staff on Seattle and Richmond Reports. Hedwig Cohen, R.N., Ruth Fisher, R.N., and Dorothy Rusby, R.N.....	1673
Committee List, 1947-1948.....	Year Book, 19
Committees, Reports on:	
Administrative Practice, Subcommittee on Medical Care. Coordination of Hospital and Health Departments. Joint Statement of Recommendations by the American Hospital Association and the American Public Health Association.....	700
Administrative Practice. Wilton L. Halverson, M.D., Chairman.....	Year Book, 54
Air Pollution. H. A. Whittaker, Chairman.....	Year Book, 761
Archivist, 1947, Report of the. Anna M. Sexton.....	Year Book, 71
Biological Stain Commission, The. Report of the Association Representative. Edmund K. Kline, Dr.P.H.....	Year Book, 79
Coördinating Committee on Standard Methods. Friend Lee Mickle, Sc.D., Chairman..	Year Book, 75
Coördination of the Public Health Education Section with all other Sections of the A.P.H.A. Muriel F. Bliss, Ph.D., Chairman.....	Year Book, 104
Diagnostic Procedures and Reagents (Standard Methods). R. S. Muckenfuss, M.D., Chairman	Year Book, 81
Diagnostic Procedures in Virus and Rickettsial Diseases (Standard Methods). Thomas Francis, Jr., M.D., Chairman.....	Year Book, 78
Eligibility. Vlado A. Getting, M.D., Chairman.....	Year Book, 65
Evaluation of Commercial Advertising. Edna M. Kech, Chairman.....	Year Book, 109
Examination of Germicides and Antibacterial Agents, Report of the Referee on Suppressive Measures for the Control of Dust, to the Standard Methods Committee for the. Problem of Dust Control for the Disinfection of Air. Clayton G. Looslie, M.D., Referee	400

Committees, Reports on—Continued	Page
Exploration of Research Needs in the Field of Environmental Sanitation (Progress Report). B. A. Poole, Chairman.....	Year Book, 82
Industrial Sanitation. Herbert M. Bosch, Chairman.....	Year Book, 99
Microbiological Examination of Foods (Standard Methods). Harry E. Goresline, Ph.D., Chairman	Year Book, 101
Municipal Public Health Engineering. Time Studies—A Needed Research Project. J. Lloyd Barron, C.E., Chairman.....	Year Book, 87
Professional Education. William P. Shepard, M.D., Chairman.....	Year Book, 60
Criteria for Institutions to be Accredited for the Degree of Master of Public Health (Diploma of Public Health in Canada) and for the Degree of Doctor of Public Health, for the Academic Year 1948-1949.....	100
Proposed Report on the Educational Qualifications of Community Health Educators. W. P. Shepard, M.D., Chairman.....	843
Proposed Report on the Educational Qualifications of Sanitarians. W. P. Shepard, M.D., Chairman	1003
Public Health Degrees and Certificates Granted in the United States and Canada During the Academic Year, 1946-1947. William P. Shepard, M.D., Chairman....	88
Public Health Education Problems in the Far West Region. Howard Lundy, Dr.P.H., Chairman	Year Book, 106
Public Health Education Problems in the Northwestern Region. Edna A. Gerken, Chairman	Year Book, 107
Public Health Films. Kenneth D. Widdemer, Chairman.....	Year Book, 108
Research and Standards, Adopted by the Committee, October 6, 1947. Recommended Methods for Rabies Control.....	97
Research and Standards. Thomas Francis, Jr., M.D., Chairman.....	Year Book, 50
Food Utensil Sanitation Proposed as Official Association Procedure. Subcommittee on Food Utensil Sanitation. Walter D. Tiedeman, M.C.E., Chairman..	Year Book, 68
Rural Sewage Disposal (Progress Report). William T. Ingram, Chairman..	Year Book, 92
School Sanitation. Herbert J. Dunsmore, Chairman.....	Year Book, 95
Shellfish (Progress Report). M. H. Bidwell, Chairman.....	Year Book, 90
Water Supply. Charles R. Cox, Chairman.....	221
Common Cold, The Virus of a. Editorial.....	421
Communicable Disease Center at Atlanta, The. Editorial.....	1578
Community Health Services for Children in Eight Selected States. Charles L. Williams, Jr., M.D., M.P.H., John P. Hubbard, M.D., and Katherine Bain, M.D.....	75
Community Resources for Health Education—How Well Are They Being Utilized in the School Health Program?	
Discussed by a Voluntary Agency Health Educator. Beryl J. Roberts.....	1254
Discussed by a Health Officer. George James, M.D., M.P.H.....	1258
Comparative Efficiency of Rectal Swabs and Fecal Specimens in Detecting Typhoid and Salmonella Cases and Carriers. Howard J. Shaughnessy, Ph.D., Frances Frierer, and Adele Snyder	670
Comparison of the Immunogenic and Anaphylactogenic Properties of Rocky Mountain Spotted Fever Vaccines Prepared from Infected Yolk Sacs and from Infected Tick Tissue. David Lackman, Ph.D., and R. R. Parker, Ph.D.....	1402
Compound G-11 in Reducing Pyogenic Skin Infections, Effectiveness of. John R. Fuller, M.D., Chester A. Newhall, M.D., Frederick C. Thorne, M.D., and Eugene F. Traub, M.D.	1228
Conference of Health Officers and Merit System Supervisors, Gleanings from the. See: Selecting Public Health Personnel Through Examining Processes. Dorothy Deming, R.N.	808
Conferences and Dates.....	144, 317, 466, 612, 759, 914, 1060, 1199, 1359, 1497, 1634, 1740
Connecticut. See: Rheumatic Heart Disease and Crowding. Robert W. Quinn, M.D., John H. Watkins, Ph.D., and Julia P. Quinn, M.S.S.....	1071
Connor, Charles A. R., M.D. See: The Rheumatic Fever Community Program. A Symposium	1082
Conservation of Hearing Program, Results and Problems after Four Years of a. William R. Willard, M.D., and Donald F. Proctor, M.D.....	1424
Contribution of the Medical School and the School of Public Health. Preservice and Inservice Preparation in Health of School Personnel—A Symposium. Ira V. Hiscock, Sc.D.	36
Contribution of the School of Nursing and the Graduate Course in Public Health Nursing. Preservice and Inservice Preparation in Health of School Personnel—A Symposium. Ruth Freeman, R.N.....	39
Coöperation with Voluntary Organizations in Montgomery County, Maryland. Some Concrete Problems of Health Administration—A Symposium. V. L. Ellicott.....	918
Coördinating Committee on Standard Methods. Friend Lee Mickles, Sc.D., Chairman..	Year Book, 75
Coördination and Integration of the Public Health Program, The. Henry F. Vaughan, Dr.P.H.	331
Coördination of Hospitals and Health Departments. Joint Statement of Recommendations by the American Hospital Association and the American Public Health Association...	700
Coördination of Preventive and Curative Services in Maryland. William H. F. Warthen, M.D., M.P.H.	1393
Coördination of the Public Health Education Section with all other Sections of the A.P.H.A. Muriel F. Bliss, Ph.D., Chairman.....	Year Book, 104

	Page
Cowper, Herbert H., M.D., M.P.H. Development of a Voluntary Agency for Venereal Disease Control	1130
Cox, Charles R. Report of the Committee on Water Supply.....	221
Cox, Herald R., Sc.D. Specific Complement-Fixing Diagnostic Antigens for Viral and Rickettsial Diseases	351
Credit Lines	108, 274, 422, 567, 717, 872, 1015, 1278, 1455, 1584
Accidental Death Score, Kansas Knows Its.....	111
Agenda. See: Health Program Aids.....	276
Alaska, Home Care of the Tuberculous in. See: Saying It with Pictures.....	278
Alcoholics Pays for Itself, Care of.....	1279
American Academy of Pediatrics. See: Have You a Problem Child?.....	276
American Diabetes Association Forecast.....	422
American Medical Association, Journal of the. See: State Legislation Affecting Physicians	423
A.P.H.A. 75th Annual Meeting. See: Sharing the Annual Meeting with the Community	112
American Social Hygiene Association, 34th Annual Report. See: Annual Reports.....	723
American Water Works Association, Journal of the. See: A Survey of Operating Data for Water Works in 1945.....	720
American Water Works Association, Journal of the. See: Disinfecting Water Mains..	719
Annual Reports	110
Antipartum Nursing Service. See: A Look at the Record.....	1280
Baltimore City Health Department. See: Preventive Mental Hygiene in Well Baby Clinics	719
Baruch, Bernard, on Medical Care.....	720
Bird's-Eye View, A.....	1016
Birmingham-Jefferson County, Alabama Health Department. Public Health in a Changing World. See: Annual Reports.....	569
Blithe Is Born.....	422
Blood Center, Junior League Sponsors.....	274
Blood Transfusion Center, French National.....	109
Blue Earth, Minnesota. See: Looking at Local Government Again.....	280
Bowditch to Getting in Massachusetts, From.....	277
Brazil, Public Health in.....	720
Breakfast Campaign, A Good.....	1587
Britain, Health Services in.....	278
British Children During the War, The Story of.....	1456
British Information Services. See: "Cradle to the Grave" Social Services Outline....	719
British Journal of Science, A New.....	112
Broken Homes	282
Bromine?, What Do You Know About.....	111
Brookline, Mass., Health in.....	1015
Burritt, Bailey B. "Life, Death, and Tuberculosis as Affected by Standard of Living." See: Tuberculosis Rides with Poverty.....	1278
Business Concerns Will Help Too.....	281
Butch Learned the Hard Way. See: Worth Acquiring.....	1019
Calhoun County, Michigan. See: Annual Reports.....	1282
California State Board of Health. See: Standards for Local Health Departments.....	280
"Canada's Health and Welfare." See: Attracting Attention without Shouting.....	1586
Cancer Bulletin, Texas.....	1585
Cancer Front, News on the.....	275
Cancer in the Back Country, Finding.....	1017
Cancermobile. See: Finding Cancer in the Back Country.....	1017
Cancer Study Contest in High Schools.....	1017
Cattaraugus County, N. Y. See: Your Health Department.....	424
Cerebral Palsy, The Problem of. See: Worth Acquiring.....	876, 1283
Children Calling. See: Each Helps in His Own Way.....	568
Children During the War, The Story of British.....	1456
Children Learn about Food, What Shall.....	1587
Children's Bureau Reports on Children, The.....	110
Children's Fund of Michigan.....	279
Cholera in Egypt, WHO and.....	274
Chronicle of the World Health Organization. See: Chronicling World Health.....	277
Ciba Symposia. See: Esoterica.....	274
Cincinnati, Ohio. See: The Cost of Community Failures.....	570
Civil Service Do It, Let.....	1283
Cleveland Catches Rats.....	424
Cleveland Division of Health. See: A Bird's-Eye View.....	1017
Cleveland Health Museum. See: "Tic" Continues to Tick.....	275
Colorado Has a Health Bulletin.....	567
Common Man to Understand, Helping the.....	422
Commonwealth Fund for 1947, The 29th Annual Report of the. See: Annual Reports..	569
Community Failures, The Cost of.....	570
Community Service Society of New York. See: 100 Years of Pioneering.....	720
Community War Services—1941-1946.....	110
Connecticut Health Bulletin. See: Where Each Town Stands.....	276
Connecticut State Department of Health. See: Health Educational Services.....	113

Credit Lines—Continued

	Page
Connecticut Takes the Next Step.....	423
Consumers Union on Health Matters.....	281
"Cradle to the Grave" Social Services Outlined.....	719
Dental Health, Each Has Its Job in.....	1457
Dental Health Education.....	424
Dental Health Program for Elementary and Secondary Schools.....	282
Dental Program, Ten Year.....	1584
Dental Students in Public Health, Orienting.....	1456
Dentistry for School Children. See: Saving Every Permanent Tooth.....	274
Denver Tuberculosis Society. See: Denver's Capsule Report.....	423
Des Moines, Iowa. Through the War Years, 1941-1947. See: Annual Reports.....	569
Detroit, Michigan Children's Hospital. See: Each Helps in His Own Way.....	568
Diabetes Association Forecast, American.....	422
Diabetes, Good News about. See: Worth Acquiring.....	876
Disinfecting Water Mains.....	719
Doull, James A., M.D., on WHO.....	1283
Duluth, Minn. See: Labor to Operate a Hospital Cooperatively.....	1281
Egypt, WHO and Cholera in.....	274
Engineers' Council for Professional Development. See: ECPD—A Challenge.....	1017
Englishman Suggests a Hygienic Fork.....	719
Environmental Health Problems. See: When a City Spreads Beyond Its Borders.....	1278
Esoterica	274
Family Living. See: Houses Are Homes.....	874
Federal Research Grants, About.....	1016
Films. See: Have You a Problem Child?.....	276
"It's in the Bag," a New Film.....	872
A Look at the Record.....	1280
West Virginia's Movies Catalogue.....	1585
Florida, Union County. See: What Shall Children Learn About Food.....	1587
Food Handlers' Schools.....	722
Fork, Englishman Suggests a Hygienic.....	719
"For the Nation's Health." See: Training Manual, U.S.P.H.S.....	1585
French National Blood Transfusion Center.....	109
Georgia's Department of Public Health. See: Dental Health Education.....	424
Each Has Its Job in Dental Health.....	1457
Georgia Warm Springs Foundation. See: Annual Reports.....	875
Getting in Massachusetts, From Bowditch to.....	277
Gonorrhea and the Private Physician.....	1280
Goober, The Versatile.....	1456
Handicapped, Magazine for the Nation's.....	112
Hawaii. See: Food Handlers' Schools.....	722
Hawaii, The Health Story in.....	281
Health Centers Under the Hospital Construction Act.....	113
Health Educational Services.....	113
Health Education Testimony.....	110
Health for a Million. See: A Bird's-Eye View.....	1016
Health in Brookline Town.....	1015
Health Insurance Plan of Greater New York. See: New York H.I.P. Surgeons.....	281
Health on the Radio in Oklahoma.....	1016
Health Program Aids.....	276
Helping the Common Man to Understand.....	422
Hickey, Margaret. See: The Home Town Reality of a Federal Policy.....	1586
High School Journal, The. See: Health Education Testimony.....	110
Home Safety Conference of the National Safety Conference. See: The Safety World Gets Together	872
Home Town Reality of a Federal Policy, The.....	1586
Hospital Quiz. See: Division of Hospital Facilities of the U. S. Public Health Service..	113
Hospital Survey and Construction Program Law and Regulations. See: Division of Hospital Facilities of the U. S. Public Health Service.....	113
Household, Safety for the.....	568
Houses Are Homes.....	874
Housing Needs Made Vivid.....	1279
Housing Study in St. Louis, Rat Control Program Follows.....	110
How to Build a Safer Home. See: Worth Acquiring.....	1019
Illinois State Department of Health. See: Staff Esprit de corps.....	109
Illinois Through Health Education, Better Living in. See: Blithe Is Born.....	422
Indiana Health Advisory Council. See: As Simple as $2 + 2 = 4$	1016
Indiana Means It.....	873
Indiana, More Stirrings in.....	1457
Indian Publication, People's Health, A New.....	112
Industrial Health: A Guide for Medical and Nursing Personnel: See: Worth Acquiring	1018
Industry and Sanitation.....	1457
Institute of Inter-American Affairs, 1942-1947, Food Supply Division. See: Annual Reports	875
International Ladies Garment Workers Union of New York City. See: Thirty Years of Union Medical Services.....	278

Credit Lines—Continued

	Page
John and Mary R. Markle Foundation. See: Annual Reports.....	1282
Juvenile Delinquency Programs, Community.....	569
Kansas Knows Its Accidental Death Score.....	111
Kentucky Department of Health. See: Parent-Teachers and Health.....	109
Labor to Operate a Hospital Coöperatively.....	1281
"Ladies Home Journal." See: The Home Town Reality of a Federal Policy.....	1586
Language Needn't Be Stuff, Official.....	1587
"Law + Community Action—A Healthy Community." See: As Simple as $2 + 2 = 4$	1016
Lawrence County, Illinois, Medical Society. See: What Does a Health Department Do? ..	872
Lawrence, David L. See: Pittsburgh's Mayor Declares Himself.....	1015
"Life, Death, and Tuberculosis as Affected by Standards of Living," by Bailey B. Burritt. See: Tuberculosis Rides with Poverty.....	1278
Local Government Again, Looking at.....	280
Local Health Councils Are Built, How.....	570
Local Health Departments, Standards for.....	280
Local Health Services Bill. See: PTA Follows Through.....	722
Local Health Units. See: Indiana Means It.....	873
Where Ohio Now Stands.....	568
Will Dallas Lead the Way?.....	721
London. See: Further Light on the Peckham Health Center.....	717
Lorain County, Ohio. See: The Idea Was Good Anyway.....	874
Louisiana Society for Mental Health, The. See: Pierre the Pelican Series.....	721
Lyon, Yolande. Stepping Stones to a Health Council. See: How Local Health Councils Are Built.....	570
March of Dimes. See: Polio and People.....	424
Massachusetts Department of Public Health, 75th Anniversary of the. See: From Bowditch to Gettings in Massachusetts.....	277
Massachusetts State Department of Health. See: Business Concerns Will Help Too..	281
Mayors Know the Cost of Slums.....	874
Medical Care, Bernard Baruch on.....	720
Medical Examination, The Habit of Annual.....	1586
Medical Research on the Air.....	423
Men Nurses, A Survey of.....	1018
Mental Health Act, State Planning for Participation in the National.....	113
Mental Health on the Radio.....	873
Mental Health Program, The.....	279
Mental Health, The Louisiana Society for. See: Pierre the Pelican Series.....	721
Mental Hygiene in Well Baby Clinics, Preventive.....	719
Merit System, Oklahoma's.....	277
Metropolitan Life Insurance Company Statistical Bulletin. See: Etcetera.....	718
Michigan, Children's Fund of.....	279
Milk- and Water-Borne Disease Outbreaks, Summary of.....	1280
Milwaukee, Wisc. See: Junior League Sponsors Blood Centers.....	274
Minnesota Health Days, More.....	1585
Minnesota Health Day, Southwestern.....	718
Mississippi State Board of Health. See: A Look at the Record.....	1280
Money Saving Main Dishes. See: Worth Acquiring.....	1018
Movies Catalogue, West Virginia's.....	1585
National Cancer Institute. See: Official Language Needn't Be Stuff.....	1587
National Committee for Mental Hygiene. See: Annual Reports.....	1282
National Congress of Parents and Teachers. See: PTA Follows Through.....	722
National Foundation for Infantile Paralysis. A Decade of Doing. See: Annual Reports.....	569
National Health Council, Telling Doctors About the.....	875
National Institutes of Health Published, Descriptive Booklet on.....	1281
National League of Nursing Education Letter.....	875
National Organization for Public Health Nursing. See: Promoting Public Health Nursing.....	424
National Service Act. See: Health Services in Britain.....	278
National Society for Medical Research. See: Medical Research on the Air.....	423
National Social Welfare Assembly, The 1947 Annual Report of the. See: Annual Reports.....	723
"Nations United for Health." See: Dr. Doull on WHO.....	1283
"Nation-wide Inventory of Sanitation Needs." See: Worth Acquiring.....	1588
Negro Physician in American Medicine, The Plight of the. See: Doctors Consider Their Social Responsibility.....	718
New England Pioneers in Integrating Hospital Facilities.....	1281
New Mexico, Twenty-five Years of Public Health in. See: Annual Reports.....	722
New Republic, The. See: A "Highbrow" Magazine Discovers Public Health.....	1018
New York Academy of Medicine. See: Doctors Consider Their Social Responsibility..	718
New York City Cancer Committee. See: Cancer Study Contest in High Schools.....	1017
New York City Department of Health. See: Knowing Your Own Department.....	1587
New York Health Insurance Plan Burgeons.....	281
New York State Health Department Plans New Publications.....	872
Nurses, A New Technique for Recruiting.....	1584
"Nursing—A Growing Profession." See: Nursing in Pictures.....	1016
Nursing in Pictures.....	1016

INDEX

19

Credit Lines—Continued

	Page
Nutrition. See: The Story of British Children During the War.....	1456
Oakland, Calif., City Department of Public Health. See: Annual Reports.....	722
Ohio Now Stands, Where.....	568
Ohio Public Health. See: Consolidation Hits Its Stride.....	1457
Ohio Sanitarian Publishes Again, The.....	570
Ohio State Medical Journal.....	110
Oklahoma, Health on the Radio in.....	1016
Oklahoma's Merit System.....	277
Oregon, How It's Done in.....	1455
Paper Cups, Many Are the Uses of.....	1281
Parent-Teachers and Health.....	109
Peanuts. See: The Versatile Goober.....	1456
Peckham Health Center, Further Light on the.....	717
People's Health, A New Indian Publication.....	112
Physical examination. See: The Habit of Annual Medical Examinations.....	1586
Physically Handicapped. See: Public Health Workers and Rehabilitation.....	1455
Pictures, Saying It With.....	278
Pioneer Health Center in London, The. See: Further Light on the Peckham Health Center.....	717
Pittsburgh's Mayor Declares Himself.....	1015
Planning Your Children.....	567
Polio and People.....	424
Premarital Laws of the States.....	1281
Premature Baby. Born Thirty Days Too Soon! See: Worth Acquiring.....	876
Princefon Conference, Ripples from the.....	103
Problem Child? Have You a.....	276
PTA, Dr. Turner Summarizes for.....	1015
Public Health Nurses No. 2—Syphilis—, Guide for.....	113
Queensboro Tuberculosis and Health Association. See: Annual Reports.....	1282
Radio Broadcasting. See: Medical Research on the Air.....	423
Radio in Oklahoma, Health on the.....	1016
Radio, Mental Health on the.....	873
Rat Control Program Follows Housing Study in St. Louis.....	110
Rats, Cleveland Catches.....	424
"Recent Amendments of the U. S. Public Health Service Milk Code," See: Worth Acquiring.....	1588
Rehabilitation, Public Health Workers and.....	1455
Ridenour, Nina. Some Special Problems of Children, Aged 2 to 5 Years. See: Worth Acquiring.....	1018
"Role of the Voluntary Health Agency in Promoting Public Health Services in Iowa, The." See: Worth Acquiring.....	1587
Safety for the Household.....	568
Safety World Gets Together, The.....	872
St. Louis, Rat Control Program Follows Housing Study in.....	110
Sanitation, Industry and.....	1457
Saratoga County, New York, Surveys Itself.....	111
School Health Is Going Places in Wisconsin.....	873
School Health, Physical Education and Recreation, State Administration of. See: Worth Acquiring.....	876
School Lunch Program—The Unexpected Gift. See: Worth Acquiring.....	876
75th Annual Meeting, A.P.H.A. See: Sharing the Annual Meeting with the Community.....	112
Shop Safety. Butch Learned the Hard Way. See: Worth Acquiring.....	1019
Sickness Insurance Bills in 16 States—Defeated, 50 Compulsory.....	275
Slums, Mayors Know the Cost of.....	874
Social Science Research Council, 1946-1947. See: Annual Reports.....	875
Social Security Administration, The 1947 Annual Report of the. See: Annual Reports..	723
Social Service and Rehabilitation in a Tuberculosis Sanatorium.....	282
Some Special Problems of Children, Aged 2 to 5 Years (series of 8 pamphlets). See: Worth Acquiring.....	1018
South Africa. See: A Living War Memorial.....	1584
Southwestern Minnesota Health Day.....	718
Staff Esprit de corps.....	109
"Stamford's Health." See: Sharing the Annual Meeting with the Community.....	112
State Charities Aid Association, New York Committee on Mental Hygiene of the. Some Special Problems of Children, Aged 2 to 5 Years. See: Worth Acquiring.....	1018
See: Sturdy Oak from Small Acorn.....	1280
State Legislation Affecting Physicians.....	423
State Planning for Participation in the National Mental Health Act.....	113
Stepping Stones to a Health Council by Yolande Lyon. See: How Local Health Councils are Built.....	570
Stream Pollution Abatement.....	874
Survey of Men Nurses, A.....	1018
Sweden, Public Health.....	567
Syphilis—Guides for Public Health Nurses No. 2.....	113
"Teamwork in Community Services, 1941-1946." See: Community War Services—1941-1946.....	110
Television Health Education.....	276

Credit Lines—Continued

	Page
Texas Cancer Bulletin.....	1585
Texas, Dallas. See: Will Dallas Lead the Way?.....	721
Texas Has a Public Health Journal.....	423
Texas State Health Department. See: "It's in the Bag." A New Film.....	872
"This Will Kill You." See: Worth Acquiring.....	1453
"Tic" Continues to Tick.....	275
Tooth, Saving Every Permanent.....	274
Tuberculosis Film, A New.....	112
Tuberculosis 40 Years in Wisconsin, Fighting.....	1283
Tuberculosis, Help Fight—A Story for You.....	282
Tuberculosis Hospital, Introducing the.....	875
Tuberculosis Rides With Poverty.....	1278
Tuberculosis Sanatorium, Social Service and Rehabilitation in a.....	282
Turner, Clair E., Dr.P.H., Summarizes for PTA.....	1015
Typhus in World War II.....	281
UNESCO and You: A Six-Point Program.....	282
Union Medical Services, Thirty Years of.....	278
University of North Carolina. See: Health Education Testimony.....	110
Urban Decentralization. See: When a City Spreads Beyond Its Borders.....	1273
U.S.P.H.S., Training Manual.....	1585
Virginia Health Bulletin Back on the Scene.....	1279
"Vocational Rehabilitation for Civilians." See: Public Health Workers and Rehabilitation.....	1455
"War in the Kitchen." See: Worth Acquiring.....	1457
War Memorial, A Living.....	1584
War Memorial That Makes Sense.....	1283
Washington Heights—Riverside District Health Committee, New York City. See: Annual Reports.....	1282
Water-Borne Disease Outbreaks, Summary of Milk- and.....	1280
Water Works in 1945, A Survey of Operating Data for.....	720
Western Branch A.P.H.A., "The Annual".....	718
West Virginia's Movies Catalogue.....	1585
See: A Good Breakfast Campaign.....	1587
What Is a Hospital System? See: Division of Hospital Facilities of the U. S. Public Health Service.....	113
When You Grow Older.....	282
WHO and Cholera in Egypt.....	274
WHO, James A. Doull, M.D. on.....	1283
See: Chronicling World Health.....	277
Why We Need More Hospitals. See: Division of Hospital Facilities of the U. S. Public Health Service.....	113
Wisconsin, Fighting Tuberculosis 40 Years in.....	1283
Wisconsin, School Health Is Going Places in.....	873
Wisconsin State Medical Society. Industrial Health: A Guide for Medical and Nursing Personnel. See: Worth Acquiring.....	1018
World Health Organization up to Date.....	873
"You and Your Department of Health." See: Knowing Your Own Department.....	1587
"You Are the Health Department." See: Staff Esprit de corps.....	109
"You Can Make a Good Radiograph." See: Worth Acquiring.....	1458
Criteria for Institutions to Be Accredited for the Degree of Master of Public Health (Diploma of Public Health in Canada) and for the Degree of Doctor of Public Health, for the Academic Year 1948-1949. Committee on Professional Education.....	100
Crowell, George E., D.M.D., and Turner, Naomi C., Ed.M. Relationship of Tryptophane to the Incidence of Dental Caries.....	525
Crowding, Rheumatic Heart Disease and. A Survey of Rural and Urban Connecticut School Children. Robert W. Quinn, M.D., John H. Watkins, Ph.D., and Julia P. Quinn, M.S.S.....	1071
Culli, George, Jr., Wise, Robert I., Ph.D., and Winston, Joe B., B.S. Factors of Sewage Pollution of Oyster Beds in Galveston Bay.....	1109
Cultivating Our Human Resources for Health in Tomorrow's World. Martha M. Eliot, M.D.....	1499
Current Status of Immunization Procedures. A Symposium. Vaccination Against Smallpox. R. S. Muckenfuss, M.D.....	476
Pertussis. Joseph A. Bell, M.D.....	478
Typhoid Fever. Rufus L. Holt, Colonel, M.C.....	481
Tetanus, and Exotic Diseases of Military Importance. Arthur P. Long, Lt. Col., M.C., U.S.A.....	485
Practical Aspects of Immunization Programs. Franklin H. Top, M.D.....	490

D

Daley, Sir Allen, F.R.C.P., D.P.H., K.H.P. The Health Officer in Post-war Britain.....	325
David, Lily Mary and Wiesner, Dorothy E. The Economic Status of Public Health Nurses, 1946-1947.....	1097
Davidson, Sir Andrew, M.D., F.R.C.P., F.R.C.S., F.R.S.Ed., D.P.H. Public Health in Britain —The Changing Scene.....	319
Davis, Elmer L., M.D., Washburn, A. M., M.D., M.P.H., Tuohy, John H., M.D. Cave Sick- ness—A New Disease Entity?.....	1521

	Page
Davis, Michael M. Letter to the Editor. Comment on Book Review "110 Million Patients" (published April 1948).....	1580
DDD. See: Insecticides	
DDT. See: Insecticides	
Death Certificates. See: Medical Attendance During Terminal Illness. Marta Fraenkel, M.D.	970
Death, Defect, and Disability in Prenatal Life. John E. Gordon, M.D., and Theodore H. Ingalls, M.D.	66
Death, Relative Efficiency of the Open and the Confidential Method of Reporting Causes of. Paul H. Jacobson.....	789

Page	Death Notices--Continued	Page
Death Notices.....127, 239, 447, 742, 896, 914, 1038, 1060, 1199, 1359, 1497, 1634, 1740	Kerr, Sara.....	299
Allen, Howard S., M.D.....	Khlyoun, Conrad.....	896, 914
Arbuckle, James F.....	Knowlton, Millard, M.D.....	1038, 1060
Austin, Richard S., M.D.....	LeBlanc, Thomas J.....	1634
Bailey, Karl R., M.D.....	Lepper, David B., M.D.....	742
Blackerby, Philip E., M.D.....	Lewis, Dwight Milton, M.D.....	1634
Blue, Rupert, M.D.....	Loughlin, James W., M.D.....	742
Boerner, Frederick, V.M.D.....	McGee, Harold Gilbert.....	758
Bousfield, Midlan O., M.D.....	Meyer, Marshall W., M.D., M.P.H.....	612, 742
Bredeck, Joseph F., M.D., D.P.H.....	Miller, James Alexander, M.D.....	1634
Brien, W. M., M.D.....	Milosavljev, Edward L., M.D.....	896
Brown, Elizabeth C.....	Moore, D. C. Y., M.D.....	742
Brunner, Harley A.....	O'Brien, William A., M.D.....	144
Calvert, Cecil K., 1886-1948.....	Pollak, Berthold S., M.D.....	1634
Campbell, Donald A., M.D.....	Powers, Frank T.....	447
Cham, Hyman M., Sc.D.....	Prior, Clementine J.....	1359
Clark, Tallafarro, M.D.....	Rector, Albert E., M.D.....	742
Crouch, Jesse H., M.D.....	Robbins, Benjamin B., M.D.....	1359
Davis, Joe.....	Roberts, Kingsley, M.D.....	299
Denny, Francis Parkman, M.D.....	Robertson, Donald F., M.D.....	144
Devine, Edward Thomas, Ph.D.....	Sandholzer, Leslie A., Ph.D.....	1199
Dudley, Mrs. Sigrid M.....	Shaban, Wellington P.....	299, 317
DuMez, Andrew G., Ph.D.....	Sheppard, Thomas T., M.D.....	1634
Fisher, Ralph Talcott.....	Sill, William M., M.D.....	1359
Franklin, Joseph P., M.D.....	Smith, William M., M.D., M.P.H.....	1199
Gates, Florence A.....	Soper, George A., Ph.D.....	1199
Gillette, O. R., M.D.....	Stander, Henricus Johannes, M.D.....	914
Gilman, Philip K., M.D.....	Stern, Frances.....	742
Halligan, Harold J., M.D.....	Strong, Richard Person, M.D.....	1497
Hamill, Samuel McClintock, M.D.....	Sullivan, Arthur L.....	1740
Heald, James H.....	Tarbett, Ralph E.....	742
Hearn, Roberts A., M.D.....	Taylor, Holman, M.D.....	742
Hene, Julius A., M.D.....	True, Herbert F., M.D.....	299
Hickey, Elsie.....	Vollertsen, B. H., M.D.....	1634
Hume, W. W., M.D.....	Watkins, John Hamilton, Ph.D.....	1634
Jones, A. W.....	Watson, C. H.....	1359
Jordan, Stroud, Ph.D.....	Wheeler, Kenneth M., Ph.D.....	299
Keck, Edna M.....	Whiting, Stephen E.....	1359
	Williams, Harriett M.....	896

Defect, and Disability in Prenatal Life, Death. John E. Gordon, M.D., and Theodore H. Ingalls, M.D.....	66
Degree of Master of Public Health (Diploma of Public Health in Canada) and for the Degree of Doctor of Public Health, for the Academic Year 1948-1949, Criteria for Institutions to Be Accredited for the Committee on Professional Education.....	100
Degree of Master of Public Health (Diploma of Public Health in Canada) and Doctor of Public Health for the Academic Year 1948-1949, Institutions Accredited by the American Public Health Association to give the.....	871
Degrees for 1948-1949, Schools of Public Health Accredited for the M.P.H. and Dr.P.H.....	870
Deibert, Austin V., M.D. Recent Developments in Cancer Control.....	191
See: Progress in Cancer Control. Editorial.....	239
Deming, Dorothy, R.N. Selecting Public Health Personnel Through Examining Processes..	808
Dental Caries, Relationship of Tryptophane to the Incidence of. Naomi C. Turner, Ed.M., and George E. Crowell, D.M.D.....	525
See: Theoretical Considerations Concerning Caries Control. L. S. Fosdick, Ph.D.....	977
Dental Caries Through the Use of Domestic Water Supplies Containing Fluorine, Mass Control of. Frederick S. McKay, D.D.S.....	828
Dental Health Education Services of the American Dental Association. Glenna G. Walter..	378
Dental Program, Role of the State Health Department in the School. J. M. Wisan, D.D.S., M.S.P.H.	833
Dentistry from Maternal and Child Health Funds, Budgets and Expenditures for. John T. Fulton, D.D.S.....	825
Detergents. See: Quaternary Ammonium Compounds.	
Detergents, Test for. William G. Walter.....	246

	Page
Detroit, Housing the Health Department in. Some Concrete Problems of Health Administration—A Symposium. Bruce H. Douglas.....	916
Detroit, Michigan. See: Post-war Public Health Problems in a Large American City. Bruce H. Douglas, M.D.....	214
Development of a Voluntary Agency for Venereal Disease Control. Herbert H. Cowper, M.D., M.P.H.	1136
Development of the Massachusetts Blood and Blood Derivatives Program. Geoffrey Edsall, M.D., Loren D. Moore, M.D., Vlado A. Getting, M.D., Dr.P.H., and Dwight J. Mulford, Ph.D.	226
Developments in Child Psychiatry in the United States. Frederick H. Allen, M.D.....	1201
See: The Child Guidance Clinic. Editorial.....	1273
Developments in the Use of the Newer Organic Insecticides of Public Health Importance. Justin M. Andrews, Sc.D., and S. W. Simmons, Ph.D.....	613
See: Progress in the Study of Organic Insecticides. Editorial.....	709
Diagnostic Antigens for Viral and Rickettsial Diseases, Specific Complement-Fixing. Herald R. Cox, Sc.D.....	351
Diagnostic Procedures and Reagents. (Standard Methods.) R. S. Muckenfuss, M.D., Chairman. Year Book.....	81
Diagnostic Procedures in Virus and Rickettsial Diseases (Standard Methods). Thomas Francis, Jr., M.D., Chairman. Year Book.....	78
Diamond, Louis K., M.D. The Production and Proper Use of Rh Typing Reagents.....	645
Diarrhea. See: A Significant Study of Epidemic Gastroenteritis. Editorial.....	95
Diet. See: Nutrition.	
Diets, Susceptibility to Typhus of Rats on Deficient. Florence K. Fitzpatrick.....	676
Diphtheria Immunization of United States Troops in Europe, Schick Testing and. Lt. Colonel Hartwin A. Schulze.....	1527
Diphtheria Last?, How Long Does Immunity to. Eli Eichelberger, M.D.....	1234
Diphtheria. See: A Schick Survey of 18,000 Naval Recruits. F. S. Cheever, M.D.....	374
Disability in Prenatal Life, Death, Defect. John E. Gordon, M.D., and Theodore H. Ingalls, M.D.	66
Dishwashing, A City Department of Health Program on the Improvement of Mechanical. Walter L. Mallmann, Ph.D., Leo Zaikowski, and David Kahler.....	239
Dishwashing. See: Quaternary Ammonium Compounds. Test for Detergents. William G. Walter.....	246
Disinfectants. See: Germicides.	
Disinfection of Air, Problem of Dust Control for the. Report to the Standard Methods Committee for the Examination of Germicides and Antibacterial Agents. Clayton G. Loosli, M.D., Referee.....	409
Dog, Fox, and Cattle Rabies in New York State. Robert F. Korn, M.D., and A. Zeissig, D.V.M.	50
Dogs. See: Rabies.	
Dogs and the Possible Relationship to Salmonellosis in Man, Salmonella from. Arthur H. Wolf, D.V.M., Norman D. Henderson, B.S., and Grace L. McCallum, B.S.....	403
Dosage-Effect Curve, An Abridged Table of Probabilities for Use in the Graphic Solution of the. Edward S. Weiss, M.S.P.H.....	22
Douglas, Bruce H. Housing the Health Department in Detroit. Some Concrete Problems of Health Administration—A Symposium.....	916
Post-war Public Health Problems in a Large American City.....	214
Dream, A. Editorial.....	420
Droplet nuclei. See: Air-borne Infections.	
Drying Rolls on Bacteria. See: Wood pulp.	
Dublin, Louis I., Ph.D. A Centennial of Public Health.....	1635
Dunsmore, Herbert J., Chairman. School Sanitation. Year Book.....	95
Dunsmore, Herbert J., M.P.H., and Board, Leonard M., M.P.H. Environmental Health Problems Related to Urban Decentralization.....	986
Dust Control for the Disinfection of Air, Problem of. Report of the Referee on Suppressive Measures for the Control of Dust, to the Standard Methods Committee for the Examination of Germicides and Antibacterial Agents. Clayton G. Loosli, M.D., Referee.....	409
Dyktor, Herbert G. The Air Pollution Control Program in Cleveland. General Atmospheric Pollution. A Symposium.....	957

E

Eastabrooks, Marjorie, M.S.P.H., and Lundy, Howard, Dr.P.H. Health Department Experience for School Health Coordinators in Washington.....	982
Eating and Drinking Utensils. See: Quaternary Ammonium Compounds.	
Economic Status of Public Health Nurses, 1946-1947, The. Dorothy E. Wiesner and Lily Mary David.....	1097
Economic Status to Tuberculosis Mortality by Age and Sex, Relation of. Milton Terris, M.D., M.P.H.	1061
Editorials.....89, 259, 416, 554, 709, 851, 1008, 1147, 1273, 1446, 1574, 1694	
Administrative Judgment in the Control of Tuberculosis.....	557
See: Summary of Tuberculosis Control Activities. Francis J. Weber, M.D., and Robert J. Anderson, M.D.....	512
Eradication of Tuberculosis by Epidemiological Methods. J. Arthur Myers, M.D. Ph.D.	516

Editorials—Continued

Page

Aging Population, Health Problems of an.....	1698
Alaska and Puerto Rico. See: A Tale of Two Territories.....	1011
Army with Regard to Venereal Diseases, Changing Attitude of the.....	1150
Atlanta, The Communicable Disease Center at.....	1578
Battle of Britain, The.....	711
British National Health Insurance Act. See: The Battle of Britain.....	711
Brookings Report. The Issue of Compulsory Health Insurance. See: Galileo Was Right.....	1275
"By His Tongue Shall Ye Know Him".....	263
Cancer Control, Progress in.....	259
See: Recent Developments in Cancer Control. Austin V. Deibert, M.D.....	191
Child Guidance Clinic, The.....	1273
See: Developments in Child Psychiatry in the United States. Frederick H. Allen, M.D.	1201
Childhood and Youth. See: A Dream.....	421
Cobbler's Children, The.....	856
Common Cold, The Virus of a.....	421
Communicable Disease Center at Atlanta, The.....	1578
Diarrhea. See: A Significant Study of Epidemic Gastroenteritis.....	95
Dream, A.....	420
Eightieth Congress, The Health Record of the.....	1450
Eightieth Congress, Public Health in the.....	91
EMIC. See: Public Health in the Eightieth Congress.....	90
Epidemic Gastroenteritis, A Significant Study of.....	95
Epidemiology? What Is.....	852
First World Health Assembly, The.....	1448
Fruits of the Princeton Conference.....	416
Galileo Was Right.....	1275
Gastroenteritis, A Significant Study of Epidemic.....	95
Geriatrics. See: Health Problems of an Aging Population.....	1698
Guidance for a Pre-Adolescent World.....	1696
Health Administration, The Science and Art of.....	1008
Health and Economics.....	1147
See: Relation of Economic Status to Tuberculosis Mortality by Age and Sex. Milton Terris, M.D., M.P.H.....	1061
Health Department Medical Care Program, A.....	555
Health Officer. See: A Dream.....	420
Health Problems of an Aging Population.....	1698
Health Record of the Eightieth Congress, The.....	1450
Hill-Burton Act. See: Public Health in the Eightieth Congress.....	90
Horne, Marcetta. See: "By His Tongue Shall Ye Know Him".....	263
Index, The Journal.....	713
Industrial Medicine, Ninth International Congress on.....	1451
Insecticides, Progress in the Study of Organic.....	709
International Congress on Mental Health. See: Guidance for a Pre-Adolescent World..	1696
Jargon, Public Health. See: "By His Tongue Shall Ye Know Him".....	263
Journal Index, The.....	713
Kilgore Bill. See: What Sort of National Science Foundation Do We Need?.....	260
Local Health Units, Subcommittee on. See: Fruits of the Princeton Conference.....	416
Magnuson Bill. See: What Sort of National Science Foundation Do We Need?.....	260
Maryland Medical Care Program. See: A Health Department Medical Care Program..	555
Medical Care Program, A Health Department.....	555
Medical Care. See: Galileo Was Right.....	1275
Mental Hygiene. See: Guidance for a Pre-Adolescent World.....	1696
Morning After, The.....	1694
National Health Assembly of 1948, The.....	851
See: Report to National Health Assembly. Quincy Howe.....	858
National Science Foundation Do We Need?, What Sort of.....	260
New Developments in Trickling Filter Operation.....	417
Ninth International Congress on Industrial Medicine.....	1451
Nurse—Her Functions and Her Training, The Practical.....	93
Nursing and Nursing Education.....	1574
One World.....	89
See: Child Feeding in Europe Under the International Children's Emergency Fund. Martha M. Eliot, M.D.....	1
Parran, Thomas, M.D.....	710
Pied Piper, We Pay the.....	1576
Practical Nurse—Her Functions and Her Training, The.....	93
Princeton Conference, Fruits of the.....	416
Problem of Rehabilitation, The.....	1446
See: Physical Disability: A National Problem. Howard A. Rusk, M.D., and Eugene J. Taylor.....	1381
Problem of Whooping Cough, The.....	1274
Progress in the Study of Organic Insecticides.....	709
See: Developments in the Use of the Newer Organic Insecticides of Public Health Importance. Justin M. Andrews, Sc.D., and S. W. Simmons, Ph.D.....	613

Editorials—Continued

	Page
Public Health in the Eightieth Congress.....	90
See: Child Feeding in Europe Under the International Children's Emergency Fund.	
Martha M. Eliot, M.D.....	1
Public Health Nurse and the Social Worker, The.....	1148
Puerto Rico and Alaska. See: A Tale of Two Territories.....	1011
Rehabilitation, The Problem of.....	1446
Rodent Control. See: We Pay the Pied Piper.....	1576
Science and Art of Health Administration, The.....	1008
See: Some Concrete Problems of Health Administration—A Symposium.....	915
See: Letter to the Editor.....	1277
76th Annual Meeting. See: The Morning After.....	1694
Sewage Treatment. See: New Developments in Trickling Filter Operation.....	417
Significant Study of Epidemic Gastroenteritis, A.....	95
Smith Bill. See: What Sort of National Science Foundation Do We Need?.....	260
Social Hygiene. See: Health and Economics.....	1147
Social Worker, The Public Health Nurse and the.....	1148
South Carolina Public Health Association. See: They Also Serve Who Only Sit and Write.....	1152
Tale of Two Territories, A.....	1011
They Also Serve Who Only Sit and Write.....	1152
Trickling Filter Operation, New Developments in.....	417
Tuberculosis, Administrative Judgment in the Control of.....	557
Tuberculosis. See: The Cobbler's Children.....	856
United States Public Health Service, The. (150th Anniversary).....	1009
See: Letters to the Editor.....	1580, 1699
Venereal Diseases, Changing Attitude of the Army with Regard to.....	1150
Virus of a Common Cold, The.....	421
We Pay the Pied Piper.....	1576
What Is Epidemiology?.....	852
What Sort of National Science Foundation Do We Need?.....	260
Whooping Cough, The Problem of.....	1274
World Health Assembly, The First.....	1448
Written Word, The.....	554
See: The Health Officer's Bookshelf. Huntington Williams, M.D., Dr.P.H.....	467
Edsall, Geoffrey, M.D., Moore, Loren D., M.D., Getting, Vlado A., M.D., Dr.P.H., and Mulford, Dwight J., Ph.D. Development of the Massachusetts Blood and Blood Derivatives Program.....	226
Effectiveness of Compound G-11 in Reducing Pyogenic Skin Infections. John R. Fuller, M.D., Chester A. Newhall, M.D., Frederick C. Thorne, M.D., and Eugene F. Traub, M.D.	1228
Eichelberger, Eli, M.D. How Long Does Immunity to Diphtheria Last?.....	1234
Eightieth Congress, The Health Record of the. Editorial.....	1450
Eightieth Congress, Public Health in the. Editorial.....	91
Eligibility. Report of the Chairman to the Governing Council, October 8, 1947. Vlado A. Getting, M.D., Chairman. Year Book.....	65
Eliott, Martha M., M.D. Child Feeding in Europe Under the International Children's Emergency Fund.....	1
See: One World. Editorial.....	89
Public Health in the Eightieth Congress. Editorial.....	90
Eliot, Martha M., M.D. Cultivating Our Human Resources for Health in Tomorrow's World. (Presidential Address).....	1499
Eller, C. Howe, M.D., Dr.P.H., and Austin, Catherine L., R.N. South Richmond Community Nursing Service.....	1609
Ellicott, V. L. Cooperation with Voluntary Organizations in Montgomery County, Maryland. Some Concrete Problems of Health Administration—A Symposium.....	918
Ely, Sumner B. Some Work in Pittsburgh Air Pollution Problems. General Atmospheric Pollution—A Symposium.....	960
Emerson, Haven, M.D., Referee. Public Health and Bedside Home Nursing Services. Statement by an inter-organization group of the National Organization for Public Health Nursing and the Subcommittees on Medical Care and Local Health Units of the Committee on Administrative Practice of the A.P.H.A.....	82
Emerson, Haven, M.D. The Unfinished Job of Essential Public Service.....	164
Employment Service.....	128, 300, 448, 592, 744, 897, 1041, 1179, 1341, 1480, 1611, 1727
Engineers in Public Health, Graduate Training of. John M. Henderson, C.E.....	335
Environmental Control, The Relationship of Training, Sanitation Personnel, and. William T. Ingram, M.P.H.....	1239
Environmental Health Problems Related to Urban Decentralization. Leonard M. Board, M.P.H., and Herbert J. Dunsmore, M.P.H.....	986
Environmental Sanitation, Exploration of Research Needs in the Field of (Progress Report). B. A. Poole, Chairman.....	Year Book, 82
Environmental sanitation. See: Graduate Training of Engineers in Public Health. John M. Henderson, C.E.....	335
Epidemic Gastroenteritis, A Significant Study of. Editorial.....	95
Epidemiological Approach to Accident Prevention. Edward Press, M.D., M.P.H.....	1442
Epidemiological Data on Typhoid Fever in Amsterdam, Bacteriological and. A. Charlotte Ruys, M.D.....	1219
Epidemiology of Colorado Tick Fever. Lloyd Florio, M.D., Dr.P.H., and Mabel Stewart Miller.....	211

	Page
Epidemiology of Rheumatic Fever; Its Public Health Aspects, The. George C. Griffith, M.D.	682
Epidemiology? What Is. Editorial.....	852
Eradication of Tuberculosis by Epidemiological Methods. J. Arthur Myers, M.D., Ph.D....	516
See: Administrative Judgment in the Control Tuberculosis. Editorial.....	557
Essentials for the Control of Ragweed. Israel Weinstein, M.D., and Alfred H. Fletcher....	664
Essentials of Good Local Public Health Administration. Summary of a Panel Discussion. Prepared by Richard F. Boyd, M.D.....	219
Etkin, Seymour. Appraising a Medical Care Program.....	1551
Europe Under the International Children's Emergency Fund, Child Feeding in. Martha M. Eliot, M.D.....	1
Evaluation of Commercial Advertising. Edna M. Kech, Chairman.....Year Book,,	109
Evaluation Schedule, Committee on Professional Education, A.P.H.A. See: The Coördina- tion and Integration of the Public Health Program. Henry F. Vaughan, Dr.P.H.....	331
Even with the Law on Our Side. R. P. Fowler.....	1569
Examination of Germicides and Antibacterial Agents (Standard Methods). Problem of Dust Control for the Disinfection of Air. Clayton G. Looslie, M.D., Referee.....	409
Exotic Diseases of Military Importance, Tetanus, and. Current Status of Immunization Procedures—A Symposium. Arthur P. Long, Lt. Col., M.C., U.S.A.....	485
Experience in Appraising Nutritional Status in the U. S. Public Health Service. Harold R. Sandstead, M.D., and Elton S. Osborne, Jr., M.D.....	361
Experience of Rheumatic Patients Who Served in the Armed Forces, 1942-1946. May G. Wilson, M.D.; J. W. Payson, and Rose Lubshez.....	398
Exploration of Research Needs in the Field of Environmental Sanitation. (Progress Report.) B. A. Poole, Chairman.....Year Book,	82

F

Factors of Sewage Pollution of Oyster Beds in Galveston Bay. Robert I. Wise, Ph.D., Joe B. Winston, B.S., and George Culli, Jr.....	1109
Farm Families, Medical Expenditures of.....	258
Fecal Specimens in Detecting Typhoid and Salmonella Cases and Carriers, Comparative Efficiency of Rectal Swabs and. Howard J. Shaughnessy, Ph.D., Frances Friewer and Adele Snyder.....	670
Federal Legislation Designed to Improve the Health of Children of School Age, Principles for Consideration in Judging the Probable Effectiveness of. Approved by the Council of the School Health Section of the A.P.H.A.....	560
Feeding in Europe Under the International Children's Emergency Fund, Child. Martha M. Eliot, M.D.....	1
Feeding Preschool Children in the Home, Modified Self-Selection Method of. Margaret F. Gutelius, M.D.....	1118
Financing Local Health Departments in Florida. Some Concrete Problems of Health Administration—A Symposium. F. M. Hall.....	920
First World Health Assembly, The. Editorial.....	1448
Fiscal Relationships Between the State and Local Health Departments in California. Some Concrete Problems of Health Administration—A Symposium. W. L. Halverson.....	922
Fisher, Ruth, R.N., Rusby, Dorothy, R.N., and Cohen, Hedwig, R.N. Comment of N.O.P.H.N. Field Staff on Seattle and Richmond Reports.....	1673
Fitzpatrick, Florence K. Susceptibility to Typhus for Rats on Deficient Diets.....	676
Fletcher, Alfred H., and Weinstein, Israel, M.D. Essentials for the Control of Ragweed..	664
Florida, A State-wide Survey of Typhus Fever in. E. R. Rickard, M.D., M.P.H., and E. G. Riley, M.D., Ph.D.....	541
Florida, Financing Local Health Departments in. Some Concrete Problems of Health Administration—A Symposium. F. M. Hall.....	920
Florio, Lloyd, M.D., Dr.P.H., and Miller, Mabel Stewart. Epidemiology of Colorado Tick Fever	211
Fluorine, Mass Control of Dental Caries Through the Use of Domestic Water Supplies Containing. Frederick S. McKay, D.D.S.....	828
Fluorograms as a Measure for Detecting Cardiac Abnormalities, Value of Routine. Gerald Berenson, Lt., (j.g.) (MCR) USNR.....	1564
Food Handler Training, New Approach to. J. L. Rowland, M.S.P.H., and John H. Fritz..	1561
Food Industry—Public Health Aspects, Paper and Paper Board in the. Fred W. Tanner, Ph.D.....	1688
Foods. See: Nutrition	
Foods, Frozen Precooked. Bernard E. Proctor, Ph.D., and Arthur W. Phillips, Jr., Sc.D...	44
Food Supply of the Orient, Prospects of Improving the. Robert R. Williams, D.Sc.....	8
Food Utensil Sanitation Proposed as Official Association Procedure (Research and Stand- ards) Subcommittee on Food Utensil Sanitation. Walter D. Tiedeman, M.C.E., Chairman	68
Food Utensils, Laboratory Procedure for Evaluating Practical Performance of Quaternary Ammonium and Other Germicides Proposed for Sanitizing. George R. Weber, Ph.D., and Luther A. Black, Ph.D.....	1405
Foot, Franklin M., M.D., and Berens, Conrad, M.D. Penicillin or Silver Nitrate as a Prophylactic Against Ophthalmia Neonatorum?.....	1680
Foreign Periodicals, Public Health in. George Rosen, M.D., Ph.D.....	877, 1156, 1290, 1604, 1713
Fort Loudoun Reservoir, Bacteriological Studies of the. Robert N. Clark and F. W. Kittrell	342

	Page
Fosdick, L. S., Ph.D. Theoretical Considerations Concerning Caries Control.....	977
Fosdick, Raymond B., LL.D. Public Health and the Future.....	185
Fowler, R. P. Even with the Law on Our Side.....	1569
Fowl. See: Presence of Neutralizing Antibodies of Newcastle Disease Virus in Human Sera. Beatrice F. Howitt, Lindsay K. Bishop, M.D., and Robert E. Kissling, D.V.M....	1263
Fox, and Cattle Rabies in New York State, Dog. Robert F. Korn, M.D., and A. Zeissig, D.V.M.	50
Fraenkel, Marta, M.D. Medical Attendance During Terminal Illness.....	970
Francis, Thomas, Jr., M.D., Chairman. Diagnostic Procedures in Virus and Rickettsial Diseases (Standard Methods).....	Year Book, 78
Research and Standards. Report of the Chairman of the Committee to the Governing Council, October 8, 1947.....	Year Book, 50
Frasher, Charles B., as told by Bill Siler. Health Officer for a Day.....	271
Freeman, Ruth, R.N. Contribution of the School of Nursing and the Graduate Course in Public Health Nursing. Preservice and Inservice Preparation in Health of School Personnel—A Symposium.....	39
French, William J., M.D., and Wiser, Geneva. The Use of Medical-Social Service by a County Health Department. An Account of a Demonstration in Anne Arundel County, Maryland	1553
Frierer, Frances, Snyder, Adele, and Shaugnessy, Howard J., Ph.D. Comparative Efficiency of Rectal Swabs and Fecal Specimens in Detecting Typhoid and Salmonella Cases and Carriers.....	670
Fritz, John H., and Rowland, J. L., M.S.P.H. New Approach to Food Handler Training..	1561
Frozen Precooked Foods. Bernard E. Proctor, Ph.D., and Arthur W. Phillips, Jr., Sc.D....	44
Fruits of the Princeton Conference. Editorial.....	416
Fuller, John R., M.D., Newhall, Chester A., M.D., Thorne, Frederick C., M.D., and Traub, Eugene F., M.D. Effectiveness of Compound G-11 in Reducing Pyogenic Skin Infections	1228
Fulton, John T., D.D.S. Budgets and Expenditures for Dentistry from Maternal and Child Health Funds.....	823

G

Gallieo Was Right. Editorial.....	1275
Galveston Bay, Factors of Sewage Pollution of Oyster Beds in. Robert I. Wise, Ph.D., Joe B. Winston, B.S., and George Cull, Jr.....	1109
Garrido Morales, E., M.D., Dr.P.H. The Participation of Puerto Rico in the Federal Health and Hospital Program.....	1387
Gastroenteritis, A Significant Study of Epidemic. Editorial.....	95
General Atmospheric Pollution. A Symposium:	
The Air Pollution Control Program in Cleveland. Herbert G. Dyktor.....	957
Some Work in Pittsburgh Air Pollution Problems. Sumner B. Ely.....	960
Los Angeles "Smog". Charles L. Senn.....	962
New York City's Atmospheric Pollution Control Problems. Arthur C. Stern.....	966
General Reactions of Mothers and Nurses to Rooming-in. Edith B. Jackson, M.D.....	689
Geriatrics. See: Health Problems of an Aging Population. Editorial.....	1698
Gerken, Edwin A., Chairman. Public Health Education Problems in the Northwestern Region	Year Book, 107
Germicides Proposed for Sanitizing Food Utensils, Laboratory Procedure for Evaluating Practical Performance of Quaternary Ammonium and Other. George R. Weber, Ph.D., and Luther A. Black, Ph.D.....	1105
Getting, V. A. Procurement of Personnel in Massachusetts. Some Concrete Problems of Health Administration—A Symposium.....	919
Getting, Vlado A., M.D., Chairman. Eligibility. Report of the Chairman to the Governing Council, October 8, 1947.....	Year Book, 65
Getting, Vlado A., M.D., Dr.P.H., Mulford, Dwight J., Ph.D., Edsall, Geoffrey, M.D., and Moore, Loren D., M.D. Development of the Massachusetts Blood and Blood Derivatives Program	226
Gibbard, J., and Naubert, J. Paralytic Shellfish Poisoning on the Canadian Atlantic Coast	550
Golter in Colombia, Simple. Horacio Parra, M.D.....	820
Goldberg, Henry P., M.D., and Yankauer, Alfred, Jr., M.D., M.P.H. Age Distribution of Poliomyelitis in New York City in Relation to Previous Epidemics.....	1683
Gonorrheal ophthalmia. See: Ophthalmia Neonatorum.	
Gordon, John E., M.D., and Ingalls, Theodore H., M.D. Death, Defect, and Disability in Prenatal Life	66
Goresline, Harry E., Ph.D., Chairman. Microbiological Examination of Foods (Standard Methods)	Year Book, 101
Grace-New Haven Community Hospital. See: General Reactions of Mothers and Nurses to Rooming-in. Edith B. Jackson, M.D.....	689
Graduate Training of Engineers in Public Health. John M. Henderson, C.E.....	335
Grant, John B., M.D. International Trends in Health Care.....	351
Graves, Lloyd M., M.D. Essentials of Good Local Public Health Administration. Summary of a Panel Discussion.....	219

	Page
Griffith, George C., M.D. The Epidemiology of Rheumatic Fever; Its Public Health Aspects	682
Group Health Association of Washington. See: Appraising a Medical Care Program....	1551
Guidance for a Pre-Adolescent World. Editorial.....	1696
Gutellus, Margaret F., M.D. Modified self-Selection Method of Feeding Preschool Children in the Home.....	1118

H

Hall, F. M. Financing Local Health Departments in Florida. Some Concrete Problems of Health Administration—A Symposium.....	920
Hall, Frank M., M.D. Essentials of Good Local Public Health Administration. Summary of a Panel Discussion.....	219
Halverson, W. L. Fiscal Relationships Between the State and Local Health Departments in California. Some Concrete Problems of Health Administration—A Symposium....	922
Halverson, Wilton L., M.D., Chairman. Administrative Practice. Report of the Chairman of the Committee to the Governing Council, October 8, 1947.....	Year Book, 54
Halverson, Wilton L., M.D. See: Clearing House on Public Health Salary Information...	104
Hardenbergh, W. A. Letter to the Editor. Comment on "What's Happening to Malaria in the U.S.A.?" by Justin M. Andrews, Sc.D. (published July 1948).....	1277
Reply to W. A. Hardenbergh by Justin M. Andrews, Sc.D.....	1479
Hauge, Steinar, D.V.M., Migaki, Hoyo, B.S., and McCulloch, Ernest C., D.V.M., Ph.D. The Quaternary Ammonium Compounds in Sanitization.....	493
Hawaii, Volunteer Participation in Community Health in. Raymond George Nebelung, Dr.P.H.	817
Hay fever. See: Ragweed.	
Health Administration, The Science and Art of. Editorial.....	1008
Health Administration, Some Concrete Problems of. A Symposium:	
Staff Education in Chicago. Herman N. Bundesen.....	915
Housing the Health Department in Detroit. Bruce H. Douglas.....	916
Coöperation with Voluntary Organizations in Montgomery County, Maryland. V. L. Ellicott	918
Procurement of Personnel in Massachusetts. V. A. Getting.....	919
Financing Local Health Departments in Florida. F. M. Hall.....	920
Fiscal Relationships Between the State and Local Health Departments in California. W. L. Halverson.....	922
Program Plans for Public Health Action in New York State. Herman E. Hilleboe...	923
Allocation of Funds to Local Programs. G. F. Moench.....	925
Amalgamation of Health Departments in Seattle and King County. Emil E. Palmquist	927
Health Coördination in New Orleans. John M. Whitney.....	928
See: The Science and Art of Health Administration. Editorial.....	1008
Health and Economics. Editorial.....	1147
See: Relation of Economic Status to Tuberculosis Mortality by Age and Sex. Milton Terris, M.D., M.P.H.....	1061
Health Care, International Trends in. John B. Grant, M.D.....	381
Health Centers and the Hospital Survey and Construction Act. V. M. Hoge, M.D.....	1653
Health Coördination in New Orleans. Some Concrete Problems of Health Administration—A Symposium. John M. Whitney.....	928
Health Department Experience for School Health Coördinators in Washington. Marjorie Eastabrooks, M.S.P.H., and Howard Lundy, Dr.P.H.....	982
Health Department Medical Care Program, A. Editorial.....	555
Health Departments, The Ailments of. Florence R. Sabin, M.D.....	1508
Health Departments, Coördination of Hospitals and. Joint Statement of Recommendations by the American Hospital Association and the American Public Health Association...	700
Health Education—How Well Are They Being Utilized in the School Program?, Community Resources for. Discussed by a Voluntary Agency Health Educator, Beryl J. Roberts.....	1254
Discussed by a Health Officer, George James, M.D., M.P.H.....	1258
Health Education Section. See: The Birth of a Section. H. E. Kleinschmidt, M.D.....	1657
Health Educators, Proposed Report on the Educational Qualifications of Community. Committee on Professional Education. W. P. Shepard, M.D., Chairman.....	843
Health Insurance. See: Some Labor Union Enterprises in Public Health Economics. B.A. Kogan, M.D., Dr.P.H.....	943
Health Officer. See: A Dream. Editorial.....	420
Health Officer for a Day. As told by Bill Siler to Charles B. Frasher.....	271
Health Officer in Post-war Britain, The. Sir Allen Daley, M.D., F.R.C.P., D.P.H., K.H.P.	325
Health Officer's Bookshelf, The. Huntington Williams, M.D., Dr.P.H.....	467
See: The Written Word. Editorial.....	554
Health Problems in a Large American City, Post-war Public. Bruce H. Douglas, M.D....	214
Health Problems of an Aging Population. Editorial.....	1698
Health Problems Resulting from Newer Technological Developments. R. Emmet Kelly, M.D.	837
Health Record of the Eightieth Congress, The. Editorial.....	1450
Health Services for Children in Eight Selected States, Community. Charles L. Williams, Jr., M.D., M.P.H., John P. Hubbard, M.D., and Katherine Bain, M.D.....	75
Hearing Program, Results and Problems after Four Years of a Conservation of. William R. Willard, M.D., and Donald F. Proctor, M.D.....	1424

	Page
Heart Disease and Crowding, Rheumatic. A Survey of Rural and Urban Connecticut School Children. Robert W. Quinn, M.D., John H. Watkins, Ph.D., and Julia P. Quinn, M.S.S.	1071
Heart Disease. See: Cardiac, Rheumatic Fever.	
Hemophilus pertussis. See: An Abridged Table of Probabilities for Use in the Graphic Solution of the Dosage-Effect Curve. Edward S. Weiss, M.S.P.H.	22
Hemophilus pertussis. See: Pertussis Vaccine.	
Henderson, John M., C.E. Graduate Training of Engineers in Public Health.	335
Henderson, Norman D., B.S., McCallum, Grace L., B.S., Wolff, Arthur H., D.V.M., Salmonella from Dogs and the Possible Relationship to Salmonellosis in Man.	430
Heritage of the Past, The. A Symposium:	
The Professionalization of Public Health. William P. Shepard, M.D.	145
Progress in Public Health Administration. Hugh R. Leavell, M.D., Dr.P.H.	151
Changing Problems Growing Out of the Change in Composition of the Population. Lowell J. Reed, Ph.D.	160
Hill-Burton Act. See: Health Centers and the Hospital Survey and Construction Act. V. M. Hoge, M.D.	1053
Hilleboe, Herman E. Program Plans for Public Health Action in New York State. Some Concrete Problems of Health Administration—A Symposium.	923
Hiscock, Ira V., Sc.D. Contribution of the Medical School and the School of Public Health. Preservice and Inservice Preparation in Health of School Personnel—A Symposium.	36
Hoge, V. M., M.D. Health Centers and the Hospital Survey Construction Act.	1053
Holt, Rufus L., Col., M.C. Typhoid Fever. Current Status of Immunization Procedures—A Symposium.	481
Hospital Construction and Maintenance, The Sanitary Engineer in. A. H. Wieters.	770
Hospital-Health Center Programs in Latin America. Richard J. Plunkett, M.D., M.P.H.	530
Hospital Survey and Construction Act, Health Centers and the. V. M. Hoge, M.D.	1053
Hospital Survey and Construction Act (P.L. 725). See: The Sanitary Engineer in Hospital Construction and Maintenance. A. H. Wieters.	770
Hospitals and Health Departments, Coordination of. Joint Statement of Recommendations by the American Hospital Association and the American Public Health Association.	700
Housing the Health Department in Detroit. Some Concrete Problems of Health Administration—A Symposium. Bruce H. Douglas.	916
Howe, Quincy. Report to National Assembly.	858
See: The National Health Assembly of 1948. Editorial.	851
Howitt, Beatrice F., Bishop, Lindsay, K., M.D., and Kissling, Robert E., D.V.M. Presepece of Neutralizing Antibodies of Newcastle Disease Virus in Human Sera.	1263
How Long Does Immunity to Diphtheria Last? Eli Eichelberger, M.D.	1234
Hubbard, John P., M.D., Bain, Katherine, M.D., and Williams, Charles L., Jr., M.D., M.P.H. Community Health Services for Children in Eight Selected States.	75
Huebner, Robert J., M.D., and Shepard, Charles C., M.D. Q Fever in Los Angeles County.	781
Human Resources for Health in Tomorrow's World, Cultivating Our. Martha M. Eliot, M.D.	1499
Human Waste Disposal from Railroad Passenger Cars. Abel Wolman, Dr.Eng., and Lloyd K. Clark.	652

I

Illegitimacy. See: Some Recent Trends in Vital Statistics Registration Practices. Albert E. Bailey, Ph.D.	253
Immunization Procedures, Current Status of—A Symposium:	
Vaccination Against Smallpox. R. S. Muckenfuss, M.D.	476
Pertussis. Joseph A. Bell, M.D.	478
Typhoid Fever. Rufus L. Holt, Colonel, M.C.	481
Tetanus, and Exotic Diseases of Military Importance. Arthur P. Long, Lt. Col., M.C., U.S.A.	485
Practical Aspects of Immunization Programs. Franklin H. Top, M.D.	490
Increasing the Scope of School Sanitation Service in Local Department of Health Programs. S. D. Sturkie, M.D., M.P.H.	997
Index, The Journal. Editorial.	713
Industrial Hygiene in the United States, The Pattern of. William T. Ingram, M.P.H.	534
Industrial Medicine. See: Health Problems Resulting from Newer Technological Developments. R. Emmet Kelly, M.D.	837
Industrial Medicine, Ninth International Congress on. Editorial.	1451
Industrial Sanitation. Herbert M. Bosch, Chairman.	99
Industrial Workers and Their Relationship to Public Health Programs, Medical Care Plans for. Lee Janis, M.D., and Milton I. Roemer, M.D., M.P.H.	1245
Ingalls, Theodore H., M.D., and Gordon, John E., M.D. Death, Defect, and Disability in Prenatal Life.	66
Ingram, William T., M.P.H. The Pattern of Industrial Hygiene in the United States.	534
The Relationship of Training, Sanitation Personnel, and Environmental Control.	1239
Rural Sewage Disposal (Progress Report).	92
Insecticides of Public Health Importance, Developments in the Use of the Newer Organic. Justin M. Andrews, Sc.D., and Simmons, S.W., Ph.D.	613
Insecticides, Progress in the Study of Organic. Editorial.	709

	Page
Inservice Preparation in Health of School Personnel, Preservice and—A Symposium:	
Role of the Department of Education and the Department of Health in the Inservice Preparation of Classroom Teachers, School Administrators, School Nurses, and School Physicians. L. E. Burney, M.D., M.P.H., and Ben H. Watt.....	25
Preservice Preparation of Teachers and School Administrators. Elizabeth Kelley, Ed.D., Bernice Moss, Ed.D., and Dorothy B. Nyswander, Ph.D.....	30
Contribution of the Medical School and the School of Public Health. Ira V. Hiscock, Sc.D.	36
Contribution of the School of Nursing and the Graduate Course in Public Health Nursing. Ruth Freeman, R.N.....	39
Institutions Accredited by the American Public Health Association to Give the Degree of Master of Public Health (Diploma of Public Health in Canada) and Doctor of Public Health for the Academic Year 1948-1949.....	871
Interim Board. See: Specialty Board in Preventive Medicine.....	681
International Children's Emergency Fund, Child Feeding in Europe Under the. Martha M. Elliot, M.D.....	1
International Congress on Mental Health. See: Guidance for a Pre-Adolescent World. Editorial	1696
International Population and Vital Statistics. Forrest E. Linder, Ph.D.....	951
International Trends in Health Care. John B. Grant, M.D.....	381
Is the Rh Factor a Public Health Laboratory Function? Anna I. van Saun.....	632
It Works in Seattle—Merged Official and Voluntary Public Health Nursing Agencies. Emil E. Palmquist, M.D., M.P.H., and Marguerite Prindiville, R.N.....	1663
Ivy, A. C., Ph.D., M.D., Kaplan, R., M.D., Baer, W. H., M.D., Littman, A., M.D., and Vaichulis, J. A., Ph.D. The Chronic Typhoid Carrier: I. The Natural Course of the Carrier State	1675

J

Jackson, Edith B., M.D. General Reactions of Mothers and Nurses to Rooming-in.....	689
Jacobson, Paul H. Relative Efficiency of the Open and the Confidential Method of Reporting Causes of Death.....	789
James, George, M.D., M.P.H., and Roberts, Beryl J. Community Resources for Health Education—How Well Are They Being Utilized in the School Program? Discussed by a Health Officer and a Voluntary Agency Health Educator.....	1254, 1258
Janis, Lee, M.D., and Roemer, Milton I., M.D., M.P.H. Medical Care Plans for Industrial Workers and Their Relationship to Public Health Programs.....	1245
Japan. See: Orient.	
Johns Hopkins University School of Hygiene and Public Health, The. See: Maternal and Child Health Training Program.....	669
Journal Index, The. Editorial.....	713

K

Kahler, David, Mallmann, Walter L., Ph.D., and Zalkowski, Leo. A City Department of Health Program on the Improvement of Mechanical Dishwashing.....	239
Kaplan, R., M.D., Baer, W. H., M.D., Littman, A., M.D., Vaichulis, J. A., Ph.D., and Ivy, A. C., Ph.D., M.D. The Chronic Typhoid Carrier: I. The Natural Course of the Carrier State	1675
Keech, Edna M., Chairman. Evaluation of Commercial Advertising.....Year Book,	109
Kelley, Elizabeth, Ed.D., Moss, Bernice, Ed.D., and Nyswander, Dorothy B., Ph.D. Preservice Preparation of Teachers and School Administrators. Preservice and Inservice Preparation in Health of School Personnel—A Symposium.....	30
Kelly, R. Emmet, M.D. Health Problems Resulting from Newer Technological Developments	837
Kissling, Robert E., D.V.M., Howitt, Beatrice F., and Bishop, Lindsay K., M.D. Presence of Neutralizing Antibodies of Newcastle Disease Virus in Human Sera.....	1263
Kittrell, F. W., and Clark, Robert N. Bacteriological Studies of the Fort Loudoun Reservoir	342
Kleinschmidt, H. E., M.D. The Birth of a Section.....	1657
Kline, Edmund K., Dr.P.H. The Biological Stain Commission. Report of the Association Representative	79
Kogan, B. A., M.D., Dr.P.H. Some Labor Union Enterprises in Public Health Economics..	943
Korns, Robert F., M.D., and Zeissig, A., D.V.M. Dog, Fox, and Cattle Rabies in New York State	50

L

Laboratory Personnel. See: Clearing House on Public Health Salary Information.....	106
Laboratory Procedure for Evaluating Practical Performance of Quaternary Ammonium and Other Germicides Proposed for Sanitizing Food Utensils. George R. Weber, Ph.D., and Luther A. Black, Ph.D.....	1405

	Page
Labor Union Enterprises in Public Health Economics, Some. B. A. Kogan, M.D., Dr.P.H....	943
Lackman, David, Ph.D., and Parker, R. R., Ph.D. Comparison of the Immunogenic and Anaphylactogenic Properties of Rocky Mountain Spotted Fever Vaccines Prepared from Infected Yolk Sacs and from Infected Tick Tissue.....	1402
Langmuir, Alexander D., M.D. See: The Rheumatic Fever Community Program. A Symposium	1082
Lasker Awards for 1948, The.....	1717
Latin America, Hospital-Health Center Programs in. Richard J. Plunkett, M.D., M.P.H....	530
Law on Our Side, Even with the. R. P. Fowler.....	1509
Leavell, Hugh R., M.D., Dr.P.H. Progress in Public Health Administration.....	145
Letters to the Editor:	
Bauer, Herbert, M.D., et al. Comment on Editorial "The Victory Over Maternal Mortality" published November 1947.....	205
Davis, Michael M. Comment on Book Review, "140 Million Patients" (published April 1948)	1580
Family Life and the Public Health Nurse. Anne H. McCabe.....	206
Hardenbergh, W. A. Comment on article, "What's Happening to Malaria in the U.S.A.?" by Justin M. Andrews, Sc.D. (published July 1948).....	1277
Reply to W. A. Hardenbergh by Justin M. Andrews, Sc.D.....	1479
"Maternal Mortality, The Victory Over." Comment on editorial published November 1947. Herbert Bauer, M.D., et al.....	205
McCabe, Anne H. Family Life and the Public Health Nurse.....	206
"140 Million Patients." Book review (published April 1948) comment on. Michael M. Davis	1580
Paterson, Robert G. Comment on editorial, "The Science and Art of Health Administration" (published July 1948).....	1277
Public Health Nurse and Family Life. Anne H. McCabe.....	206
Reichard, J. D. Comment on editorial, "The United States Public Health Service" (published July 1948).....	1699
Scheele, Leonard A. Comment on Editorial, "The United States Public Health Service" (published July 1948).....	1580
"Science and Art of Health Administration, The." Comment on editorial (published July 1948), Robert G. Paterson.....	1277
"United States Public Health Service, The." Editorial (published July 1948) comment on:	
Leonard A. Scheele.....	1580
J. D. Reichard.....	1699
"Victory Over Maternal Mortality, The." Comment on editorial published November 1947. Herbert Bauer, M.D., et al.....	205
"What's Happening to Malaria in the U.S.A.?" by Justin M. Andrews, Sc.D. (published July 1948), Comment on. W. A. Hardenbergh.....	1277
Reply to W. A. Hardenbergh by Justin M. Andrews, Sc.D.....	1479
Levine, Benjamin S., Ph.D., Black, Luther A., Ph.D., and Thomas, Robert C., M.S. Studies Showing the Effect of Changes in the New (9th) Edition of Standard Methods in Relation to the Bacteriological Analysis of Milk.....	233
Levine, B. S., Ph.D., and Black, L. A., Ph.D. Newly Proposed Staining Formulas for the Direct Microscopic Examination of Milk.....	1210
Library. See: The Health Officer's Bookshelf. Huntington Williams, M.D., Dr.P.H....	467
Lieberman, J. E., M.S., and Pittman, Margaret, Ph.D. An Analysis of the Wilson-Worcester Method for Determining the Median Effective Dose of Pertussis Vaccine....	15
Linder, Forrest E., Ph.D. International Population and Vital Statistics.....	951
Littman, A., M.D., Vaichulis, J. A., Ph.D., Ivy, A. C., Ph.D., M.D., Kaplan, R., M.D., and Baer, W. H., M.D. The Chronic Typhoid Carrier: I. The Natural Course of the Carrier State	1675
Local Health Units. See: The Coordination and Integration of the Public Health Program. Henry F. Vaughan, Dr.P.H.....	331
Local Health Units, Subcommittee on. See: Fruits of the Princeton Conference. Editorial Public Health and Bedside Home Nursing Services. Haven Emerson, M.D., Referee...	82
Local Programs, Allocation of Funds to. Some Concrete Problems of Health Administration—A Symposium. G. F. Moench.....	925
Local Public Health Administration, Essentials of Good. Summary of a Panel Discussion. Prepared by Richard F. Boyd, M.D.....	219
Long, Arthur P., Lt. Col., M.C., U.S.A. Tetanus, and Exotic Diseases of Military Importance. Current Status of Immunization Procedures—A Symposium.....	485
Loosil, Clayton G., M.D., Referee on Suppressive Measures for the Control of Dust, to the Standard Methods Committee for the Examination of Germicides and Antibacterial Agents. Problem of Dust Control for the Disinfection of Air.....	409
Los Angeles, Calif. See: Development of a Voluntary Agency for Venereal Disease Control. Herbert H. Cowper, M.D., M.P.H.....	1136
Los Angeles County, Q Fever in. Charles C. Shepard, M.D., and Robert J. Huebner, M.D.	781
Los Angeles "Smog". General Atmospheric Pollution—A Symposium. Charles L. Senn..	962
Lubschetz, Rose, Wilson, May G., M.D., and Payson, J. W. Experience of Rheumatic Patients Who Served in the Armed Forces, 1942-1946.....	308
Lundy, Howard, Dr.P.H., and Eastabrooks, Marjorie, M.S.P.H. Health Department Experience for School Health Coordinators in Washington.....	982

	Page
Lundy, Howard, Dr.P.H., Chairman. Public Health Education Problems in the Far West Region	Year Book, 106
Lynch, Ruth E. See: The Rheumatic Fever Community Program. A Symposium.....	1082

M

MacCreedy, Robert A., M.D., and McGee, Robert T. Blood Grouping and Rh Typing in a State Public Health Laboratory.....	637
Malaria in the U.S.A.?, What's Happening to. Justin M. Andrews, Sc.D.....	931
Mallmann, Walter L., Ph.D., Zalkowski, Leo, and Kahler, David. A City Department of Health Program on the Improvement of Mechanical Dishwashing.....	239
Manteno State Hospital. See: The Chronic Typhoid Carrier.	
Maryland, Coöperation with Voluntary Organizations in Montgomery County. Some Concrete Problems of Health Administration—A Symposium. V. L. Ellicott.....	918
Maryland, Coördination of Preventive and Curative Services in. William H. F. Warthen, M.D., M.P.H.	1393
Maryland Medical Care Program. See: A Health Department Medical Care Program. Editorial	555
Massachusetts Blood and Blood Derivatives Program, Development of the. Geoffrey Edsall, M.D., Lorch D. Moore, M.D., Vlado A. Getting, M.D., Dr.P.H., and Dwight J. Mulford, Ph.D.....	226
Massachusetts, Procurement of Personnel in. Some Concrete Problems of Health Administration—A Symposium. V. A. Getting.....	919
Mass Control of Dental Caries Through the Use of Domestic Water Supplies Containing Fluorine. Frederick S. McKay, D.D.S.....	828
Maternal and Child Health Funds, Budgets and Expenditures for Dentistry from. John T. Fulton, D.D.S.....	825
Maternal and Child Health, Twenty-five Years in. Felix J. Underwood, M.D.....	1512
Maternal Mortality, The Victory Over. (Editorial published November 1947). See: Letters to the Editor. Herbert Bauer, M.D., et al.....	265
McCallum, Grace L., B.S., Wolff, Arthur H., D.V.M., and Henderson, Norman D. Salmonella from Dogs and the Possible Relationship to Salmonellosis in Man.....	403
McCulloch, Ernest C., D.V.M., Ph.D., Hauge, Steinar, D.V.M., and Migaki, Hoyo, B.S. The Quaternary Ammonium Compounds in Sanitization.....	493
McGee, Robert T., and MacCreedy, Robert A., M.D. Blood Grouping and Rh Typing in a State Public Health Laboratory.....	637
McKay, Frederick S., D.D.S. Mass Control of Dental Caries Through the Use of Domestic Water Supplies Containing Fluorine.....	828
Mechanical Dishwashing, A City Department of Health Program on the Improvement of. Walter L. Mallmann, Ph.D., Leo Zalkowski, and David Kahler.....	239
Medical Attendance During Terminal Illness. Marta Fraenkel, M.D.....	970
Medical Care Plans for Industrial Workers and Their Relationship to Public Health Programs. Lee Janis, M.D., and Milton I. Roemer, M.D., M.P.H.....	1215
Medical Care Program, Appraising a. Seymour Etkin.....	1531
Medical Care Program, A Health Department. Editorial.....	555
Medical Care: See: Coördination of Preventive and Curative Services in Maryland. William H. F. Warthen, M.D., M.P.H.....	1393
Cultivating Our Human Resources for Health in Tomorrow's World. Martha M. Elliot, M.D.	1499
Galileo Was Right. Editorial.....	1275
International Trends in Health Care. John B. Grant, M.D.....	381
Medical Care, Subcommittee on. See: Public Health and Bedside Home Nursing Services. Haven Emerson, M.D., Referee.....	82
Medical Social Follow-Up. Florence I. Mosher. The Rheumatic Fever Community Program. Its Value in the Epidemiological Study of Rheumatic Fever. A Symposium... ..	1087
Medical-Social Service by a County Health Department, The Use of. William J. French, M.D., and Geneva Wiser.....	1555
Medical-Social Worker's Approach to the Problem of Poliomyelitis, A. Ethel Cohen.....	1092
Mental Health Program in a State and Local Department of Health, Beginnings of a. Kent A. Zimmerman, M.D.....	811
Mental Hygiene. See: Guidance for a Pre-Adolescent World. Editorial.....	1696
Mental Hygiene. See: Psychiatry.	
Merged Official and Voluntary Public Health Nursing Agencies—It Works in Seattle. Emil E. Palmquist, M.D., M.P.H., and Marguerite Prindiville, R.N.....	1663
Merit System Supervisors, Gleanings from the Conference of Health Officers and. See: Selecting Public Health Personnel Through Examining Processes. Dorothy Deming, R.N.	808
Mexico, Nutrition Appraisals in. Richmond K. Anderson, M.D., José Calvo, M.D., William D. Robinson, M.D., Gloria Serrano, M.D., and George C. Payne, M.D.....	1126
Mickle, Friend Lee, Sc.D., Chairman. Coördinating Committee on Standard Methods....	Year Book, 75
Microbiological Examination of Foods (Standard Methods). Harry E. Goresline, Ph.D., Chairman	Year Book, 101
Migaki, Hoyo, B.S., McCulloch, Ernest C., D.V.M., Ph.D., Hauge, Steinar, D.V.M. The Quaternary Ammonium Compounds in Sanitization.....	493

	Page
Milk-borne Diseases. See: Even with the Law on Our Side. R. P. Fowler.....	1569
Milk, Newly Proposed Staining Formulas for the Direct Microscopic Examination of. B. S. Levine, Ph.D., and L. A. Black, Ph.D.....	1210
Milk. See: A New and Rapid Method for the Preparation and Standardization of Brucella Ring Test Antigen. Ronald M. Wood.....	1225
Milk, Studies Showing the Effect of Changes in the New (9th) Edition of Standard Methods in Relation to the Bacteriological Analysis of. Robert C. Thomas, M.S., Benjamin S. Levine, Ph.D., and Luther A. Black, Ph.D.....	233
Miller, Mabel Stewart, and Florio, Lloyd, M.D., Dr.P.H. Epidemiology of Colorado Tick Fever	211
Mills, Martin, M.D. Essentials of Good Local Public Health Administration. Summary of a Panel Discussion.....	219
Mississippi. See: Twenty-five Years in Maternal and Child Health. Felix J. Underwood, M.D.	1512
Modified Self-Selection Method of Feeding Preschool Children in the Home. Margaret F. Gutelius, M.D.	1118
Moench, G. F. Allocation of Funds to Local Programs. Some Concrete Problems of Health Administration—A Symposium.....	925
Moore, Loren D., M.D., Getting, Vlado A., M.D., Dr.P.H., Mulford, Dwight J., Ph.D., and Edsall, Geoffrey, M.D. Development of the Massachusetts Blood and Blood Derivatives Program	226
Morales, E. Garrido, M.D., Dr.P.H. The Participation of Puerto Rico in the Federal Health and Hospital Program.....	1387
Morning After, The. Editorial.....	1694
Mortality Statistics. See: Relative Efficiency of the Open and the Confidential Method of Reporting Causes of Death. Paul H. Jacobson.....	789
Mosher, Florence I. Medical Social Follow-Up. The Rheumatic Fever Community Program. Its Value in the Epidemiological Study of Rheumatic Fever—A Symposium.....	1087
Moss, Bernice, Ed.D., Nyswander, Dorothy B., Ph.D., and Kelley, Elizabeth, Ed.D. Preservice Preparation of Teachers and School Administrators. Preservice and Inservice Preparation in Health of School Personnel—A Symposium.....	30
Mothers and Infants, Appraising the Nutritional Status of. Clement A. Smith, M.D., and Harold C. Stuart, M.D.....	369
Mouse protection test. See: Pertussis Vaccine.	
Muckenfuss, R. S., M.D. Vaccination Against Smallpox. Current Status of Immunization Procedures—A Symposium	476
Muckenfuss, R. S., M.D., Chairman. Diagnostic Procedures and Reagents (Standard Methods)	81
Mulford, Dwight J., Ph.D., Edsall, Geoffrey, M.D., Moore, Loren D., M.D., and Getting, Vlado, M.D., Dr.P.H. Development of the Massachusetts Blood and Blood Derivatives Program	226
Municipal Public Health Engineering. Time Studies—A Needed Research Project. J. Lloyd Barron, C.E., Chairman.....	87
Myers, J. Arthur, M.D., Ph.D. Eradication of Tuberculosis by Epidemiological Methods... See: Administrative Judgment in the Control of Tuberculosis. Editorial.....	516 557

N

National Foundation for Infantile Paralysis. See: Fellowships in Public Health Education	350
National Health Assembly of 1948, The. Editorial.....	851
See: Report to National Health Assembly. Quincy Howe.....	858
National Health Program for Canada, A New. G. D. W. Cameron, M.D., D.P.H.....	1643
National Organization for Public Health Nursing.. See: Public Health and Bedside Home Nursing Services. Haven Emerson, M.D., Referee.....	82
National Research Council. See: Sanitary Engineering and National Security.....	869
National Science Foundation Do We Need?, What Sort of. Editorial.....	260
National Security, Sanitary Engineering and. Digest of a report by the Subcommittee on Sanitary Engineering Aspects of Major Catastrophes of the National Research Council..	869
Naubert, J., and Gibbard, J. Paralytic Shellfish Poisoning on the Canadian Atlantic Coast	550
Navaho Women to Accept Hospitalization During Childbirth and for Implementing Health Education, Suggested Techniques for Inducing. Flora L. Bailey, Ph.D.....	1418
Naval Recruits, A Schick Survey of 18,000. F. S. Cheever, M.D.....	374
NDV. See: Newcastle Disease Virus.	
Nebelung, Raymond George, Dr.P.H. Volunteer Participation in Community Health in Hawaii	817
New and Rapid Method for the Preparation and Standardization of Brucella Ring Test Antigen, A. Ronald M. Wood.....	1225
New Approach to Food Handler Training. J. L. Rowland, M.S.P.H., and John H. Fritz...	1561
Newcastle Disease Virus in Human Sera, Presence of Neutralizing Antibodies of. Beatrice F. Howitt, Lindsay K. Bishop, M.D., and Robert E. Kissling, D.V.M.....	1263
New Developments in Trickling Filter Operation. Editorial.....	417
Newhall, Chester A., M.D., Thorne, Frederick C., M.D., Traub, Eugene F., M.D., and Fuller, John R., M.D. Effectiveness of Compound G-11 in Reducing Pyogenic Skin Infections..	1228
Newly Proposed Staining Formulas for the Direct Microscopic Examination of Milk. B. S. Levine, Ph.D., and L. A. Black, Ph.D.....	1210

	Page		Page
New National Health Program for Canada, A. G. D. W. Cameron, M.D., D.P.H.....	1643	News from the Field (and Fillers)—Cont.	
New Orleans, Health Coordination in. Some Concrete Problems of Health Administration—		Arkansas Public Health Association Or-	
A Symposium. John M. Whitney.....	928	ganized	140
New York City in Relation to Previous Epidemics, Age Distribution of Poliomyelitis in.		Army Medical Department Expands	
Alfred Yankauer, Jr., M.D., M.P.H., and Henry P. Goldberg, M.D.....	1683	Training Program	905
		Army Syphilis Records	1194
		Arthritis and Rheumatism Foundation,	
		The	1620
		Association of State and Territorial	
		Health Officers. See: Directors of	
		Local Health Services Meet.....	1056
		Association of State and Territorial	
		Health Officers, Training Resolution	
		of the	334
		Atomic Energy Exhibit.....	455
		Atomic Energy, Training in Engineering	
		Aspects of	842
		Atomic Plants, Safety in.....	136
		Atom Medicine, Fund for Training in..	604
		Australia's Medical Care Program In-	
		cludes Pharmaceuticals	905
		Austrian Public Health Association	
		Organized	1617
		Babe Ruth Foundation.....	1627
		Babies and they Live Longer, More....	910
		Bactericidal Properties of Chloramines	
		and Free Chlorine in Water.....	1620
		Baltimore Joins the Maryland Medical	
		Care Program	1351
		Baltimore Medical Society Requests	
		Medical Care Program Extended....	313
		Barbiturates, New York City Regula-	
		tions Regarding	137
		Bauer, Theodore J., M.D. See: Changes	
		in Staff Assignments, U. S. Public	
		Health Service	910
		Bauer, W. W., M.D., Prentiss Award to	
		BCG Inoculations in Europe, Henry F.	
		Helmholz, M.D., Reports on.....	1623
		BCG Vaccination in New York State....	1125
		BCG Vaccination, National Tuberculosis	
		Association Policy on.....	754
		Bergsma, Daniel, M.D., M.P.H. Ap-	
		pointed New Jersey Commissioner of	
		Health	1194
		Biometric Society, International	307
		Bishopp, F. C., Ph.D., Received British	
		Award	608
		Blalock, Alfred, M.D., and Taussing,	
		Helen B., M.D., Receive Passano	
		Award	1195
		Blue, Rupert, M.D., Death of.....	909
		Borden Award. See: American Insti-	
		tute of Nutrition Awards.....	1732
		Border Public Health Association, Sixth	
		Annual Meeting United States-Mexico	
		Border Public Health Association to	
		Meet March 20-22.....	313
		Boston is Being Surveyed.....	1628
		Boxing Commission	1733
		Brazil, Greetings from the Public Health	
		Association of	1171
		Breed, Robert S., Ph.D., Retires.....	129
		British Award, F. C. Bishopp, Ph.D.,	
		Receives	608
		British Empire, V. Mary Cross, M.D.,	
		Received Order of.....	601
		British Medical Association Decides to	
		Cooperate in the National Health	
		Service Act	1352

News from the Field (and Fillers)—Cont.	Page	News from the Field (and Fillers)—Cont.	Page
British Summer School in Health Education	218	Chisholm, Brock, M.D., Director of WHO	1347
Brucellosis Campaign, Ohio has.....	1629	Chlorine in Water, Bactericidal Properties of Chloramines and free.....	1620
Brucellosis. See: Pasteurization of all Market Milk and Cream Recommended	1622	Chloromycetin Claimed To Be Effective in Rocky Mountain Spotted Fever Treatment	1733
Buell, Bradley. See: Community Surveys, Inc.	136	Chronically Ill, California Survey of..	1351
Buffalo City-Erie County, N. Y. Health Department	310	Chronic diseases. See: Study of Old Age Diseases	136
Burritt, Bailey B., Retires from National Health Council.....	1196	Cincinnati Public Health Federation Awards	454
Bustamante, Miguel E., M.D., Dr.P.H., Secretary General, Pan American Sanitary Bureau	454	Classification of Diseases, Injuries and Causes of Death Adopted, International	1486
California Counties Join Forces, Two..	1627	Orders for	1656
California Department of Health. See: Tumor Record Registry.....	140	Clearing House of Child Life Research	1732
California Has Dental Health Bureau..	1623	Cleveland's Medical Center.....	140
California Survey of Chronically Ill...	1351	College Sororities Help Cerebral Palsied	1490
Calvert, Cecil K., 1886-1948.....	906	Colorado Public Health Association..	1030
Canada. See: Resolution 21—Recognition of Increased Federal Appropriations for Public Health in Canada...	1652	Colorado, Tri-County Health District in Colorado University. Postgraduate Seminars at	1492
Canada's New Deal in Health.....	1187	Committee on Administrative Practice of the A.P.H.A. See: A.P.H.A. Undertakes State Study in Pennsylvania..	754
Canada's Public Health Film Survey...	908	Committee on Professional Education, A.P.H.A. See: Training; Resolution of the Association of State and Territorial Health Officers.....	331
Canadian Department of National Health and Welfare, Fred W. Jackson, M.D., D.P.H., Joins.....	1617	Community Nutrition at the University of Tennessee, Graduate Fellowships in Community Service Society of New York. See: Preventive Medicine to the Fore	732
Canadian Public Health Association 549,	1195	Community Surveys, Inc.....	136
Canadian Public Health Association Adopts A.P.H.A. Statements on Professional Qualifications	1735	Conference of Municipal Public Health Engineers	308
Cancer Control Grants.....	312	Conference of Professors of Preventive Medicine, Henry E. Meleney, M.D. Heads	300
Cancer Control Training, Yale Expands	1209	Conference on School Health Proposed	1048
Cancer, Grants for Research in Oral...	605	Connecticut Public Health Association	1050
Cancer Nursing In-Service Program...	1626	Connecticut to Vote for District Health Departments, First Towns in.....	308
Cancer Society Formed, Vermont.....	1627	Connecticut 25 Years, Stanley H. Osborn, M.D. in.....	458
Cardiacs, Sheltered Work for.....	307	Constitutional Amendment, Southern Branch, A.P.H.A., Plans.....	1732
Caso, Elizabeth K. See: Massachusetts Public Health Association Appoints Executive Secretary	460	Containers for Laboratory Specimens, Loss of	136
Causes of Death Adopted, International Classification of Diseases, Injuries and	1486	Cori, Carl Ferdinand, and Gerty, T., Awarded Nobel Prize in Medicine....	135
Census of Patients in Mental Institutions, Transfer of Annual.....	533	Cori, Carl F., M.D., Another Medal for Crosse, V. Mary, M.D., Receives Order of British Empire	601
British Summer School in Health Education	218	Cutter Dextrose Solutions Back in Distribution	1191
Central Council for Health Education (London). See: English Summer School in Health Education.....	1056	Cutter Lecture at Harvard.....	341
Cerebral Palsied, College Sororities Help	1490	Cutter Recalls All Dextrose Solutions..	819
Cerebral Palsied, More Help for the..	1625	Dallas Museum Initiates Annual Award	1189
Cerebral Palsy, Here and There in....	604	Danish Health Laws.....	1624
Chemiatric Corporation. See: Stone-Marshall Test Paper Changes Hands	1196	Dental Health Bureau, California has..	1623
Chemistry Awards, Three.....	1626	Denver Organizes Its Health and Hospital Structure	1356
Chesley, Albert Justus, M.D., Honored by Minnesota State Medical Association	1102	Denver Post, Florence R. Sabin, M.D., Assumes	311
Chest X-Ray Campaign, Advertising Council's	455	Detroit Department of Health New Address	138
Chest X-Ray of Hospital Admissions, Routine	1195	Dextrose Solutions, Cutter Recalls All..	819
Chicago Tuberculosis Institute, New Home for	1195	Diabetes Detection Drive.....	1622
Child Care. See: Annual Parents' Magazine Medal to Martha M. Eliot, M.D.	457	Directors of Local Health Services Meet	1056
Child Feeding, Further Study of.....	1625	Directory of State Health Officers, 1947	566
Child Health Services, The State of..	1352	Distinguished Service Medal, Thomas Farran, M.D., Receives.....	1618
Child Life Research, Clearing House of	1732	District Health Departments, First Towns in Connecticut to Vote for...	308
Child Life, The Threads of Research in	454		
Children, Study of War's Effect on....	605		
Children, United Nations Appeal for..	373		

News from the Field (and Fillers)—Cont.	Page	News from the Field (and Fillers)—Cont.	Page
Division of Air Pollution Control in Philadelphia	1732	Food, Where We Are on.....	305
Doisy, Edward A., M.D., added to the National Advisory Cancer Council...	607	Fosdick, Raymond B. Quotations..1081, 1091, 1218, 1253, 1417, 1520	
Dublin, Thomas D., M.D., Dr.P.H. See: National Health Council Appoints Executive Director.....	1560	Fourth International Congresses on Tropical Medicine and Malaria, The..	599
Dust or Bacteria Counts.....	309	Frost, Dr. Wade H., Resolution in Memory of	1055
Dyer, Rollo E., M.D. See: Changes in Staff Assignments, U. S. Public Health Service	910	Frozen desserts. See: Meeting new Problems in Milk Sanitation Programs	1620
Eliot, Martha M., M.D., Annual Parents' Magazine Medal to.....	457	Frozen Food Locker Plants, Building..	1196
Eliot, Martha M., M.D., Honorary Degree to	1353	Fulton County, Georgia. See: Compulsory Pasteurization Ordinance Upheld	141
Engineering Aspects of Atomic Energy, Training in	842	Garnier, W. V., M.D., Appointed Louisiana State Health Officer.....	1618
Engineering Congress, Inter-American Sanitary	461	Gebhard, Bruno, M.D., Is Honored....	1056
Engineering, Field Training in Public Health	755	George Westinghouse Science Writing Awards. See: Science Writing Awards	1627
Engineering Professional Societies. See: Professional Responsibilities	458	Georgia Health Commissioner, Thomas A. Sellers, M.D.....	461
Engineers, Field Training Fellowships for Public Health.....	631	Georgia Public Health Association....	1050
English Summer School in Health Education	1056	Georgia School of Technology, The. See: An Opportunity for Industrial Hygiene Training	466
English Tuberculosis Association Adopts Journal	609	Georgia, Typhus Menace Reduced in..	1350
Environmental Sanitation Refresher Course	1191	Goiter, The American Association for the Study of. See: Van Meter Prize Award	313
Erie County—Buffalo City, N. Y. Health Department	310	Gomes-Gandau, Marcolion, M.D. See: New Officers of the Sociedade Brasileira de Higiene.....	462
Eternal Fight, The. See: WHO Makes a Movie	1190	Graduate Training in Sanitary and Public Health Engineering, University of Missouri	1053
Ewing, Oscar R. See: The Nation's Health, A Ten Year Program.....	1615	Grange Resolution on Local Health Units	1354
See: Regional Officers for Federal Security Agency	1616	Grants for Research in Human Reproduction	1351
Examinations for Permanent Corps, U. S. Public Health Service.....	475	Gross, Miriam Zeller. See: Silver Nitrate the Preferred Drug in Ophthalmia Neonatorum	788
Excerpta Medica, Public Health Section of	909	Halverson, Wilton L., M.D., Social Hygiene Life Membership to.....	1048
Experimental Biology and Medicine, Institute of	457	Handicapped Week, Employ the.....	1057
Family Life, First National Conference on	453	Harper, C. A., M.D., Day in Wisconsin..	604
Family Life, National Conference on..	1047	Hartford, Conn. Health Department. See: Is This a Trend?.....	1489
Federal Government's Medical and Hospital Facilities, Committee to Study..	910	Harvard, Cutter Lecture at.....	341
Federal Plan to Finance Training of Medical Students, Thomas Parran, M.D., Proposes	312	Harvard School of Public Health, Department of Nutrition. See: Further Study of Child Feeding.....	1625
Federal Security Administrator's Health Assembly	601	Hawaii, Health News from.....	1193
Federal Security Agency. See: Mental Health Training Grants.....	1238	Health Assembly, Federal Security Administrator's	601
Federal Studies, Herbert Hoover Selects Aides for	310	Health Center, New Union.....	1052
Fellowships for Public Health Engineers, Field Training.....	631	Health Council of Greater New York, One Year of the.....	1055
Fellowships in Public Health Education	350	Health Education Workshop.....	663
Fellowships in Public Health, New York State	607	Health Education Workshop, Arizona..	1055
Fertility Control. See: First Grants for Research in Human Reproduction...	1351	Health Educators Meet, Middle States.	1191
Field Training Program.....	458	Heart Disease, U. S. Congress Enacts Legislation on	1193
Fillmore, Anna, R.N., Succeeds Houlton, Ruth, R.N., in N.O.P.H.N.....	310	Heart Institute Established, National..	1622
Film Advisory Service, New.....	1048	Heart Institute Proposed by Senate Bill, National	756
Film Oscars, Safety.....	1049	Heller, John R., M.D. See: Changes in Staff Assignments, U. S. Public Health Service	910
Films. See: Canada's Public Health Film Survey	908	Helmholz, Henry F., M.D., Reports on BCG Inoculations in Europe.....	1623
Financial Problems in the Nursing Field, Course on.....	769	Heustis, Albert E., M.D., Michigan Health Commissioner	1620
Florida Public Health Association..	1735	High Blood Pressure, American Foundation for	307
Fluoride Therapy in Kansas.....	1054	Hill-Burton Survey and Construction Act. See: Projects Approved for a Third of Hospital Construction Funds	607

News from the Field (and Fillers)—Cont.	Page	News from the Field (and Fillers)—Cont.	Page
Hilleboe, Herman E., M.D. makes trip to Europe	753	International Children's Emergency Fund. See: United Nations Appeal for Children	373
Hingson, R. A., Surgeon, Junior Chamber of Commerce Award to	605	International Classification of Diseases, Injuries and Causes of Death Adopted Orders for	1486 1656
Hoover Commission, Howard M. Kline, Ph.D. to	1491	International Congress on Industrial Medicine, Ninth	1057
Hoover, Herbert Selects Aides for Federal Studies	310	International Exchange of Nurses.....	134
Horwitz, Dr. Sandor, Honored on Retirement in Illinois.....	1735	International Hospital Association Proposed	1624
Hospital Construction Funds, Projects Approved for a Third of.....	607	International Mental Health Congress.....	134
Hospital Construction Project to Combine Hospital and Health Services, First Approved	459	International Poliomyelitis Conference to Have Permanent Status.....	1489
Hospital Facilities, Committee to Study Federal Government's Medical and..	910	Iowa Public Health Association.....	1050
Houlton, Ruth, R.N., in N.O.P.H.N., Anna Fillmore, R.N., Succeeds.....	310	Jackson, Fred W., M.D., D.P.H. Joins Canadian Department of National Health and Welfare.....	1617
House Rules Committee Tables World Health Organization	511, 749	Japan, New Health Laws in.....	1628
Housing. See: Anatole A. Solow to Pan American Union	455	Jean, Sally Lucas, Service Award to..	606
Howson, Louis R., C.E., Elected Honorary Member of American Water Works Association	609	John and Mary R. Markle Foundation, The. See: More about "Scholars in Medical Science.".....	1627
Human Reproduction, First Grants for Research in	1351	Junior Chamber of Commerce Award to R. A. Hingson, Surgeon.....	605
Human Reproduction, Research on....	311	Kansas, Fluoride Therapy in.....	1051
Idaho Public Health Association.....	1050	Kansas Public Health Association.....	1051
Illinois, Dr. Sandor Horwitz Honored on Retirement in	1735	Kansas Public Health Association Meets	906
Illinois Medical Society and the Illinois Agricultural Association. See: Training Rural Doctors.....	605	Kate Macy Ladd Fund, Dr. Van Horn Directs	137
Illinois, New Bi-County Health Department in	905	Kenfield Memorial Fund. See: Lip Reading Scholarship	460
Illinois Public Health Association Annual Meeting	907	Kline, Howard M., Ph.D., to Hoover Commission	1491
Illuminating Engineering Society Elects L. E. Taylor President.....	1194	Laboratory Diagnosis of Parasitic Diseases, Courses in.....	489
Illuminating Engineering Society. See: The Problem of Proper Illumination.	1038	Laboratory Diagnosis of Rabies, Course in	1621
India, Public Health in.....	1625	Laboratory Specimens, Loss of Containers for	136
Indianapolis-Marion County Health Unit Urged	1053	Langdale, Chambers County, Alabama. See: First Approved Hospital Construction Project to Combine Hospital and Health Services.....	459
Indiana's First Bi-County Health Department	459	Latin American Countries. See: The Institute of Inter-American Affairs Training Program	492
Indiana's New Department of Health Building	454	Latin American Nutrition Conference..	907
Industrial Hygiene, Educational Opportunities in	909	Lead Exposure, Control of.....	1490
Industrial Hygiene Training, An Opportunity for	466	Lenroot, Katharine, Receives University Honors	1355
Industrial Medicine, Long Island College Concludes Postgraduate Course in..	906	Lighting Research. Dr. Luckiesh Awarded I.E.S. Gold Medal for.....	138
Industrial Medicine, Postgraduate Course in	455	Lip Reading Scholarship.....	460
Insect Control in Retrospect.....	751	Local Health Officers Organize, New York	1733
In-Service Program, Cancer Nursing..	1626	Local Health Services Bill, Hearing on.	752
Institute in Public Health Administration	911	Local Health Units:	
Institute of Inter-American Affairs. See: Model Health Center for Mexico City	1623	Grange Resolution on.....	1354
Institute of Inter-American Affairs Training Program, The.....	492	National Committee on.....	456
Inter-American Sanitary Engineering Congress	461, 1188	Parents and Teachers Association and Personnel and Services of.....	602 755
Interim Board on Preventive Medicine and Public Health.....	1554	Program Takes Another Step, National	1185
Interim Commission WHO Holds Fourth Session in Geneva.....	138	Regional Conference on.....	903
International Association of Milk and Food Sanitarians	307	Rocky Mountain Conference on.....	1730
International Biometric Society.....	307	Second National Tuberculosis Association Resolution on.....	751
		Long Island College Concludes Postgraduate Course in Industrial Medicine	906
		Long Island College of Medicine. See: Postgraduate Course in Industrial Medicine	455
		Los Angeles County, Sanitarian In-Service Training	1153
		Los Angeles County Health Index.....	1492

News from the Field (and Fillers)—Cont.		Page	News from the Field (and Fillers)—Cont.		Page
Louisiana City and County Consolidate Their Governments, A.....	459		Metropolitan Campaign to Reduce Children's Accidents	1350	
Louisiana State Department of Health. See: Five Year Plan for Visual Education	309		Mexico City, Model Health Center for..	1623	
Louisiana State Health Officer, W. V. Garnier, M.D., Appointed.....	1618		Mexico-United States Border Public Health Association to Meet March 20-22	313	
Luckiesh, Matthew, D.Sc., D.E., Awarded I.E.S. Gold Medal for Lighting Research	138		Michigan Committee Develops Subsidy Plan	138	
Malaria Society, National.....	607		Michigan Department of Health: See: Field Training Fellowships for Public Health Engineers.....	631	
"Manchester (England) Guardian Weekly, The," Thursday, July 8, 1948, Comment and Criticism.....	1233		Field Training in Public Health Engineering	755	
Margarine, Proposed End of U. S. Tax on	310		Michigan Foundation for Medical and Health Education. See: Rural Medical Student Loan Fund.....	1190	
Markle, John and Mary R. Foundation Medical Scholars	755		Michigan Health Commissioner, Albert E. Heustis, M.D.....	1620	
Marquette, Bleecker. See: Cincinnati Public Health Federation Awards..	451		Michigan Public Health Association...	907	
Marriage clinic. See: Psychiatrist on Western Reserve Staff.....	135		Microbiological Institute, National Institutes of Health Creates.....	1735	
Maryland Health Officers, Seminars for Maryland, Prince Georges County. See: Demonstration Mental Health Clinic	606		Midcentury White House Conference on Children	1047	
Massachusetts Institute of Technology Laboratories, Dedication of.....	459		Middle States Health Educators Meet..	1191	
Massachusetts Institute of Technology. See: Training in Engineering Aspects of Atomic Energy.....	812		Milk and Cream Recommended, Pasteurization of all Market.....	1622	
Massachusetts Public Health Association Appoints Executive Secretary..	460		Milk and Food Sanitarians, International Association of.....	307	
Massachusetts Public Health Conference and New England Health Institute..	752		Milk Sanitation Programs, Meeting New Problems in	1620	
Maternal and Child Health Training Program	609		Miller, Ben W., New Youth Hostels' Executive	1351	
Mather, Philip R., President of American Social Hygiene Association.....	602		Minnesota Public Health Conference.....	1733	
Matheson Alkali Works. See: Water Emergency Publicity Material.....	752		Minnesota State Medical Association, Albert Justus Chesley, M.D., honored by	1192	
Mead Johnson Co. See: American Institute of Nutrition Awards.....	1732		Missouri, Graduate Training in Sanitary and Public Health Engineering, University of	1053	
Medical Advisory Committee to Resources Board	1493		Missouri Public Health Association...	1051	
Medical and Hospital Facilities, Committee to Study Federal Government's Medical Care Program, Baltimore Joins the Maryland	1351		Monongalia County, W. V. See: West Virginia County Studies Integration of New Health Activities.....	608	
Medical Care Program Extended, Baltimore Medical Society Requests.....	313		Montreal Health Department, Tuberculosis Division in.....	1626	
Medical Education, Senate Bill Provides Aid to	836		Morton, John J., Jr., M.D., added to the National Advisory Cancer Council	607	
Medical Expenditures of Farm Families	258		Mueller, Dr. Paul, Nobel Prize in Medicine to	1734	
Medical School of Northwestern University. See: National Nutrition Research Center	453		Muhlberg, William H., M.D., See: Cincinnati Public Health Federation Awards	451	
Medical-Social Service. See: Is This a Trend?	1489		Multiple Sclerosis, First Research Clinic to Study	1189	
Medical Students, Thomas Parran, M.D., Proposes Federal Plan to Finance Training of	312		Multiple Sclerosis Surveys.....	603	
Meharry College. See: Negro Health and Medical Care	908		Municipal Public Health Engineers, Conference on	308	
Meleney, Henry E., M.D., Heads Professors of Preventive Medicine.....	309		Mutual Life Offers Radio Scripts on Health	1625	
Mellon Institute. See: Research on Orthopedic Appliances.....	308		National Advisory Cancer Council.....	607	
Mental Health Aspects of Nursing, Workshop of Nursing.....	309		National Association of American Business Clubs, The. See: More Help for the Cerebral Palsied.....	1625	
Mental Health Clinic, Demonstration..	606		National Association of Sanitarians.....	1349	
Mental Health Congress, International	134		National Cancer Institute. See: Grants for Research in Oral Cancer.....	605	
Mental Health Training Grants.....	1190		National Commission on Safety Education of the National Education Association. See: "Action for Safety" A New Arrival	1351	
Mental Hygiene Fellowships.....	1190		National Committee for Mental Hygiene, Arthur H. Ruggles, M.D., New President of	603	
Mental Institutions, Transfer of Annual Census of Patients in.....	533		National Conference on Family Life...	1047	
Merced County, Calif., New Health Department	138		National Defense Program, American Social Hygiene Association in.....	1623	

News from the Field (and Fillers)—Cont.		Page
National Health Assembly:		
Proposal to Continue.....		1353
See: Conference on School Health		
Proposed		1048
National Health Council:		
Annual Meeting of the.....		598
Appoints Executive Director.....		1560
Bailey B. Burritt Retires from.....		1196
National Health Service Act, British		
Medical Association Decides to Co-		
operate in the.....		1352
See: "Manchester (England) Guar-		
dian Weekly, The," Thursday, July		
8, 1948, Comment and Criticism.		
National Heart Institute Established..		1622
National Heart Institute Proposed by		
Senate Bill		750
National Institute of Health. See:		
Venereal Disease Research Symposium		
National Institutes of Health Creates		
Microbiological Institute		1735
National Institutes of Health, Research		
Institution in		1491
National Local Health Units Program		
Takes Another Step.....		1185
National Malaria Society.....		607
National Mental Health Act. See:		
Study of War's Effect on Children...		605
National Mental Health Foundation.		
See: Award to Psychiatric Aide of the		
Year		601
National Nursing Agencies, New Officers		
of		1352
National Security Resources Board. See:		
Medical Advisory Committee to Re-		
sources Board		1493
National Tuberculosis Association		
Policy on BCG Vaccination.....		754
National Tuberculosis Association Reso-		
lution on Local Health Units, Second		
N.O.P.H.N.:		
Anna Fillmore, R.N., Succeeds Ruth		
Houlton, R.N. in.....		310
Resolution on Local Public Health		
Services		1354
National Research Council, Food and		
Nutrition Board. See: Where We Are		
on Food		305
National Society for the Prevention of		
Blindness, Moves Toward Community		
Cooperation		461
Nation's Health, A Ten Year Program,		
The		1615
Naval Air Reserve Training.....		308
Navy Citation for War Work, Win-		
throp-Stearns		1490
Negro Health and Medical Care.....		908
Negro Health Week, National.....		457
New England Health Institute and		
Massachusetts Public Health Con-		
ference		752
New England Health Institute, June		
16-18		598
New England Health Institute Meets in		
Amherst		1192
New Jersey Commissioner of Health,		
Daniel Bergsma, M.D., M.P.H.		
Appointed		1194
New Jersey, Reorganization for.....		1492
New Mexico Public Health Association		
New York Local Health Officers Organ-		
ize		1733
New York State Boxing Commission.		
See: Boxing Commission.....		1733
News Letter November 25, 1947. See:		
Correction in News Letter.....		141
News from the Field (and Fillers)—Cont.		Page
New York City Health Department,		
News in the.....		1488
New York City Regulations Regarding		
Barbiturates		137
New York Health Council, One Year of		
the		1055
New York State Fellowships in Public		
Health		607
New York State Holds Annual Health		
Conference		1355
New York State to Build Virus Labora-		
tory		1355
New York's State Regions.....		607
New York University. See: Courses for		
Supervisors of Student Health.....		1191
Nobel Prize in Medicine, Doctors Cori		
Awarded		135
Nobel Prize in Medicine to Dr. Paul		
Mueller		1734
North Carolina Water Works Operators'		
School, 1948		749
Northern California Public Health As-		
sociation Meeting		1350
Norton, John W. R., M.D., M.P.H., Suc-		
ceeds Reynolds, Carl V., M.D., as		
North Carolina State Health Officer...		908
Nuclear Physics to Biology and Medi-		
cine, Course in.....		976
Nurses Consider One National Organiza-		
tion		1180
Nurses, International Exchange of....		134
Nurses Marry		141
Nursing Agencies, New Officers of Na-		
tional		1352
Nursing Field, Course on Financial		
Problems in the.....		769
Nursing Is for Men Too.....		607
Nursing, 75 Years of American.....		1625
Nursing Week, Public Health.....		131
Nursing, Workshop on Mental Health		
Aspects of		309
Nutrition at the University of Ten-		
nessee, Graduate Fellowships in		
Community		753
Nutrition Awards, American Institute of		
Nutrition Conference, Latin America...		1732
Nutrition Research Center, National...		907
Ohio, First Tri-County Unit in.....		453
Ohio has Brucellosis Campaign.....		459
Ohio River Valley Water Sanitation		
Compact. See: Progress in Stream		
Pollution Control		1629
Ohio State Health Department, Two		
New Services in.....		908
Old Age Diseases, Study of.....		1351
Ophthalmia Neonatorum, Silver Nitrate		
Still the Preferred Drug in.....		136
Oral Cancer, Grants for Research in..		788
Oregon's New District Health Unit...		605
Orthopedic Appliances, Research on...		461
Osborn, Stanley H., M.D., in Connecti-		
cut 25 Years.....		308
Osborne and Mendel Award. See:		
American Institute of Nutrition		
Awards		458
Page, Franklin F. as Editor of the		
"American Engineer"		1732
Pan American Sanitary Bureau, Miguel		
E. Bustamante, M.D., Dr.P.H., Secre-		
tary General		910
Pan American Union, Anatole A. Solow		
to		454
Parasitic Diseases, Courses in Labora-		
tory Diagnosis of.....		455
Parents and Teachers Association and		
Local Health Units.....		480
		602

News from the Field (and Fillers)—Cont.	Page	News from the Field (and Fillers)—Cont.	Page
Parents' Magazine Medal to Martha M. Eliot, M.D.	457	Recommendations for Control of Rabies	21
Parran, Thomas, M.D.: Proposes Federal Plan to Finance Training of Medical Students....	312	Reed, Walter, in the Hall of Fame....	1052
Receives Distinguished Service Medal	1618	Regional Offices for Federal Security Agency	1616
Retiring Surgeon General of the U. S. Public Health Service.....	750	Report to the President. See: The Nation's Health—A Ten Year Program	1615
to Children's Fund.....	905	Reproduction, Grants for Research in Human	480
See: Pittsburgh's New School of Public Health	1618	Reproduction, Research on Human....	311
Passano Award, Drs. Taussig and Blacklock Receive	1195	Research Fellowships—The American College of Physicians.....	1190
Pasteurization of all Market Milk and Cream Recommended	1622	Research in Human Reproduction, Grants for	480
Pasteurization Ordinance Upheld, Compulsory	141	Research Institution in National Institutes of Health.....	1491
Pediatrics, a new Journal.....	906	Resolution in Memory of Dr. Wade H. Frost	1055
Penicillin. See: Silver Nitrate Still the Preferred Drug in Ophthalmia Neonatorum	788	Resolutions on Local Health Units. See: National Committee on Local Health Units	456
Pennsylvania, A.P.H.A. Undertakes State Study in.....	754	Resolution 21—Recognition of Increased Federal Appropriations for Public Health in Canada.....	1652
Pennsylvania Public Health Association	139, 1734	Reynolds, Carl V., M.D. See: Dr. Norton Succeeds Dr. Reynolds as North Carolina State Health Officer.....	908
Personals ..141, 314, 463, 609, 756, 911, 1057, 1197, 1357, 1493, 1629,	1736	Rheumatism Foundation, The Arthritis and	1620
Personnel and Services of Local Health Units	755	Rocky Mountain Conference on Local Health Units	1730
Pharmaceutical-Medical Research Foundation	606	Rocky Mountain Spotted Fever Treatment, Chloromycetin Claimed To Be Effective in	1733
Philadelphia, Division of Air Pollution Control in	1732	Ruggles, Arthur H., M.D., New President of National Committee for Mental Hygiene	603
Photoelectric Counter for Colloidal Particles. See: Dust or Bacteria Counts	309	Rules Committee of the House of Representatives. See: House Rules Committee Tables World Health Organization	511
Pittsburgh's New School of Public Health	1618	Rural Doctors, Training.....	605
Poliomyelitis Conference: First International	252	Rural Health Conference, American Medical Association	603
International	751	Rural Medical Student Loan Fund....	1190
To Have Permanent Status, International	1489	Sabin, Florence R., M.D. Assumes Denver Post	311
Population Investigation Committee. See: Population Studies.....	135	Sabin's (Florence Rena) New Award..	137
Prentiss Award to Dr. Bauer.....	135	Safety Film Oscars.....	1049
Presidents of the American Public Health Association. See: Correction and an Apology.....	140	Salt Lake City, Utah. See: Rocky Mountain Conference on Local Health Units'	1730
Preventive Medicine and Public Health, Interim Board on.....	1554, 1619	Sandblasting, Manual of Safety in....	1490
Preventive Medicine, Specialty Board in	681	"Sanitarian" Category in the Regular Corps, U.S.P.H.S. Establishes.....	1053
Preventive Medicine to the Fore.....	752	Sanitarian In-Service Training—Los Angeles County	1155
Princeton Conference on Local Health Units. See: National Committee on Local Health Units.....	456	Sanitary Engineer. See: Examinations for Permanent Corps, U. S. Public Health Service	475
Problem of Proper Illumination, The..	1033	Sanitary Engineering Congress, First Inter-American	1188
Professional Qualifications, Canadian Public Health Association Adopts A.P.H.A. Statements on.....	1735	Sanitary Inspectors, Training of.....	330
Psychiatric Aide of the Year, Award to Psychiatrist on Western Reserve Staff.	135	Sanitation Clinic, First National....	753
Public Health Administration, Institute in	911	Scheele, Leonard A., M.D. Appointed Surgeon General, U. S. Public Health Service	462
Public Health Nursing Week.....	134	Scheele, Leonard A., M.D., incoming Surgeon General of the U. S. Public Health Service	750
Public Health Statistics, Conference on	609	"Scholars in Medical Science," More about	1627
Puerto Rico Public Health Association, Annual Meeting of the.....	600	Science Writing Awards.....	1627
Rabies, Course in Laboratory Diagnosis of	1621	Sebrell, William Henry, Jr., M.D. See: Institute of Experimental Biology and Medicine	457
Rabies, Recommendations for Control of	21		
Radio Scripts on Health, Mutual Life Offers	1625		
Radium, Anniversary of the Discovery of	1189		

News from the Field (and Fillers)—Cont.	Page	News from the Field (and Fillers)—Cont.	Page
Sellers, Thomas A., M.D., Georgia		Tuberculosis case finding. See: Psychia-	
Health Commissioner	461	trist on Western Reserve Staff.....	135
Seminars for Maryland Health Officers	1627	Tuberculosis Division in Montreal	
Senate Bill Provides Aid to Medical		Health Department	1626
Education. (S 2588).....	836	Tuberculosis Fellows in Denver, WHO	
Service Award to Sally Lucas Jean....	606	Trains	1195
Sewage Works Data, Water and.....	1054	Tuberculosis Institute, New Home for	
Shellfish Bacteriology Laboratory.....	1349	Chicago	1195
Silver Nitrate Still the Preferred Drug		Tuberculosis Sanatorium Beds, Direc-	
in Ophthalmia Neonatorum.....	788	tory of	1624
Social Hygiene Day, February 4.....	85	Tuberculosis Statistics. See: Los Ang-	
Social Hygiene Life Membership to Dr.		eles County Health Index.....	1492
Halverson	1048	Tuberculosis. See: Advertising Coun-	
Sociedade Brasileira de Higiene, New		cil's Chest X-Ray Campaign.....	455
Officers of	462	Tuberculosis. See: BCG	
Solow, Anatole A., to Pan American		Tumor Clinic, Ulster County (New	
Union	455	York) Plans	1617
South Dakota, Gerald John Van Heuvel-		Tumor Record Registry.....	140
en, M.D., Becomes Superintendent of		Typhus Menace Reduced in Georgia...	1350
Health in	1355	Ulster County (New York) Plans Tumor	
Southern Branch, A.P.H.A.:		Clinic	1617
Announces 1949 Meeting.....	1356	Union Health Center, New.....	1052
Meets in New Orleans.....	1040	United Automobile Workers-CIO, Health	
Plans Constitutional Amendment....	1732	Advisory Committee	1189
Souza, Geraldo Paula, M.D. See: New		United Nations Appeal for Children...	373
Officers of the Sociedade Brasileira		United States in World Health Organi-	
de Higiene	463	zation	981
Specialty Board in Preventive Medicine		United States-Mexico Border Public	
Spies, Tom D., M.D. See: National Nut-		Health Association, Sixth Annual	
rition Research Center.....	453	Meeting	832
Starin, William A., Ph.D. Retires.....	905	United States-Mexico Border Public	
Starnes, Walter, Award to Psychiatric		Health Association to Meet March	
Aide of the Year.....	601	20-22	313
State and Territorial Health Officers		U. S. Children's Bureau. See: The	
Association, Meeting of.....	306	Threads of Research in Child Life..	454
State Health Officers, 1947 Directory of		U. S. Delegation to Interim Commission,	
Statistics, Conference on Public Health		WHO	306
Stone-Marshall Test Paper Changes		U. S. Delegation to WHO. See: Dr.	
Hands	1196	Chisholm Director of WHO.....	1347
Stream Pollution Control, Progress in		U. S. Department of Commerce, The	
Streptomycin, When to Use.....	245	Bureau of the Census. See: Transfer	
Student Health, Courses for Super-		of Annual Census of Patients in Men-	
visors of	1191	tal Institutions	533
Study of War's Effect on Children....	605	U. S. Public Health Service:	
Subsidy Plan, Michigan Committee De-		Changes in Staff Assignments.....	910
velops	138	Courses in Laboratory Diagnosis of	
Surgeon General, U. S. Public Health		Parasitic Diseases	489
Service, Leonard A. Scheele, M.D.		Creates Health Emergency Planning	
Appointed	462	Unit	1057
Supervisors of Student Health, Courses		Establishes "Sanitarian" Category	
for	1191	in the Regular Corps.....	1053
Sutherland, Robert L., M.D., Receives		Examinations for Permanent Corps..	475
First Annual Award of the Dallas		1949 Budget	756
Health Museum	1189	Mental Hygiene Fellowships.....	1190
Swimming Pool Regulations, Amend-		University of Massachusetts. See: En-	
ments to New York State.....	460	vironmental Sanitation Refresher	
Syphilis Records, Army.....	1191	Course	1191
Tarbett, Ralph E., Death of.....	606	University of Pittsburgh. See: Pitts-	
Taussing, Helen B., M.D., and Bla-		burgh's New School of Public Health	
lock, Alfred, M.D., Receive Passano		Utah Public Health Association.....	1192
Award	1195	Vaccination in New York State, BCG..	1125
Taylor, L. E. President, Illuminating		Van Heuvelen, Gerald John, M.D., Be-	
Engineering Society Elects.....	1194	comes Superintendent of Health in	
Tennessee Public Health Association...	1051	South Dakota	1355
Texas Public Health Association.....	754	Van Horn, Abram L., M.D., Directs	
Thomas, Senator Elbert D. See: Senate		Kate Macy Ladd Fund.....	137
Bill Provides Aid to Medical Educa-		Van Meter Prize Award.....	313
tion	836	Veneral Disease Research Symposium..	201
Training Resolution of the Association		Vermont Cancer Society Formed.....	1627
of State and Territorial Health		Veterinary Public Health Section Trans-	
Officers	334	ferred	141
Tri-County Health District in Colorado		Virginia's Model Alcoholic Care Bill..	909
Tropical Medicine and Malaria, The		Virus Laboratory, New York State to	
Fourth International Congresses on..	599	Build	1355
Tubercle. See: English Tuberculosis		Visual Education, Five Year Plan for..	309
Association Adopts Journal.....	609	Vital Statistics, WHO World Agency	
		for	1049

News from the Field (and Fillers)—Cont.	Page	News from the Field (and Fillers)—Cont.	Page
Water and Sewage Works Data.....	1054	Holds Fourth Session in Geneva, Interim Commission	138
Water and Sewage Works Manufac- turers Elect	1056	House Rules Committee Tables..	511, 749
Water, Bactericidal Properties of Chloramines and Free Chlorine in...	1620	Makes a Movie.....	1190
Water Emergency Publicity Material..	752	Trains Tuberculosis Fellows in Denver	1195
Water Pollution Bill Passed.....	1491	Up to Date.....	1350
Water-Sanitation Practice, Manual of Recommended	313	U. S. Delegation to Interim Commis- sion	306
Water Works Operators' School, 1948 North Carolina	749	See: World Health Organization.	
Western Branch A.P.H.A. Meets in Salt Lake City	1039	World Agency for Vital Statistics...	1049
Western Reserve Staff, Psychiatrist on	133	Williams, C. L., M.D. See: Changes in Staff Assignments, U. S. Public Health Service	910
West Virginia County Studies Integra- tion of New Health Activities.....	608	Wisconsin, Harper, C. A., M.D., Day in'	604
West Virginia, More Joint Activity in..	1350	Wolman, Abel, Dr.Eng., Elected Hon- orary Member of American Water Works Association	609
West Virginia Public Health Associa- tion	1192	World Federation of Mental Health. See: International Mental Health Congress	134
White House Conference on Children, Midcentury	1047	World Health Organization, United States in	981
Winthrop-Stearns Navy Citation for War Work	1490	World Health Organization. See: WHO	
WHO:		Yale Expands Cancer Control Training	1209
Brock Chisholm, M.D., Director of...	1347	Youth Hostels' Executive, Ben W. Miller New	1351
Charter Ratified	907		
Executive Board	1624		
New York City's Atmospheric Pollution Control Problems. General Atmospheric Pollution—A Symposium. Arthur C. Stern.....	966		
New York City. See: Vaccination Against Smallpox. Current Status of Immunization Procedures—A Symposium. R. S. Muckenfuss, M.D.....	476		
New York State, Dog, Fox, and Cattle Rabies in. Robert F. Korns, M.D., and A. Zeissig, D.V.M.	50		
New York State, Program Plans for Public Health Action in. Some Concrete Problems of Health Administration—A Symposium. Herman E. Hilleboe.....	923		
Ninth International Congress on Industrial Medicine. Editorial.....	1451		
N.O.P.H.N. Field Staff on Seattle and Richmond Reports, Comment of. Hedwig Cohen, R.N., Ruth Fisher, R.N., and Dorothy Rusby, R.N.....	1673		
Nuclear Energy. See: Health Problems Resulting from Newer Technological Develop- ments. R. Emmet Kelly, M.D.....	837		
Nurse—Her Functions and Her Training, The Practical. Editorial.....	93		
Nurses, 1946-1947, The Economic Status of Public Health. Dorothy E. Wiesner and Lily Mary David.....	1097		
Nursing and Nursing Education. Editorial.....	1574		
Nursing in the Cancer Control Program of the U. S. Public Health Service, Public Health. Rosalie I. Peterson, R.N.....	206		
Nursing Service. See: It Works in Seattle. Emil E. Palmquist, M.D., M.P.H., and Marguerite Prindiville, R.N.....	1663		
Nursing Service, South Richmond Community. C. Howe Eller, M.D., Dr.P.H., and Catherine L. Austin, R.N.....	1669		
Nursing Services, Public Health and Bedside Home. Statement by an inter-organization group of the National Organization for Public Health Nursing and the Subcommittees on Medical Care and Local Health Units of the Committee on Administrative Practice of the A.P.H.A. Haven Emerson, M.D., Referge.....	82		
Nutrition Appraisals in Mexico. Richmond K. Anderson, M.D., José Calvo, M.D., William D. Robinson, M.D., Gloria Serrano, M.D., and George C. Payne, M.D.....	1126		
Nutrition. See: Child Feeding in Europe Under the International Children's Emergency Fund. Martha M. Eliot, M.D.....	1		
Cultivating Our Human Resources for Health in Tomorrow's World. Martha M. Eliot, M.D.	1499		
Modified Self-Selection Method of Feeding Preschool Children in the Home. Margaret F. Gutelius, M.D.....	1118		
Prospects of Improving the Food Supply of the Orient. Robert R. Williams, D.Sc....	8		
Nutritional Status in the U. S. Public Health Service, Experience in Appraising. Harold R. Sandstead, M.D., and Elton S. Osborne, Jr., M.D.....	361		
Nutritional Status of Mothers and Infants, Appraising the. Clement A. Smith, M.D., and Harold C. Stuart, M.D.....	369		
Nyswander, Dorothy B., Ph.D., Kelley, Elizabeth, Ed.D., and Moss, Bernice, Ed.D. Pre- service Preparation of Teachers and School Administrators. Preservice and Inservice Preparation in Health of School Personnel—A Symposium.....	30		

	Page
Public Health in Britain—The Changing Scene. Sir Andrew Davison, M.D., F.R.C.P., F.R.C.S., F.R.S., Ed., D.P.H.....	319
Public Health in Foreign Periodicals. George Rosen, M.D., Ph.D.....	877, 1156, 1290, 1604, 1713
Public Health in the Eightieth Congress. Editorial.....	90
See: Child Feeding in Europe Under the International Children's Emergency Fund....	1
Public Health in Midstream. See: Supplement to January Journal.	
Public Health in the United States, The Origins of. John B. Blake.....	1539
Public Health Nurse and the Social Worker, The. Editorial.....	1148
Public Health Nursing Agencies, Merged Official and Voluntary—It Works in Seattle. Emil E. Palmquist, M.D., M.P.H., and Marguerite Prindiville, R.N.....	1663
Public Health Nursing in Rheumatic Fever. Mary E. Parker, R.N., The Rheumatic Fever Community Program. Its Value in the Epidemiological Study of Rheumatic Fever—A Symposium	1085
Public Health Nursing in the Cancer Control Program of the U. S. Public Health Service. Rosalie I. Peterson, R.N.....	206
Public Health Program, The Coördination and Integration of the. Henry F. Vaughan, Dr.P.H.	331
Public Law 725. See: Hill-Burton Act.	
Puerto Rico and Alaska. See: A Tale of Two Territories. Editorial.....	1011
Puerto Rico in the Federal Health and Hospital Program, The Participation of. E. Garrido Morales, M.D., Dr.P.H.....	1387
Pulmonary Diseases. See: Cave Sickness—A New Disease Entity? A. M. Washburn, M.D., M.P.H., John H. Tuohy, M.D., and Elmer L. Davis, M.D.....	1521

Q

Q Fever in Los Angeles County. Charles C. Shepard, M.D., and Robert J. Huebner, M.D..	781
Qualifications of Community Health Educators, Proposed Report on the Educational Committee on Professional Education. W. P. Shepard, M.D., Chairman.....	843
Qualifications of Sanitarians, Proposed Report on the Educational Committee on Professional Education. W. P. Shepard, M.D., Chairman.....	1003
Quaternary Ammonium and Other Germicides Proposed for Sanitizing Food Utensils, Laboratory Procedure for Evaluating Practical Performance of. George R. Weber, Ph.D., and Luther A. Black, Ph.D.....	1405
Quaternary Ammonium Compounds as Sanitizers, Some Factors Affecting the Properties of. G. M. Ridenour, Ph.D., and E. H. Armbruster.....	504
Quaternary Ammonium Compounds in Sanitization, The. Ernest C. McCulloch, D.V.M., Ph.D., Steinar Hauge, D.V.M., and Hoyo Migaki, B.S.....	493
Quinn, Julia P., M.S.S., Quinn, Robert W., M.D., and Watkins, John H., Ph.D. Rheumatic Heart Disease and Crowding. A Survey of Rural and Urban Connecticut School Children	1071
Quinn, Robert W., M.D., Watkins, John H., Ph.D., and Quinn, Julia P., M.S.S. Rheumatic Heart Disease and Crowding. A Survey of Rural and Urban Connecticut School Children	1071

R

Rabies, Control, Recommended Methods for. Adopted by the Committee on Research and Standards, October 6, 1947.....	97
Rabies in New York State, Dog, Fox, and Cattle, In. Robert F. Kornis, M.D., and A. Zeissig, D.V.M.	50
Radioactive hazards. See: Nuclear Energy.	
Ragweed, Essentials for the Control of. Israel Weinstein, M.D., and Alfred H. Fletcher..	664
Railroad Passenger Cars, Human Waste Disposal from. Abel Wolman, Dr.Eng., and Lloyd K. Clark.....	652
Rats on Deficient Diets, Susceptibility to Typhus of. Florence K. Fitzpatrick.....	676
Recent Developments in Cancer Control. Austin V. Deibert, M.D.....	191
Recent Developments in the Treatment of Syphilis. Evan W. Thomas, M.D.....	1361
Recommended Methods for Rabies Control. Adopted by the Committee on Research and Standards, October 6, 1947.....	97
Rectal Swabs and Fecal Specimens in Detecting Typhoid and Salmonella Cases and Carriers, Comparative Efficiency of. Howard J. Shaughnessy, Ph.D., Frances Friewer and Adele Snyder	670
Reed, Lowell J., Ph.D. Changing Problems Growing Out of the Change in Composition of the Population	160
Reed-Muench method. See: Pertussis Vaccine.	
Reekie, Dudley A., M.D. Essentials of Good Local Public Health Administration. Summary of a Panel Discussion.....	219
Registration Practices, Some Recent Trends in Vital Statistics. Albert E. Bailey, Ph.D...	253
Registry in the Community Rheumatic Fever Program, The. Marjorie T. Bellows. The Rheumatic Fever Community Program. Its Value in the Epidemiological Study of Rheumatic Fever. A Symposium.....	1088
Rehabilitation. See: Physical Disability: A National Problem. Howard A. Rusk, M.D., and Eugene J. Taylor.....	1381

Rehabilitation, The Problem of. Editorial.....	1446
Reichard, J. D. See: Letters to the Editor. Comment on Editorial, "The United States Public Health Service" (published July 1948).....	1699
Relation of Economic Status to Tuberculosis Mortality by Age and Sex. Milton Terris, M.D., M.P.H.	1061
See: Health and Economics. Editorial.....	1147
Relationship of Training, Sanitation Personnel, and Environmental Control, The. A Philosophical Approach. William T. Ingram, M.P.H.....	1239
Relationship of Trytophane to the Incidence of Dental Caries. Naomi C. Turner, Ed.M., and George E. Crowell, D.M.D.....	525
Relative Efficiency of the Open and the Confidential Method of Reporting Causes of Death. Paul H. Jacobson.....	789
Relief programs. See: Child Feeding in Europe Under the International Children's Emergency Fund. Martha M. Eliot, M.D.....	1
See: Prospects of Improving the Food Supply of the Orient. Robert R. Williams, D.Sc.	8
Reporting Causes of Death, Relative Efficiency of the Open and the Confidential Method of. Paul H. Jacobson.....	789
Report to National Health Assembly. Quincy Howe.....	858
See: The National Health Assembly of 1948. Editorial.....	851
Research and Standards. Report of the Chairman of the Committee to the Governing Council, October 8, 1947. Thomas Francis, Jr., M.D., Chairman.....	50
Resolution 21—Recognition of Increased Federal Appropriations for Public Health in Canada. (Filler)	1652
Results and Problems after Four Years of a Conservation of Hearing Program. William R. Willard, M.D., and Donald F. Proctor, M.D.....	1424
Rheumatic Fever Community Program, The. Its Value in the Epidemiological Study of Rheumatic Fever—A Symposium:	
Summary of the Symposium Prepared by the Moderator. David D. Rutstein, M.D.....	1082
Public Health Nursing in Rheumatic Fever. Mary E. Parker, R.N.....	1085
Medical Social Follow-Up. Florence I. Mosher.....	1087
The Registry in the Community Rheumatic Fever Program. Marjorie T. Bellows....	1088
Review Articles—Requested by Editorial Board:	
Recent Developments in Cancer Control. Austin V. Deibert, M.D.....	191
The Health Officer's Bookshelf. Huntington Williams, M.D., Dr.P.H.....	467
Developments in the Use of the Newer Organic Insecticides of Public Health Importance. Justin M. Andrews, Sc.D., and S. W. Simmons, Ph.D.....	613
Some Concrete Problems of Health Administration. A Symposium.....	915
Developments in Child Psychiatry in the United States. Frederick H. Allen, M.D.....	1201
Recent Developments in the Treatment of Cancer. Evan W. Thomas, M.D.....	1361
Rheumatic Fever; Its Public Health Aspects, The Epidemiology of. George C. Griffith, M.D.	682
Rheumatic Fever. See: Experience of Rheumatic Patients Who Served in the Armed Forces, 1942-1946. May G. Wilson, M.D., J. W. Payson, and Rose Lubschez.....	398
Rheumatic Heart Disease and Crowding. A Survey of Rural and Urban Connecticut School Children. Robert W. Quinn, M.D., John H. Watkins, Ph.D., and Julia P. Quinn, M.S.S.	1071
Rheumatic Patients Who Served in the Armed Forces, 1942-1946, Experience of. May G. Wilson, M.D., J. W. Payson, and Rose Lubschez.....	398
Rh Factor a Public Health Laboratory Function?, Is the. Anna I. van Saun.....	632
Rh Factor. See: Development of the Massachusetts Blood and Blood Derivatives Program. Geoffrey Edsall, M.D., Loren D. Moore, M.D., Vlado A. Getting, M.D., Dr.P.H., and Dwight J. Mulford, Ph.D.....	226
Rh Typing in a State Public Health Laboratory, Blood Grouping and. Robert T. MacCready, M.D., and Robert T. McGee.....	637
Rh Typing Reagents, The Production and Proper Use of. Louis K. Diamond, M.D.....	645
Richmond Reports, Comment of N.O.P.H.N. Field Staff on Seattle and. Hedwig Cohen, R.N., Ruth Fisher, R.N., and Dorothy Rusby, R.N.....	1673
Richmond, Va. See: South Richmond Community Nursing Service. C. Howe Eller, M.D., Dr.P.H., and Catherine L. Austin, R.N.....	1669
Rickard, E. R., M.D., M.P.H., and Riley, E. G., M.D., Ph.D. A State-wide Survey of Typhus Fever in Florida.....	541
Rickettsial Diseases, Specific Complement-Fixing Diagnostic Antigens for Viral and. Herald R. Cox, Sc.D.....	351
Ridenour, G. M., Ph.D., and Armbruster, E. H. Some Factors Affecting the Properties of Quaternary Ammonium Compounds as Sanitizers.....	504
Riley, E. G., M.D., Ph.D., and Rickard, E. R., M.D., M.P.H. A State-wide Survey of Typhus Fever in Florida.....	541
Ritter, Cassandra, and Treece, E. Lee, Ph.D. Sanitary Significance of Cocci in Swimming Pools	1532
Roberts, Beryl J., and James, George, M.D., M.P.H. Community Resources for Health Education—How Well Are They Being Utilized in the School Program? Discussed by a Voluntary Agency Health Educator and by a Health Officer.....	1254, 1258
Robinson, William D., M.D., Serrano, Gloria, M.D., Payne, George C., M.D., Anderson, Richmond K., M.D., and Calvo, José, M.D. Nutrition Appraisals in Mexico.....	1126
Rockefeller Foundation, International Health Division of. See: International Trends in Health Care. John B. Grant, M.D.....	381

	Page
Rocky Mountain Spotted Fever Treatment, Chloromycetin Claimed To Be Effective in....	1733
Rocky Mountain Spotted Fever Vaccines Prepared from Infected Yolk Sacs and from Infected Tick Tissue, Comparison of the Immunogenic and Anaphylactogenic Properties of. David Lackman, Ph.D., and R. R. Parker, Ph.D.....	1402
Rodent Control. See: We Pay the Pied Piper. Editorial.....	1576
Roemer, Milton I., M.D., M.P.H., and Janis, Lee, M.D. Medical Care Plans for Industrial Workers and Their Relationship to Public Health Programs.....	1245
Role of the Department of Education and the Department of Health in the Inservice Preparation of Classroom Teachers, School Administrators, School Nurses, and School Physicians. Preservice and Inservice Preparation in Health of School Personnel—A Symposium. L. E. Burney, M.D., M.P.H., and Ben H. Watt.....	25
Role of the State Health Department in the School Dental Program. J. M. Wisan, D.D.S., M.S.P.H.	833
Rooming-in, General Reactions of Mothers and Nurses to. Edith B. Jackson, M.D.....	689
Rosen, George, M.D., Ph.D. Public Health in Foreign Periodicals.....	877, 1156, 1290, 1604, 1713
Rowland, J. L., M.S.P.H., and Fritz, John H. New Approach to Food Handler Training....	1561
Rural Sewage Disposal (Progress Report). William T. Ingram, Chairman....	Year Book, 92
Rusby, Dorothy, R.N., Cohen, Hedwig, R.N., and Fisher, Ruth, R.N. Comment of N.O.P.H.N. Field Staff on Seattle and Richmond Reports.....	1673
Rusk, Howard A., M.D., and Taylor, Eugene J. Physical Disability: A National Problem	1381
Rutstein, David D., M.D. Summary of the Symposium Prepared by the Moderator. The Rheumatic Fever Community Program. Its Value in the Epidemiological Study of Rheumatic Fever	1082
Ruys, A. Charlotte, M.D. Bacteriological and Epidemiological Data on Typhoid Fever in Amsterdam	1219
S	
Sabin, Florence R., M.D. The Ailments of Health Departments.....	1508
Salaries. See: The Economic Status of Public Health Nurses, 1946-1947. Dorothy E. Wiesner and Lily Mary David.....	1097
Salary Information. See: Clearing House on Public Health Salary Information...103, 267, 563, 714, 867, 1153, 1452, 1582	
Salmonella Cases and Carriers, Comparative Efficiency of Rectal Swabs and Fecal Specimens in Detecting Typhoid and. Howard J. Shaughnessy, Ph.D., Frances Fricwer and Adele Snyder	670
Salmonella from Dogs and the Possible Relationship to Salmonellosis in Man. Arthur H. Wolf, D.V.M., Norman D. Henderson, B.S., and Grace L. McCallum, B.S.....	403
Sandstead, Harold R., M.D., and Osborne, Elton S., Jr., M.D. Experience in Appraising Nutritional Status in the U. S. Public Health Service.....	361
Sanitarians, Proposed Report on the Educational Qualifications of. Report of the Committee on Professional Education. W. P. Shepard, M.D., Chairman.....	1003
Sanitary Engineer in Hospital Construction and Maintenance. The. A. H. Wieters.....	770
Sanitary Engineering and National Security. Digest of a report by the Subcommittee on Sanitary Engineering Aspects of Major Catastrophes of the National Research Council	869
Sanitary Significance of Cocci in Swimming Pools. Cassandra Ritter and E. Lee Treece, Ph.D.	1532
Sanitary Survey of Schools. See: Increasing the Scope of School Sanitation Service in Local Department of Health Programs. S. D. Sturkie, M.D., M.P.H.....	997
Sanitary Ventilation. W. F. Wells.....	775
Sanitation Personnel, and Environmental Control, The Relationship of Training. William T. Ingram, M.P.H.....	1239
San Joaquin County, Calif. See: Clearing House on Public Health Salary Information...	105
Scheele, Leonard A. Letter to the Editor. Comment on editorial, "The United States Public Health Service" (published July 1948).....	1580
Schick Survey of 18,000 Naval Recruits. A. F. S. Cheever, M.D.....	374
Schick Testing and Diphtheria Immunization of United States Troops in Europe. Lt. Colonel Hartwin A. Schulze.....	1527
School Dental Program, Role of the State Health Department in the. J. M. Wisan, D.D.S., M.S.P.H.	833
School Health Coordinators in Washington, Health Department Experience for. Marjorie Eastabrooks, M.S.P.H., and Howard Lundy, Dr.P.H.....	982
School Health Section, A.P.H.A., Approved by the Council of. Principles for Consideration in Judging the Probable Effectiveness of Federal Legislation Designed to Improve the Health of Children of School Age.....	560
School Personnel, Preservice and Inservice Preparation in Health of—A Symposium.....	25
School Program?, Community Resources for Health Education—How Well Are They Being Utilized in the.	
Discussed by a Voluntary Agency Health Educator, Beryl J. Roberts.....	1254
Discussed by a Health Officer. George James, M.D., M.P.H.....	1258
School Sanitation. Herbert J. Dunsmore, Chairman.....	Year Book, 93
School Sanitation Service in Local Department of Health Programs, Increasing the Scope of. S. D. Sturkie, M.D., M.P.H.....	997
Schools of Public Health Accredited for the M.P.H. and Dr.P.H. Degrees for 1948-1949....	870
Schulze, Lt. Colonel Hartwin A. Schick Testing and Diphtheria Immunization of United States Troops in Europe.....	1527

	Page
Science and Art of Health Administration, The. Editorial.....	1008
Scotland. See: Public Health in Britain—The Changing Scene. Sir Andrew Davidson, M.D., F.R.C.P., F.R.C.S., F.R.S.Ed., D.P.H.....	319
Seattle and King County, Amalgamation of Health Departments in. Some Concrete Problems of Health Administration—A Symposium. Emil E. Palmquist	927
Seattle and Richmond Reports, Comment of N.O.P.H.N., Field Staff on. Hedwig Cohen, R.N., Ruth Fisher, R.N., and Dorothy Rusby, R.N.....	1673
Seattle, It Works in. Emil E. Palmquist, M.D., M.P.H., and Marguerite Prindiville, R.N....	1663
Section Highlights of the 75th Annual Meeting.....	425
Seed of the Future, The. A Symposium.	
The Unfinished Job of Essential Public Service. Haven Emerson, M.D.....	164
Surmounting Obstacles to Health Progress. Thomas Parran, M.D.....	168
Poverty and Disease. C.-E. A. Winslow, Dr.P.H.....	173
Public Health and the Future. Raymond B. Fosdick, LL.D.....	185
Selected Public Health Bibliography with Annotations, A. Raymond S. Patterson, Ph.D. 122, 201, 439, 582, 734, 886, 1031, 1169, 1468, 1600, 1709	1709
Selecting Public Health Personnel Through Examining Processes. Dorothy Deming, R.N. 808	808
Senn, Charles L. Los Angeles "Smog". General Atmospheric Pollution—A Symposium 962	962
Serrano, Gloria, M.D., Payne, George C., M.D., Anderson, Richmond K., M.D., Calvo, José, M.D., and Robinson, William D., M.D. Nutrition Appraisals in Mexico.....	1126
76th Annual Meeting. See: The Morning After. Editorial.....	1694
Sewage Pollution of Oyster Beds in Galveston Bay, Factors of. Robert I. Wise, Ph.D., Joe B. Winston, B.S., and George Culli, Jr.....	1109
Sewage. See: Water	
Sewage Treatment. See: New Developments in Trickling Filter Operation. Editorial....	417
Sexton, Anna M. Report of the Archivist, 1947.....	Year Book, 71
Shaffer, Thomas E., M.D. Study of Vision Testing Procedures.....	1141
Shaughnessy, Howard J., Ph.D., Friewer, Frances and Snyder, Adele. Comparative Efficiency of Rectal Swabs and Fecal Specimens in Detecting Typhoid and Salmonella Cases and Carriers.....	670
Shellfish Poisoning on the Canadian Atlantic Coast, Paralytic. J. Gibbard and J. Naubert 550	550
Shellfish (Progress Report). M. H. Bidwell, Chairman.....	Year Book, 90
Shepard, Charles C., M.D., and Huebner, Robert J., M.D. Q Fever in Los Angeles County..	781
Shepard, W. P., M.D., Chairman: Committee on Professional Education.	
Proposed Report on the Educational Qualifications of Community Health Educators....	843
Proposed Report on the Educational Qualifications of Sanitarians.....	1003
Public Health Degrees and Certificates Granted in the United States and Canada During the Academic Year, 1946-1947.....	86
Report of the Chairman of the Committee to the Governing Council, October 8, 1947	
Year Book,	60
The Professionalization of Public Health.....	145
Some Unmet Needs in Tuberculosis Control—A Challenge for the Future.....	1370
Significant Study of Epidemic Gastroenteritis, A. Editorial.....	95
Siler, Bill to Frasher, Charles B., as told by. Health Officer for a Day.....	271
Silver Nitrate as a Prophylactic Against Ophthalmia Neonatorum? Penicillin or. Conrad Berens, M.D., and Franklin M. Foote, M.D.....	1680
Simmons, S. W., Ph.D., and Andrews, Justin M., ScD. Developments in the Use of the Newer Organic Insecticides of Public Health Importance.....	613
See: Progress in the Study of Organic Insecticides. Editorial.....	709
Simple Goiter in Colombia. Horacio Parra, M.D.....	820
Skin Infections, Effectiveness of Compound G-11 in Reducing Pyogenic. John R. Fuller, M.D., Chester A. Newhall, M.D., Frederick C. Thorne, M.D., and Eugene F. Traub, M.D. 1228	1228
Smallpox, Vaccination Against. Current Status of Immunization Procedures—A Symposium. R. S. Muckenfuss, M.D.....	476
Smith, Clement A., M.D., and Stuart, Harold C., M.D. Appraising the Nutritional Status of Mothers and Infants.....	369
"Smog," Los Angeles. General Atmospheric Pollution—A Symposium. Charles L. Senn..	962
Snyder, Adele, Shaughnessy, Howard J., Ph.D., and Friewer, Frances. Comparative Efficiency of Rectal Swabs and Fecal Specimens in Detecting Typhoid and Salmonella Cases and Carriers.....	670
Soap. See: Effectiveness of Compound G-11 in Reducing Pyogenic Skin Infections. John R. Fuller, M.D., Chester A. Newhall, M.D., Frederick C. Thorne, M.D., and Eugene F. Traub, M.D.....	1228
Social Hygiene. See: Health and Economics. Editorial.....	1147
Social Medicine. See: International Trends in Health Care. John B. Grant, M.D.....	381
Social Worker, The Public Health Nurse and the. Editorial.....	1148
Some Concrete Problems of Health Administration. A Symposium.	
Staff Education in Chicago. Herman N. Bundesen.....	915
Housing the Health Department in Detroit. Bruce H. Douglas.....	916
Coöperation with Voluntary Organizations in Montgomery County, Maryland. V. L. Ellicott	918
Procurement of Personnel in Massachusetts. V. A. Getting.....	919
Financing Local Health Departments in Florida. F. M. Hall.....	920
Fiscal Relationships Between the State and Local Health Departments in California. W. L. Halverson.....	922
Program Plans for Public Health Action in New York State. Herman E. Hilleboe....	923
Allocation of Funds to Local Programs. G. F. Moench.....	923

Some Concrete Problems of Health Administration. A Symposium—Continued	Page
Amalgamation of Health Departments in Seattle and King County. Emil E. Palmquist..	927
Health Coordination in New Orleans. John M. Whitney.....	928
See: The Science and Art of Health Administration. Editorial.....	1008
Some Factors Affecting the Properties of Quaternary Ammonium Compounds as Sanitizers.	
G. M. Ridenour, Ph.D., and E. H. Armbruster.....	501
Some Labor Union Enterprises in Public Health Economics. B. A. Kogan, M.D., Dr.P.H.	943
Some Recent Trends in Vital Statistics Registration Practices. Albert E. Bailey, Ph.D.....	253
Some Unmet Needs in Tuberculosis Control—A Challenge for the Future. William P. Shepard, M.D.	1370
Some Work in Pittsburgh Air Pollution Problems. General Atmospheric Pollution—A Symposium. Sumner B. Ely.....	960
South Carolina Public Health Association. See: They Also Serve Who Only Sit and Write. Editorial	1152
South Richmond Community Nursing Service. C. Howe Eller, M.D., Dr.P.H., and Catherine L. Austin, R.N.....	1669
Specific Complement-Fixing Diagnostic Antigens for Viral and Rickettsial Diseases. Herald R. Cox, Sc.D.....	351
Staff Education in Chicago. Some Concrete Problems of Health Administration—A Symposium. Herman N. Bundesen.....	915
Staining Formulas for the Direct Microscopic Examination of Milk, Newly Proposed. B. S. Levine, Ph.D., and L. A. Black, Ph.D.....	1210
Standard Methods for the Examination of Dairy Products (9th ed.) See: Studies Showing the Effect of Changes in the New (9th) Edition of Standard Methods in Relation to the Bacteriological Analysis of Milk. Robert C. Thomas, M.S., Benjamin S. Levine, Ph.D., and Luther A. Black, Ph.D.....	233
State-wide Survey of Typhus Fever in Florida, A. E. R. Rickard, M.D., M.P.H., and E. G. Riley, M.D., Ph.D.....	541
Stern, Arthur C. New York City's Atmospheric Pollution Control Problems. General Atmospheric Pollution—A Symposium.....	966
Stuart, Harold C., M.D., and Smith, Clement A., M.D. Appraising the Nutritional Status of Mothers and Infants.....	369
Studies Showing the Effect of Changes in the New (9th) Edition of Standard Methods in Relation to the Bacteriological Analysis of Milk. Robert C. Thomas, M.S., Benjamin S. Levine, Ph.D., and Luther A. Black, Ph.D.	233
Study of Vision Testing Procedures. Thomas E. Shaffer, M.D.....	1141
Sturkie, S.D., M.D., M.P.H. Increasing the Scope of School Sanitation Service in Local Department of Health Programs.....	997
Suggested Techniques for Inducing Navaho Women to Accept Hospitalization During Child-birth and for Implementing Health Education. Flora L. Bailey, Ph.D.....	1418
Summary of Tuberculosis Control Activities. Francis J. Weber, M.D., and Robert J. Anderson, M.D.....	512
See: Administrative Judgment in the Control of Tuberculosis. Editorial.....	537
Surmounting Obstacles to Health Progress. Thomas Parran, M.D.....	168
Susceptibility to Typhus of Rats on Deficient Diets. Florence K. Fitzpatrick.....	676
Swimming Pools, Sanitary Significance of Cocci in. Cassandra Ritter and E. Lee Treece, Ph.D.	1532
Posia:	
Preservice and Inservice Preparation in Health of School Personnel. January.....	25
The Heritage of the Past. January.....	145
The Seed of the Future. January.....	164
Current Status of Immunization Procedures. April.....	476
Some Concrete Problems of Health Administration. July.....	915
General Atmospheric Pollution. July.....	957
The Rheumatic Fever Community Program—Its Value in the Epidemiological Study of Rheumatic Fever. August.....	1082
Syphilis, Recent Developments in the Treatment of. Evan W. Thomas, M.D.....	1361

T

Tale of Two Territories, A. Editorial.....	1011
Tanner, Fred W., Ph.D. Paper and Paper Board in the Food Industry—Public Health Aspects	1688
Taylor, Eugene J., and Rusk, Howard A., M.D. Physical Disability: A National Problem	1381
Technic for the Bacteriological Examination of Food Utensils (Research and Standards) Subcommittee on Food Utensil Sanitation. Walter D. Tiedeman, M.C.E., Chairman	
Year Book,	68
Technological Developments, Health Problems Resulting from Newer. R. Emmet Kelly, M.D.	837
Tennessee Valley Authority. See: Bacteriological Studies of the Fort Loudoun Reservoir. Robert N. Clark and F. W. Kittrell.....	342
Terminal Illness, Medical Attendance During. Marta Fraenkel, M.D.....	970
Terris, Milton, M.D., M.P.H. Relation of Economic Status to Tuberculosis Mortality by Age and Sex.....	1061
See: Health and Economics. Editorial.....	1147
Test for Detergents. William G. Walter.....	246

	Page
Tetanus, and Exotic Diseases of Military Importance. Current Status of Immunization Procedures—A Symposium. Arthur P. Long, Lt. Col., M.C., U. S. A.....	485
Theoretical Considerations Concerning Caries Control. L. S. Fosdick, Ph.D.....	977
They Also Serve Who Only Sit and Write. Editorial.....	1152
Thomas, Evan W., M.D. Recent Developments in the Treatment of Syphilis.....	1361
Thomas, Robert C., M.S., Levine, Benjamin S., Ph.D., and Black, Luther A., Ph.D. Studies Showing the Effect of Changes in the New (9th) Edition of Standard Methods in Relation to the Bacteriological Analysis of Milk.....	233
Thorne, Frederick C., M.D., Traub, Eugene F., M.D., Fuller, John R., M.D., and Newhall, Chester A., M.D. Effectiveness of Compound G-11 in Reducing Pyogenic Skin Infections	1228
Tick Fever, Epidemiology of Colorado. Lloyd Florio, M.D., Dr.P.H., and Mabel Stewart Miller	211
Tiedeman, Walter D., M.C.E., Chairman. Food Utensil Sanitation Proposed as Official Association Procedure (Research and Standards). Subcommittee on Food Utensil Sanitation	Year Book, 68
Tietze, Christopher, M.D. Abortion as a Cause of Death.....	1434
Top, Franklin H., M.D. Practical Aspects of Immunization Programs. Current Status of Immunization Procedures—A Symposium.....	490
Training of Engineers in Public Health, Graduate. John M. Henderson, C.E.....	335
Traub, Eugene F., M.D., Fuller, John R., M.D., Newhall, Chester A., M.D., and Thorne, Frederick C., M.D. Effectiveness of Compound G-11 in Reducing Pyogenic Skin Infections	1228
Treece, E. Lee, and Ritter, Cassandra. Sanitary Significance of Cocci in Swimming Pools..	1532
Trickling Filter Operation, New Developments in. Editorial.....	417
Tryptophane to the Incidence of Dental Caries, Relationship of. Naomi C. Turner, Ed.M., and George E. Crowell, D.M.D.....	525
Tuberculosis, Administrative Judgment in the Control of. Editorial.....	557
Tuberculosis by Epidemiological Methods, Eradication of. J. Arthur Myers, M.D., Ph.D...	516
Tuberculosis Control Activities, Summary of. Francis J. Weber, M.D., and Robert J. Anderson, M.D.	512
Tuberculosis Control—A Challenge for the Future, Some Unmet Needs in. William P. Shepard, M.D.	1370
Tuberculosis Mortality by Age and Sex, Relation of Economic Status to. Milton Terris, M.D., M.P.H.	1061
Tuberculosis. See: The Cobbler's Children. Editorial.....	856
Tuohy, John H., M.D., Davis, Elmer L., M.D., and Washburn, A. M., M.D., M.P.H. Cave Sickness—A New Disease Entity?.....	1521
Turner, Naomi C., Ed.M., and Crowell, George E., D.M.D. Relationship of Tryptophane to the Incidence of Dental Caries.....	525
Twenty-five Years in Maternal and Child Health. Felix J. Underwood, M.D.....	1512
Typhoid and Salmonella Cases and Carriers, Comparative Efficiency of Rectal Swabs and Fecal Specimens in Detecting. Howard J. Shaughnessy, Ph.D., Frances Friewer and Adele Snyder	670
Typhoid Carrier, The Chronic. I. The Natural Course of the Carrier State. A. Littman, M.D., J. A. Vaichulis, Ph.D., A. C. Ivy, Ph.D., M.D., R. Kaplan, M.D., and W. H. Baer, M.D	1675
Typhoid Fever. Current Status of Immunization Procedures—A Symposium. Rufus L. Holt, Col., M.C.....	481
Typhoid Fever in Amsterdam, Bacteriological and Epidemiological Data on. A. Charlotte Ruys, M.D.	1219
Typhoid Fever. See: Even with the Law on Our Side. R. P. Fowler.....	1569
Typhus Fever in Florida, A State-wide Survey of. E. R. Rickard, M.D., M.P.H., and E. G. Riley, M.D., Ph.D.....	541
Typhus of Rats on Deficient Diets, Susceptibility to. Florence K. Fitzpatrick.....	676

U

Underwood, Felix J., M.D. Twenty-five Years in Maternal and Child Health.....	1512
Unfinished Job of Essential Public Service, The. Haven Emerson, M.D.....	161
United States Public Health Service, The. (150th Anniversary). Editorial.....	1009
See: Letters to the Editor.....	1580, 1699
University of California. See: Course in Application of Nuclear Physics to Biology and Medicine	976
UNRRA. See: Child Feeding in Europe Under the International Children's Emergency Fund. Martha M. Elliot, M.D.....	1
Prospects of Improving the Food Supply of the Orient. Robert R. Williams, D.Sc.....	8
Urban Decentralization, Environmental Health Problems Related to. Leonard M. Board, M.P.H., and Herbert J. Dunsmore, M.P.H.....	986
Use of Medical-Social Service by a County Health Department. An Account of a Demonstration in Anne Arundel County, Maryland. William J. French, M.D., and Geneva Wisner	1555
U. S. Public Health Service, Experience in Appraising Nutritional Status in the. Harold R. Sandstead, M.D., and Elton S. Osborne, Jr., M.D.....	361
U. S. Public Health Service, Public Health Nursing in the Cancer Control Program of the. Rosalie I. Peterson, R.N.....	206

Vaccination Against Smallpox. Current Status of Immunization Procedures.—A Symposium. R. S. Muckenfuss, M.D.....	476
Vaccination. See: Rabies.	
Vaccines Prepared from Infected Yolk Sacs and from Infected Tick Tissue, Comparison of the Immunogenic and Anaphylactogenic Properties of Rocky Mountain Spotted Fever. David Lackman, Ph.D., and R. R. Parker, Ph.D.....	1402
Valchulis, J. A., Ph.D., Ivy, A. C., Ph.D., M.D., Kaplan, R., M.D., Baer, W. H., M.D., and Littman, A., M.D. The Chronic Typhoid Carrier: I. The Natural Course of the Carrier State	1675
Value of Routine Fluorograms as a Measure for Detecting Cardiac Abnormalities. Report of Findings on 14,235 Routine (35 mm) Photofluorograms. Gerand Berenson, Lt. (J.G.) (MCR) USNR	1564
van Horn, A. L., M.D. See: The Rheumatic Fever Community Program. A Symposium....	1082
Van Riper, Hart E., M.D. Can Public Health Agencies Handle Poliomyelitis Alone?.....	696
van Saun, Anna I. Is the Rh Factor a Public Health Laboratory Function?.....	692
Van Volkenburgh, V. A., M.D. Essentials of Good Local Public Health Administration. Summary of a Panel Discussion.....	219
Vaughan, Henry F., Dr.P.H. The Coördination and Integration of the Public Health Program	331
Veneral Diseases, Changing Attitude of the Army with Regard to. Editorial.....	1150
Veneral Disease Control, Development of a Voluntary Agency for. Herbert H. Cowper, M.D., M.P.H.	1136
Ventilation, Sanitary. W. F. Wells.....	775
Victory Over the Maternal Mortality. (Editorial published November 1947). See: Letters to the Editor. Herbert Bauer, M.D., et. al.....	265
Viral and Rickettsial Diseases, Specific Complement-Fixing Diagnostic Antigens for. Herald R. Cox, Sc.D.....	351
Virus of a Common Cold, The. Editorial.....	421
Vision Testing Procedures, Study of. Thomas E. Shaffer, M.D.....	1141
Vital Statistics, International Population and. Forrest E. Linder, Ph.D.....	951
Vital Statistics Registration Practices, Some Recent Trends in. Albert E. Bailey, Ph.D....	253
Vitamins. See: Diet, Nutrition.	
Voluntary Agency for Venereal Disease Control, Development of a. Herbert H. Cowper, M.D., M.P.H.	1136
Volunteer Participation in Community Health in Hawaii. Raymond George Nebelung, Dr.P.H.	817

W

Walter, Glenna G. Dental Health Education Services of the American Dental Association..	378
Walter, William G. Test for Detergents.....	246
Warthen, William H. F., M.D., M.P.H. Coördination of Preventive and Curative Services in Maryland	1393
Washburn, A. M., M.D., M.P.H., Touhy, John H., M.D., and Davis, Elmer L., M.D. Cave Sickness—A New Disease Entity?.....	1521
Washington, Health Department Experience for School Health Coördinators in. Marjorie Eastabrooks, M.S.P.H., and Howard Lundy, Dr.P.H.....	982
Waste Disposal from Railroad Passenger Cars, Human. Abel Wolman, Dr.Eng., and Lloyd K. Clark.....	652
Water. See: Bacteriological Studies of the Fort Loudoun Reservoir. Robert N. Clark and F. W. Kittrell.....	342
Water Supply, Report of the Committee on. Charles R. Cox, Chairman.....	221
Watkins, John H., Ph.D., Quinn, Julia P., M.S.S., and Quinn, Robert W., M.D. Rheumatic Heart Disease and Crowding. A Survey of Rural and Urban Connecticut School Children	1071
Watt, Ben H., and Burney, L. E., M.D., M.P.H. Role of the Department of Education and the Department of Health in the Inservice Preparation of Classroom Teachers, School Administrators, School Nurses, and School Physicians. Preservice and Inservice Preparation in Health of School Personnel—A Symposium.....	25
Weber, Francis J., M.D., and Anderson, Robert J., M.D. Summary of Tuberculosis Control Activities	512
See: Administrative Judgment in the Control of Tuberculosis. Editorial.....	557
Weber, George R., Ph.D., and Black, Luther A., Ph.D. Laboratory Procedure for Evaluating Practical Performance of Quaternary Ammonium and Other Germicides Proposed for Sanitizing Food Utensils.....	1405
Weinstein, Israel, M.D., and Fletcher, Alfred H. Essentials for the Control of Ragweed..	664
Weiss, Edward S., M.S.P.H. An Abridged Table of Probabilities for Use in the Graphic Solution of the Dosage-Effect Curve.....	22
Wells, W. F. Sanitary Ventilation.....	775
We Pay the Pied Piper. Editorial.....	1576
What is Epidemiology? Editorial.....	852
What's Happening to Malaria in the U. S. A.? Justin M. Andrews, Sc.D.....	931
See: Letter to the Editor.....	1277, 1479
What Sort of National Science Foundation Do We Need? Editorial.....	260

	Page
Wheatley, George M., M.D. See: The Rheumatic Fever Community Program. A Symposium	1082
Whitney, John M. Health Coordination in New Orleans. Some Concrete Problems of Health Administration—A Symposium.....	928
Whittaker, H. A., Chairman. Air Pollution. Report of the Committee on Air Pollution....	761
WHO. See: Cultivating Our Human Resources for Health in Tomorrow's World. Martha M. Elliot, M.D.....	1499
Whooping Cough. See: Pertussis.	
Whooping Cough. The Problem of. Editorial.....	1274
Widdemer, Kenneth D., Chairman. Public Health Films.....	108
Wiesner, Dorothy E., and David, Lily Mary. The Economic Status of Public Health Nurses, 1916-1917	1097
Witers, A. H. The Sanitary Engineer in Hospital Construction and Maintenance.....	770
Willard, William R., M.D., and Proctor, Donald P., M.D. Results and Problems after Four Years of a Conservation of Hearing Program.....	1421
Williams, Charles L., Jr., M.D., M.P.H., Hubbard, John P., M.D., and Bain, Katherine, M.D. Community Health Services for Children in Eight Selected States.....	75
Williams, Huntington, M.D., Dr.P.H. The Health Officer's Bookshelf	467
See: The Written Word. Editorial.....	551
Williams, Robert R., D.Sc. Prospects of Improving the Food Supply of the Orient.....	8
Wilson, May G., M.D., Payson, J. W., and Lubshez, Rose. Experience of Rheumatic Patients Who Served in the Armed Forces, 1912-1916.....	398
Wilson-Worcester Method of Determining the Median Effective Dose of Pertussis Vaccine, An Analysis of the. Margaret Pittman, Ph.D., and J. E. Lieberman, M.S.....	15
Wilzbach, Carl A., M.D. Essentials of Good Local Public Health Administration. Summary of a Panel Discussion.....	219
Winslow, C.-E. A., Dr.P.H. Poverty and Disease.....	173
Winston, Joe B., B.S., Cull, George Jr., and Wise, Robert L., Ph.D. Factors of Sewage Pollution of Oyster Beds in Galveston Bay.....	1109
Wisan, J. M., D.D.S., M.S.P.H. Role of the State Health Department in the School Dental Program	833
Wise, Robert L., Ph.D., Winston, Joe B., B.S., and Cull, George, Jr. Factors of Sewage Pollution of Oyster Beds in Galveston Bay.....	1109
Wiser, Geneva, and French, William J., M.D. The Use of Medical-Social Service by a County Health Department. An Account of a Demonstration in Anne Arundel County, Maryland	1555
Wolf, Arthur H., D.V.M., Henderson, Norman D., B.S., and McCallum, Grace L., B.S. Salmonella from Dogs and the Possible Relationship to Salmonellosis in Man.....	403
Wolman, Abel, Dr.Eng., Chairman. Report of the Executive Board of the American Public Health Association to the Governing Council 1916-1917.....	40
Wolman, Abel, Dr.Eng., and Clark, Lloyd K. Human Waste Disposal from Railroad Passenger Cars	652
Wood Pulp. See: Paper and Paper Board in the Food Industry—Public Health Aspects. Fred W. Tanner, Ph.D.....	1688
Wood, Ronald M. A New and Rapid Method for the Preparation and Standardization of Brucella Ring Test Antigen.....	1225
World Health Assembly, The First. Editorial.....	1448
Written Word, The. Editorial	551

X

X-Ray. See: Value of Routine Fluorograms as a Measure for Detecting Cardiac Abnormalities. Gerald Berenson, Lt. (j.g.) (MCR) USNR.....	1561
--	------

Y

Yankauer, Alfred, Jr., M.D., M.P.H., and Goldberg, Henry P., M.D. Age Distribution of Poliomyelitis in New York City in Relation to Previous Epidemics.....	1683
Year Book, American Public Health Association—1917-1918. Supplement to May, 1948, issue:	
Foreword	3
Governing Council, American Public Health Association.....	7
Constitution and By-Laws, American Public Health Association.....	8
Annual Meetings	15
Section Councils	17
Committee List, 1947-1948.....	19
Representatives of the American Public Health Association to Other Organizations and Committees for 1948.....	35
Recipients of the Sedgwick Memorial Medal.....	38
Sustaining Members	38
Affiliated Societies	39
Publications of the American Public Health Association.....	39
Report of the Executive Board of the American Public Health Association to the Governing Council 1946-1947. Abel Wolman, Dr.Eng., Chairman.....	40
Summary of Governing Council Actions, 75th Annual Meeting.....	47

Year Book, American Public Health Association—1917-1918—Continued	Page
Standing Committees:	
Research and Standards. Thomas Francis, Jr., M.D., Chairman.....	50
Administrative Practice. Wilton L. Halverson, M.D., Chairman.....	54
Professional Education. William P. Shepard, M.D., Chairman.....	60
Eligibility. Vlado A. Getting, M.D., Chairman.....	65
Committee on Research and Standards:	
Subcommittee on Food Utensil Sanitation. Walter D. Tiedeman, M.C.E., Chairman	68
Reports of Section Committees:	
Laboratory Section:	
Report of the Archivist, 1917. Anna M. Sexton.....	71
Coördinating Committee on Standard Methods. Friend Lee Mickle, Sc.D., Chairman	75
Diagnostic Procedures in Virus and Rickettsial Diseases. Thomas Francis, Jr., M.D., Chairman	78
The Biological Stain Commission. Edmund K. Kline, Dr.P.H., Representative of the A.P.H.A.....	79
Diagnostic Procedures and Reagents. R. S. Muckenfuss, M.D., Chairman.....	81
Suppressive Measures for the Control of Dust. (Examination of Germicides and Antibacterial Agents). Clayton G. Loosli, M.D., Referee..A.J.P.H., March, 1948, p.	409
Engineering Section:	
Exploration of Research Needs in the Field of Environmental Sanitation. B. A. Poole, Chairman	82
Municipal Public Health Engineering. J. Lloyd Barron, C.E., Chairman.....	87
Shellfish. M. H. Bidwell, Chairman.....	90
Rural Sewage Disposal. William T. Ingram, Chairman.....	92
School Sanitation. Herbert J. Dunsmore, Chairman.....	95
Industrial Sanitation. Herbert M. Bosch, Chairman.....	99
Water Supply. C. R. Cox, Chairman.....A.J.P.H., February, 1948, p.	221
Air Pollution. H. A. Whittaker, Chairman.....A.J.P.H., June, 1948, p.	761
Food and Nutrition Section:	
Microbiological Examination of Foods. Harry E. Goresline, Ph.D., Chairman....	101
Public Health Education Section:	
Coördination of the Public Health Education Section with all other Sections of the A.P.H.A. Muriel F. Bliss, Ph.D., Chairman.....	104
Public Health Education Problems in the Far West Region. Howard Lundy, Dr.P.H., Chairman	106
Public Health Education Problems in the Northwestern Region. Edna A. Gerken, Chairman	107
Public Health Films. Kenneth D. Widdemer, Chairman.....	108
Evaluation of Commercial Advertising. Edna M. Keech, Chairman.....	109

Z

Zalkowski, Leo, Kahler, David, and Mullmann, Walter L., Ph.D. A City Department of Health Program on the Improvement of Mechanical Dishwashing.....	239
Zeissig, A., D.V.M., and Korns, Robert F., M.D. Dog, Fox, and Cattle Rabies in New York State	50
" " Kent A., M.D. Beginnings of a Mental Health Program in a State and Local Department of Health.....	811

